HUMAN HEALTH RISK ASSESSMENT

AND

ABBREVIATED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

FUTURE PORT OF OAKLAND FIELD SUPPORT SERVICES COMPLEX
2225 and 2277 SEVENTH STREET

OAKLAND, CALIFORNIA

October 2002

IRIS ENVIRONMENTAL

PORT OF OAKLAND

November 5, 2002

Mr. Barney Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Re: **Human Health Risk Assessment - Future Port of Oakland Field Support Services Complex - 2225 and 2277 Seventh Street, Oakland, California**

Dear Mr. Chan:

Please find enclosed for your review, the subject Port of Oakland (Port) Human Health Risk Assessment – Future Port of Oakland Field Support Services Complex report for 2225 and 2277 Seventh Street in Oakland, California. This Human Health Risk Assessment (HHRA) report is being submitted in accordance with Alameda County Health Care Services Agency (County) requirements, as outlined in our project schedule and deliverables letter dated February 25, 2002. The report was based on the data generated and collected during the Phase II Environmental Site Assessment (ESA) for the future Port Field Support Services Complex (PFSSC) performed by Iris Environmental on behalf of the Port. The Phase II ESA was submitted to the County on June 11, 2002 according to the County-approved work plan dated March 7, 2002. To facilitate the review of this HHRA, an abbreviated version of the Phase II ESA has been incorporated into the document package. The abbreviated version includes all parts of the Phase II ESA except the data tables, since copies of these tables are an integral part of the HHRA. A new figure (Figure 13) has been added to locate the future PFSSC buildings relative to soil boring locations.

The Phase II ESA was performed to address data gaps that existed in previous site investigations due to their focus on petroleum releases to the subsurface. The Phase II ESA was a comprehensive, site-wide investigation that collected media samples of soil, groundwater, and soil gas, for laboratory analysis. These media were analyzed for a range of chemical compounds, based on the site's use history. Since only the Phase II ESA data were used for health risk calculations, the enclosed package of the HHRA and the abbreviated Phase II ESA presents a comprehensive representation of site conditions.

The purpose of this risk evaluation was to determine whether the residual chemicals at the site could adversely impact human health during development and throughout the proposed future use of the site. Specifically, the report assesses the human health risks associated with possible exposures to Port employees from chemicals detected in soils, soil gas, and groundwater during the Phase II ESA. As exposure to these chemicals of potential concern could potentially occur during site development and future use of the PFSSC, the health risks associated with the development and future land use phases are both evaluated.

In preparing the HHRA, Iris Environmental used standard risk assessment techniques and regulatory assumptions recommended by the United States Environmental Protection Agency (USEPA) and the California Environmental Protection Agency (Cal/EPA), as well as conservative modeling approaches. Given the multiple conservative assumptions, the potential health risks are likely to be overestimates of actual risks that may be associated with the proposed development area.

After you review the report, we would be pleased to discuss the next steps in the redevelopment process. We would appreciate your report review and approval by the beginning of December because ground breaking for building construction is planned to start by the first of 2003. If you have any questions, please contact me at (510) 627-1134.

Sincerely,

Jeffrey L. Rubin, CPSS, REA
Associate Port Environmental Scientist
Environmental Health and Safety Compliance

Enclosure: noted

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FUTURE PORT OF OAKLAND FIELD SUPPORT SERVICES COMPLEX 2225 and 2277 SEVENTH STREET

OAKLAND, CALIFORNIA

Prepared for

Port of Oakland
Oakland, California

Prepared by

IRIS/CAMBRIA JV
1615 Broadway, Suite 1003
Oakland, California

October 2002
Job No. 01-201-B

PHASE II ENVIRONMENTAL SITE ASSESSMENT
FUTURE PORT FIELD SUPPORT SERVICES COMPLEX
2225 & 2277 SEVENTH STREET
PORT OF OAKLAND
OAKLAND, CALIFORNIA

(ABBREVIATED VERSION)

Prepared for

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Oakland, California

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Oakland, California

June 11, 2002
Job No. 01-201-B

TABLE OF CONTENTS

TABLES

FIGURES

1.0 INTRODUCTION

The joint venture of Iris Environmental and Cambria Environmental (Iris/Cambria) was retained by the Port of Oakland (the Port) to conduct a predevelopment, planning scale Phase II Environmental Site Assessment of 2225 and 2277 Seventh Streets (the Site) to support design and engineering for the Future Port Field Support Services Complex. The Site is approximately 22 acres in size and is located immediately west of Maritime Street and south of the adjacent Bay Area Rapid Transit (BART) right-of-way, on Port property in Oakland, California (Figure 1). All field activities performed for this investigation were outlined in the *Phase II Environmental Site Assessment Work Plan, 2225 and 2277 Seventh Street, Port of Oakland, Oakland, California* (Work Plan) submitted to the Alameda County Health Care Services, Division of Environmental Health, in March of 2002.

Former USTs located within the Site have been the source of petroleum hydrocarbon releases to soil and groundwater contamination and a separate phase hydrocarbon plume. Previous investigations have identified a diesel plume located in the middle portion of the Site. A product recovery system connected to extraction wells is part of ongoing mitigation efforts. The Phase II field program was configured to investigate site conditions that may impact site redevelopment and were based on known or suspected past uses identified in the *Expanded Environmental Site Assessment, Future Field Support Services Complex, Port of Oakland, Oakland,* prepared by Iris/Cambria in February 2002. The objectives for the investigation included:

- Define the lateral and vertical extent of the existing petroleum hydrocarbon plume in both soil and groundwater.
- Assess whether chemicals of concern other than petroleum hydrocarbons are present within the redevelopment area.
- Collect adequate soil, groundwater, and soil vapor data to support risk screening and potential risk assessment for redevelopment planning.

This report is organized with a description of the field program presented in Section 2, an overview of the geologic and hydrogeologic findings presented in Section 3, and results of the chemical testing presented in Section 4.

2.0 ENVIRONMENTAL FIELD PROGRAM

Subsurface data for this Phase II ESA were collected during a single sampling event conducted from March 25 through March 28, 2002. A total of 46 borings were drilled as part of the program. Soil, groundwater, and soil gas samples were collected from all, or selected borings in accordance with the work plan. Locations of borings are presented on Figure 2. During the investigation, an on-site mobile laboratory was utilized to analyze selected samples to provide real time data on sample concentrations of volatile organic compounds (VOCs) and total petroleum hydrocarbons (TPH). The sample collection locations could therefore by adjusted as necessary to refine the field investigation. A stationary laboratory was utilized for the remaining analyses. Table 1 provides a summary of all sample collection and chemical analyses conducted during the field program.

2.1 MOBILIZATION OF FIELD WORK

Various activities were conducted prior to the start of field work. The appropriate boring permits were filed with the Alameda County Department of Public Health, Water Resources Section, prior to the start of the drilling program. Each boring location was cleared for potential underground utilities by California Utility Surveys, an independent utility survey subcontractor, prior to beginning subsurface work. Underground Service Alert was notified more than 48 hours prior to beginning drilling activities. A site specific Health and Safety Plan (HASP) was prepared and distributed to on-site field personnel.

2.2 DRILLING AND SAMPLING PROCEDURES

The forty-six borings advanced in March of 2002 were drilled by Precision Sampling, Incorporated of Richmond, California, using a custom built, hydraulically powered direct-push drill rig. A geologist was present during drilling to obtain samples of subsurface materials, maintain lithologic logs of the borings, make observations of the work area conditions, conduct health and safety monitoring for possible organic vapors during drilling, and provide technical assistance as required. Soil sample collection using the direct push drill rig was conducted using the Enviro-core™ system, whereby two nested sample rods are driven into the ground. A smaller-diameter inner rod was used to obtain and retrieve the soil cores, while an outer tube served as a temporary drive casing to prevent sloughing of the formation. Soil sample collection for analytical laboratory submittal was conducted using a thirty six-inch long, 2.5-inch diameter Enviro-core™ sampling rod advanced with a hydraulically powered, direct push system. Boring logs for the forty-six soil borings advanced in March 2002 can be found in Appendix A.

Prior to mobilization of the equipment, the drill rigs, drill pipe, sampling equipment, and other associated equipment were cleaned with a high pressure steam cleaner to remove oil, grease, mud and other foreign matter. Sampling equipment was steam cleaned between each boring location to reduce the potential for cross-contamination between borings.

Investigation-derived wastes were properly contained and stored on site in a Port-designated location for subsequent disposal by a Port waste disposal subcontractor.

2.2.1 Soil Sample Collection

Between one and three soil samples were collected from each of the boring locations advanced during this investigation for laboratory analysis. Soil samples were retained within the sample barrel in pre-cleaned, six-inch, stainless steel sample tubes. Soil samples not submitted for chemical analyses were classified according to the Unified Soil Classification System, and the colors of the soils were identified using the Munsell color chart. Soil samples retained for chemical analysis were labeled, the ends covered with Teflon™ tape, fitted with plastic end caps, and sealed with silicon tape.

In general, a shallow soil sample was collected from a depth of approximately 0.5 feet below ground surface (bgs), an intermediate sample was collected from approximately 2.5 feet bgs, and a deeper sample was collected from approximately 5.5 feet bgs. Additional soil samples were collected for sample duplicates for quality control analyses. Soil samples collected from saturated materials were not submitted for chemical analyses. Sample tubes for chemical analysis were stored in iced coolers for transport under chain-of-custody protocol to STL San Francisco, Environmental Services (STL San Francisco), a California-certified laboratory located in Pleasanton, California, or to an on-site mobile laboratory operated by Mobile Chem Laboratory, a California-certified laboratory based in Lafayette, California. The analytical laboratory reports from both laboratories are contained in Appendix B of this report. A summary of the soil sample analytical program is presented in Table 1. Sampling results are discussed in Section 4.

During soil sampling, discrete soil samples were collected at depths adjacent to the soil samples collected for laboratory analysis and placed in a ½ pint mason jar for field VOC screening using a Photo Ionization Detector (PID). The soil screening methodology was as follows: the soil sample was placed in the mason jar, the jar was sealed with an aluminum foil sheet, and the sample was shaken and allowed to equilibrate at ambient temperature for approximately five to ten minutes. The sample was then screened by inserting the probe of the PID through the aluminum foil seal on the jar and into the soil sample headspace. The highest reading indicated on the instrument readout meter was recorded on the field soil-boring log. The PID was calibrated to both background conditions and 100-ppm isobutylene span gas.

2.2.2 Groundwater Sample Collection

Grab groundwater samples were collected through temporary PVC well casings set into twenty-five selected boreholes immediately after soil sample collection. The temporary wells were constructed using factory cleaned, 2-inch diameter PVC casing with machine cut slots. Each temporary well was allowed to equilibrate for a minimum of forty-five minutes prior to sampling. The upper water column was observed for evidence of free product prior to sampling. If free product thickness greater than a sheen was present, a free product sample was collected by Innovative Technical Solutions Inc. (ITSI). The groundwater samples were collected from the temporary wells using a pre-cleaned, PVC disposable bailer. Groundwater was transferred directly from the bailer into sampling containers provided by the laboratory. Samples were labeled and placed in iced coolers for transport to STL San Francisco or Mobile Chem Laboratory. A summary of the grab groundwater sample analytical program is presented in Table 1.

2.2.3 Soil Gas Sample Collection

Seventeen soil gas samples were collected from selected boring locations for chemical analyses. Soil gas was collected at a depth of approximately 4.0 feet bgs in both tedlar sample bags and Summa canisters. Each soil gas sample set was collected directly through Teflon™ tubing routed down a 1-inch diameter drill rod and connected to a sealed, retractable tip. The drill rod was advanced to approximately 4.0 feet bgs and retracted a short distance to open the tip and exposing the soil interface. A calculated volume of air was then purged from the tubing and borehole space using a vacuum pump. Tedlar bag samples were collected using a differential pressure chamber connected to the vacuum pump. The tedlar bag was placed in the chamber, connected to the sample tubing, and opened. As the chamber is evacuated and pressure dropped below ambient soil pressure levels, soil gas flowed into the bag. After filling the tedlar sample bag, the sample tubing was closed and transferred to an evacuated Summa canister for additional sampling. Samples collected in tedlar sample bags and Summa canisters were transported under chain-of-custody protocol to STL San Francisco for chemical analysis. A summary of the soil gas sample analytical program is presented in Table 1.

2.2.4 Quality Control Sample Collection

Field quality control samples were collected during the March 2002 field investigation. Quality control samples collected include: soil and grab groundwater sample duplicates, trip blanks, and field equipment blanks. All sample duplicates were collected immediately following the original sampling. Soil duplicate samples were typically collected in adjacent soil sampling tubes from the primary samples. Grab groundwater duplicate samples were collected in a second set of sample bottles. All sample duplicates were collected following standard sampling procedures. Field blanks (includes trip blanks and field equipment blanks) were collected daily. Laboratory prepared trip blanks were placed in each sample storage cooler on ice at the beginning of each sampling day and accompanied the accumulated samples to the laboratory. Field equipment blanks were collected daily by collecting deionized water after it was poured through a clean sampling barrel set up for soil sampling.

2.3 CHEMICAL ANALYSIS

Soil and groundwater samples were analyzed for a suite of chemicals selected to test for potential site impacts from previous site use, with a focus on petroleum hydrocarbons, solvents, and metals that could have an adverse impact on site redevelopment. Soil gas samples were tested for total petroleum hydrocarbons as gasoline (TPHg), VOCs, and methane, for the same reasons. In addition, soil gas samples were tested for fixed gases in accordance with Port sampling program requirements and to provide data for possible future analysis of remediation options.

Selected soil and groundwater samples were analyzed by the on-site mobile laboratory, while the remainder of the samples was submitted to the stationary laboratory. The analytical program is described in the sections below by media type. Table 1 provides a summary of all sample collection and analyses. Detailed analytical results are discussed in Section 4.0, presented in Tables 2 through 11, and shown on Figures 3 through 10 of this report. All laboratory analytical data sheets are presented in Appendix B.

2.3.1 Soil

Soil samples collected during this investigation were tested for various chemical compounds as summarized in Table 1. Soil samples from each boring were analyzed for TPH as gasoline, diesel, kerosene, and jet fuel by EPA Method 8015M, VOCs by EPA Method 8260, semivolatile organic compounds (SVOCs) by EPA Method 8270, and Title 26 Metals. Selected samples were also analyzed for organic lead by the LUFT method. Selected soil samples were tested for TPH as gasoline using EPA Method 8260 by Mobile Chem Laboratory. Soil chemical data are presented in Tables 2, 5, 8, and 10. Selected data results are presented on Figures 3, 6, and 9. Soil analytical results are discussed in Section 4.1.

2.3.2 Groundwater

Groundwater samples collected during this investigation were tested for various chemical compounds as summarized in Table 1. Groundwater samples were analyzed for TPHg, diesel (TPHd), kerosene (TPHk), jet fuel (TPHj) and motor oil (TPHmo) by EPA Method 8015M, VOCs by EPA Method 8260, SVOCs by EPA Method 8270, and organic lead by the CA LUFT Method. Groundwater chemical data are presented in Tables 3, 6, 9, and 11. Selected data results are presented on Figures 4, 7 and 10. Groundwater analytical results are discussed in Section 4.2.

2.3.3 Soil Gas

Soil gas samples collected during this investigation were tested for various chemical compounds as summarized in Table 1. Soil gas samples were analyzed for TPHg by EPA Standard Method TO-3, VOCs by EPA Method 8260, methane and fixed gases, which include oxygen, carbon monoxide, carbon dioxide, and nitrogen, by ASTM Method D1946. Soil gas data are presented in Tables 4 and 7. Data results are presented on Figures 5, 8, 11, and 12. Soil gas analytical results are discussed in Section 4.3.

2.3.4 Quality Control Sample Analysis

Field collected quality control samples were tested following an abbreviated analytical program relative to the primary samples. Soil and grab groundwater duplicate samples were analyzed according to the program presented in Table 1. Quality control duplicate analytical data are incorporated in the corresponding tables and figures as organized by analyte and matrix type. Trip blanks were analyzed for VOCs and TPHg. Equipment blanks were analyzed for a standard set of common field contaminants that include: VOCs, Title 26 Metals including Cr VI, and TPHs. Data for trip and equipment blanks are included in the original laboratory reports (Appendix B).

3.0 GEOLOGIC AND HYDROGEOLOGIC FINDINGS

3.1 SOIL

The entire Site is covered either with asphalt pavement or buildings. The asphalt pavement was typically an inch or two thick with several inches to a foot of underlying baserock. Soil materials encountered beneath the baserock consisted of various types of imported fill materials placed over Bay Mud-type soils. The Site was known to have been constructed on hydraulically placed dredge spoils, and these materials were encountered in each of the 46 borings. An additional fill material was encountered in several borings above the dredged materials. This upper fill material was a heterogeneous, interlayered mix of gravel, sand, and silt that often contained demolition debris (bricks, wood fragments, glass, and slag-like waste). This type of fill material is noted on the lithologic boring logs as [FILL]. Only one boring (MFC-24) met refusal in this upper fill material. Boring logs are presented in Appendix A.

Bay Mud was encountered at the Site at depths ranging from approximately 8.5 feet bgs, in boring MFC-13 located south of Building C-401 in the central portion of the Site to 11 feet bgs in the boring MFC-45, located near the southeastern-most property boundary. The coloration of the Bay Mud varies from olive gray to greenish gray. When Bay Mud is discernable, it is designated as [BAY MUD] in the lithologic boring logs.

3.2 GROUNDWATER

Groundwater was typically encountered during drilling activities from 4.5 bgs to 13.0 bgs. Groundwater was notably depressed in areas under the building footprints. Groundwater was not encountered at several boring locations (MFC-10, MFC-24, MFC-30, MFC-32 and MFC-42). In areas where temporary wells were installed, it was noted that the general recharge of groundwater was slow and it was often difficult to collect enough groundwater for the entire analytical bottle set. Additional information on groundwater elevations at the time of drilling is noted on the boring logs. Boring logs for locations drilled during this investigation can be found in Appendix A.

4.0 RESULTS OF CHEMICAL TESTING

The following section provides the results of the chemical testing for soil, groundwater, and soil gas samples collected on the Site during the March 2002 field investigation. During this investigation, both a mobile laboratory and a stationary laboratory were used to analyze recently collected samples. The results presented in this section summarize the findings of both laboratories. Table 1 summarizes the sample collection and analytical program. Tabular summaries of all results are presented in Tables 2 through 11. Limited compound detections from the Site are shown on Figures 3 through 12. Appendix B of this report presents laboratory data sheets for soil, groundwater, and soil gas, and all quality control samples collected during the investigation.

Quality control sample analytical results and laboratory validation results did not identify any condition that required qualification of the analytical data.

4.1 SOIL

4.1.1 Total Petroleum Hydrocarbons

One hundred thirty five soil samples collected from forty-six borings were tested for TPHd. One hundred thirty four were also analyzed for TPHg and 112 were analyzed for TPHj, TPHk, and TPHmo. Each sample was analyzed for TPHs by USEPA Method 8015M. Selected samples were analyzed for TPHg by EPA Method 8260 by the mobile laboratory. The soil sample analytical results for TPHs are presented in Tables 2 and shown on Figures 3. A complete set of the laboratory analytical reports are located in Appendix B.

TPHd was detected in 87 of 135 discrete samples. Detected concentrations of TPHd ranged from 1.0 mg/kg at boring locations MFC-12 and MFC-19 at 4.0 to 5,700 mg/kg at boring location MFC-37 at 4.5 feet bgs. TPHg was detected in 6 of 134 discrete samples. Detected concentrations of TPHg ranged from 1.7 milligrams per kilogram (mg/kg) to 310 mg/kg at boring locations MFC-04 at 5.0 feet bgs and MFC-37 at 4.5 feet bgs, respectively. TPHmo was detected in 50 of 112 discrete samples. Detected concentrations of TPHmo ranged from 51 mg/kg to 3,800 mg/kg at boring locations MFC-08 at 5.0 feet bgs and MFC-33 at 1.5 feet bgs, respectively. TPHj and TPHk were not detected in any samples collected on the Site.

4.1.2 Volatile Organic Compounds

One hundred twenty five discrete soil samples collected from the forty-six soil borings were analyzed for VOCs by USEPA Method 8260. The soil sample analytical results for VOCs are presented in Table 5 and shown on Figure 6. A complete set of the laboratory analytical reports are located in Appendix B.

Seventeen different VOCs were detected in 18 discrete soil samples. Eight of the 17 compounds detected had a single detection. Three compounds (naphthalene, toluene, and xylenes) of the 17 were detected three or more times. Of the 17 detected compounds, only naphthalene was detected at a slightly elevated concentration (15 micrograms per kilogram (μg/kg) to 240 μg/kg, in MFC-12 and MFC-37, respectively).

4.1.3 Inorganic Metals and Organic Lead

One hundred twelve discrete soil samples collected from the forty-six soil borings were tested for Title 26 metals (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc) by USEPA Methods 6010/7471. In addition, one hundred twelve discrete soil samples were analyzed for Chromium VI by USEPA Method 7196. Twelve selected soil samples were also analyzed for organic lead by the California Leaking Underground Storage Tank (LUFT) Method. Table 1 presents a complete list of soil samples analyzed for organic lead. The soil sample analytical results are presented in Table 10. A complete set of the laboratory analytical reports are located in Appendix B.

Metals were consistently detected at low levels across the site. However, lead and arsenic were generally observed at slightly elevated concentrations. Lead concentrations ranged from 1.1 mg/kg to 680 mg/kg, at MFC-14 at 2.0 bgs and MFC-08 at 2.0 bgs, respectively. Arsenic concentrations ranged from 1.0 mg/kg to 880 mg/kg at MFC-19 at 4.0 bgs and MFC-20 at 7.0 bgs, respectively. Organic lead was not detected in any soil samples collected on the Site.

4.1.4 Semivolatile Organic Compounds

Forty-six composite and two discrete soil samples collected from the forty-six soil borings were tested for SVOCs by USEPA Method 8270. The soil sample analytical results for SVOCs are presented in Table 8 and shown on Figure 9. A complete set of the laboratory analytical reports are located in Appendix B.

Eleven different SVOCs were detected in five composite soil samples. Four of the 11 detections were single occurrence detections. Four of the 11 compound detections; 2-methylnaphthalene, fluorene, naphthalene, and phenanthrene, were detected three or more times. Naphthalene was detected at three locations, two of these locations, MFC-04 and MFC-37, also had detections of naphthalene in soil samples analyzed for VOCs.

4.2 GROUNDWATER

4.2.1 Total Petroleum Hydrocarbons

Forty-seven grab groundwater samples collected from thirty-four boring locations were tested for TPHd. Forty-four groundwater samples were also analyzed for TPHg and 30 were analyzed for TPHj, TPHk, and TPHmo. All TPH analyses were performed by USEPA Method 8015M. The grab groundwater sample analytical results for TPHs are presented in Table 2 and shown on Figure 3. A complete set of the laboratory analytical reports are located in Appendix B.

TPHd was detected in 19 of 47 grab groundwater samples. Detected concentrations of TPHd ranged from 69 μg/L to 600,000 μg/L at boring locations MFC-13 and MFC-31, respectively. TPHg was detected in 11 of 44 grab groundwater samples. Detected concentrations of TPHg ranged from 94 micrograms per liter (μg/L) to 4,600 μg/L at boring locations MFC-36 and MFC-33, respectively. TPHmo was detected in 6 of 30 grab groundwater samples. Detected concentrations of TPHmo ranged from 510 μg/L to 7,100 μg/L at boring locations MFC-13 and MFC-19, respectively. TPHj and TPHk were not detected in any grab groundwater samples collected on the Site.

4.2.2 Volatile Organic Compounds

Thirty-nine grab groundwater samples collected from the thirty-six boring locations were tested for VOCs by USEPA Method 8260. The grab groundwater sample analytical results for VOCs are presented in Table 6 and shown on Figure 7. A complete set of the laboratory analytical reports are located in Appendix B.

Twenty-three different VOCs were detected in 19 grab groundwater samples. Six of the 23 detected compounds were single occurrence detections. Thirteen of the 23 detected compounds were detected three or more times, and three of these (benzene, cis-1, 2-dichloroethene, and naphthalene) were detected seven or more times.

4.2.3 Organic Lead

Thirteen grab groundwater samples collected from eleven boring locations were tested for organic lead by the LUFT Method. Table 1 presents a complete list of grab groundwater samples analyzed for organic lead. The groundwater sample analytical results are presented in Table 11. A complete set of the laboratory analytical reports are located in Appendix B.

Organic lead was not detected in any of the grab groundwater samples collected on the Site.

4.2.4 Semivolatile Organic Compounds

Fourteen grab groundwater samples collected from 12 soil boring locations were tested for SVOCs by USEPA Method 8270. The grab groundwater sample analytical results for SVOCs are presented in Tables 9 and shown on Figure 10. A complete set of the laboratory analytical reports are located in Appendix B.

Five different SVOCs were detected in six grab groundwater samples. One of the five compounds detected was a single occurrence detection. The other four compounds were detected five or more times. Naphthalene was detected at four locations; all of these locations also had detections of naphthalene in grab groundwater samples analyzed for VOCs.

4.3 SOIL GAS

4.3.1 Total Petroleum Hydrocarbons

Twenty-three soil gas samples collected from 23 boring locations were analyzed for TPHg by USEPA Method TO-3. The soil gas sample analytical results for TPHg are presented in Table 4 and shown on Figures 5 and 11. A complete set of the laboratory analytical reports are located in Appendix B.

TPHg were detected in 16 of the 23 soil gas samples. Detected concentrations of TPHg ranged from 6.9 parts per million by volume (ppmv) to 28,000 ppmv at boring locations MFC-45 and MFC-16, respectively. As shown on Figure 11, TPHg in soil gas was detected at locations beyond the estimated extent of the free product plume (ITSI, 2002), however the pattern of TPH detection in soil gas generally follows the approximate shape of the free product plume.

4.3.2 Volatile Organic Compounds

All 23 soil gas samples were tested for VOCs by USEPA Method 8260. The soil gas sample analytical results for VOCs are presented in Table 7 and shown on Figure 8. A complete set of the laboratory analytical reports are located in Appendix B.

Fourteen different VOCs were detected in 11 soil gas samples. Nine of the 14 detected compounds were single occurrence detections. Two of the 14 detected compounds (benzene and xylenes), were detected three or more times, and benzene was detected seven times at concentrations ranging from 0.5 μg/L to 170 μg/L at MFC-35 and MFC-16, respectively.

4.3.3 Methane

All twenty-three soil gas samples were tested for Methane by ASTM Method D1946. The soil gas sample analytical results for methane are presented in Table 4 and shown on Figure 12. A complete set of the laboratory analytical reports are located in Appendix B. Methane was detected in 16 of 23 soil gas samples, at concentrations ranging from 0.0007 percent by volume (%v) to 78%v at boring locations MFC-05 and MFC-29, respectively.

As shown on Figure 12, of methane was detected in soil gas samples collected from locations beyond the estimated extent of the free product plume (ITSI 2002). Nearly all of the free product plume area corresponds to areas with detected levels of methane greater than 5%. The lower explosive limit and upper explosive limit of methane in free air are 5% and 15%, respectively. Concentrations of methane in soil gas typically will evolve during underground construction, as soil is exposed to the atmosphere. The presence of methane in the subsurface should be considered during the planning stages for site redevelopment.

4.3.4 Fixed Gases

All twenty-three soil gas samples were tested for Fixed Gases (carbon dioxide, carbon monoxide, nitrogen, and oxygen) by ASTM Method D1946. The soil gas sample analytical results for Fixed Gases are presented in Table 4 and shown on Figure 5. A complete set of the laboratory analytical reports are located in Appendix B.

Carbon dioxide concentrations ranged from 0.039%v to 17%v at MFC-23 and MFC-18, respectively. Nitrogen concentrations ranged from 15%v to 92%v at MFC-17 and MFC-01, respectively. Oxygen concentrations ranged from 0.35%v at MFC-18 to 22%v at MFC-23 and MFC-38, respectively. Carbon monoxide was not detected in any soil gas samples collected on the Site.

As shown on Figure 5, detections concentrations of carbon dioxide in soil gas decreased in the area of the free phase hydrocarbon plume where free phase hydrocarbon thickness increased. Alternatively, the detected concentrations of oxygen in soil gas were highest in samples collected from the same locations. This pattern suggests that the vadose zone is in an aerobic state where free phase hydrocarbon thickness is greatest. The vadose zone is increasingly anaerobic on the fringes of the plume.

5.0 NATURE AND EXTENT OF CHEMICAL IMPACTS

Results of the soil, groundwater, and soil gas sampling conducted for this program identified a pattern of chemical impacts that are consistent with past site use and known petroleum hydrocarbon releases from USTs. Free product distribution patterns characterized by ITSI (2002) and included on Figures 11 and 12, are consistent with gradient-driven groundwater transport of separate-phase petroleum hydrocarbon releases from known UST locations. Distributions of TPHg in soil gas, TPHg and TPHd in groundwater, and TPHd and TPHmo in soil suggest a broader pattern of petroleum hydrocarbon releases or migration than is evidenced by the free product distribution pattern. This broader pattern may be the result of fluctuating groundwater flow directions and elevation over time that expanded the distribution of dissolved phase hydrocarbons beyond the free product plume area.

Low level concentrations and inconsistent distributions of VOCs and SVOCs observed in the sampling results did not identify a clear source area for the detected chemicals. The areal extent of VOC and SVOC detections in soil and groundwater samples does coincide roughly with the TPH detection pattern in soil and groundwater, although no systematic area of elevated concentrations was identified.

TPHg and methane detections in soil gas were relatively consistent to the pattern of free product. Soil gas patterns followed the observed deflection of the free product plume westward along the southern edge of Building C-401, suggesting that geologic and possibly building foundation controls have an effect on chemical migration in this area.

6.0 SUMMARY

Data collected during the Phase II Environmental Site Assessment indicate the Site is impacted from past use, primarily from elevated concentrations of petroleum hydrocarbons in shallow subsurface soils, groundwater and soil gas. Detected concentrations of petroleum hydrocarbons on the Site were found in areas that extended beyond previously known areas of impact. Limited detections of VOCs and SVOCs in soil and groundwater, metals in soil, and methane in soil gas are potential concerns for site redevelopment. Considering that the sampling locations and chemical analyses performed on samples were selected based on the findings of the Phase I ESA, the occurrence and levels of chemical concentrations in the samples are consistent with the anticipated conditions. A site specific, human health risk assessment should be conducted to identify which chemicals and related concentrations may require consideration for redevelopment and building design.

7.0 REFERENCES

HARDING ESE. 2001. *Third Quarter 2001 Quarterly Groundwater Monitoring and Product Recovery Report, 2277 and 2225 Seventh Street, Oakland, California.* November 15

IRIS ENVIRONMENTAL. 2002. *Expanded Environmental Site Assessment, Future Field Support Services Complex, Port of Oakland, Oakland, California.* February 19.

IRIS ENVIRONMENTAL. 2002. Phase II Environmental Site Assessment Work Plan, 2225 and 2277 Seventh Street, Port of Oakland, Oakland, California. March.

ITSI. 2002. *Additional Site Characterization and Remedial Action Plan for 2225 and 2277 Seventh Street, Oakland, California.* May.

TABLE 1: SUMMARY OF SOIL, GROUNDWATER, AND SOIL GAS SAMPLING AND ANALYTICAL TESTING
Phase II Environmental Site Assessment
Future Field Services Support Center - Port of Oakland
Oakland, California

Sample Region	Sample Location	Sample Depths [2]	Sample Date	Summary of Soil Analyses [1]: TVH	TEH [11]	VOCs [3]	SVOCs [7]	Metals	BTEX [7]	Organic Lead	Summary of Groundwater Analyses [1]: TVH	TEH [11]	VOCs	SVOCs	Organic Lead	Summary of Soil Gas Analyses [1,6]: TPHg	VOCs	Methane	Fixed Gases
2277 7th Street																			
	MFC-01	1.0, 2.0, 4.0	3/27/02	X	X	X	X	X	X		X	X	X			X	X	X	X
	MFC-02	1.5, 4.5, 5.5	3/27/02	X	X	X	X	X	X		X	X	X						
	MFC-03	1.5, 4.5, 7.5	3/27/02	X	X	X	X	X			X	X	X			X	X	X	X
	MFC-04	5.0, 8.5, 11.0	3/26/02	X	X	X	X	X			X	X	X						
	MFC-05	5.0, 8.0, 11.0	3/26/02	X	X	X	X	X	X		X	X	X			X	X	X	X
	MFC-06	5.0, 8.5, 9.0 [8]	3/26/02	X/O	X/O	X/O	X	X	X	X [9]	O	X/O	O	X	X				
	MFC-07	3.0, 5.0, 5.5 [8], 8.5, 9.0 [8]	3/26/02	X/O	X/O	X/O	X	X	X	X [9]	O	X/O	O	X		X	X	X	X
	MFC-08	2.0, 5.0, 5.5 [8], 8.0 [8]	3/26/02	X/O	X/O	X/O	X	X	X	X [9]	O	X/O	O	X	X				
	MFC-09	2.0, 5.0, 5.5 [8]	3/26/02	X/O	X/O	X/O	X	X	X	X [9]	O	X/O	O	X	X				
	MFC-10	1.5, 5.0	3/27/02	X	X	X	X	X	X							X	X	X	X
	MFC-11	1.5, 4.0	3/27/02	X	X	X	X	X	X		O	X/O	O						
	MFC-12	1.5, 4.0	3/26/02	X	X	X	X	X	X		X	X	X	X	X				
	MFC-13	1.5, 3.0	3/27/02	X	X	X	X	X	X		X	X	X			X	X	X	X
	MFC-14	1.5, 3.0, 4.0	3/25/02	X	X	X	X	X	X	X [9]	X	X	X	X [10]	X [10]	X	X	X	X
	MFC-15	1.5, 3.0, 4.5 [10]	3/26/02	X	X	X	X	X	X	X [9]	X	X	X	X	X	X	X	X	X
	MFC-16	1.5, 4.0	3/25/02	X	X	X	X	X	X	X [9]						X	X	X	X
	MFC-17	1.5, 4.5	3/26/02	X	X	X	X	X	X		X	X	X			X	X	X	X
	MFC-18	1.5, 3.0, 4.5	3/25/02	X	X	X	X	X	X	X [9]	X	X	X	X	X	X	X	X	X
	MFC-19	1.0, 2.0, 4.0	3/25/02	X	X	X	X	X	X	X [9]	X	X	X	X	X	X	X	X	X
2225 7th Street																			
	MFC-20	4.0, 7.0, 14.0 [8]	3/27/02	X/O	X/O	X/O	X	X			O	O	O						
	MFC-21	1.5 [10], 4.5, 8.0	3/28/02	X	X	X	X	X	X				X						
	MFC-22	1.5, 4.5, 7.5	3/28/02	X	X	X	X	X	X										
	MFC-23	1.5, 5.5, 8.0	3/28/02	X	X	X	X	X	X		X	X	X			X	X	X	X
	MFC-24	1.5, 4.0, 4.5 [8]	3/27/02	X/O	X/O	X/O	X	X	X										
	MFC-25	1.0 [10], 4.5, 1.0 [8], 7.5 [8]	3/28/02	X/O	X/O	X/O	X [12]	X	X		O	X/O	O						
	MFC-26	1.5, 5.0, 7.5	3/27/02	X	X	X	X	X	X		X	X	X						
	MFC-27	1.5, 4.5, 5.5 [8]	3/27/02	X/O	X/O	X/O	X	X	X		O	X/O	O						
	MFC-28	1.0, 5.0	3/27/02	X	X	X	X	X	X		X		X			X	X	X	X
	MFC-29	1.0, 4.5 [10], 5.5 [8]	3/26/02	X/O	X/O	X/O	X	X	X							X	X	X	X
	MFC-30	1.5, 4.5 [8]	3/27/02	X/O	X/O	O	X	X	X										
	MFC-31	1.5, 3.0, 4.5, 5.0 [8]	3/25/02	X/O	X/O	X/O	X	X	X	X [9]	X/O	X [5]/O	X/O	X [5]	X [5]	X	X	X	X
	MFC-32	1.5	3/26/02	X	X		X [12]	X	X										
	MFC-33	1.5, 3.0, 5.0, 5.5 [8]	3/25/02	X/O	X	X/O	X	X	X		X/O	X/O	X/O			X	X	X	X

TABLE 1: SUMMARY OF SOIL, GROUNDWATER, AND SOIL GAS SAMPLING AND ANALYTICAL TESTING
Phase II Environmental Site Assessment
Future Field Services Support Center - Port of Oakland
Oakland, California

				Summary of Soil Analyses $^{(1)}$							Summary of Groundwater Analyses $^{(1)}$					Summary of Soil Gas Analyses $^{(1,6)}$			
Sample Region	Sample Location	Sample Depths $^{(2)}$	Sample Date	TVH	TEH $^{(11)}$	VOCs $^{(3)}$	SVOCs $^{(7)}$	Metals	BTEX $^{(7)}$	Organic Lead	TVH	TEH $^{(11)}$	VOCs	SVOCs	Organic Lead	TPHg	VOCs	Methane	Fixed Gases
2225 7th Street (Contined)																			
	MFC-34	1.5, 3.0, 5.5, 6.0 $^{(8)}$	3/26/02	X/O	X/O	X/O	X	X	X		X	X	X						
	MFC-35	1.0, 2.0, 5.0, 5.5 $^{(8)}$	3/25/02	X/O	X	X/O	X	X	X	X $^{(9)}$	X/O	X/O	X/O	X	X	X	X	X	X
	MFC-36	1.5$^{(10)}$, 4.5	3/28/02	X	X	X	X	X	X		X	X	X			X	X	X	X
	MFC-37	1.5, 4.5, 5.0	3/25/02	X/O	X	X/O	X	X	X	X $^{(9)}$	O	O	O	X	X	X	X	X	X
	MFC-38	1.0, 2.5, 5.0, 5.5 $^{(8)}$	3/26/02	X/O	X/O	X/O	X	X	X		O	O	O			X	X	X	X
	MFC-39	1.5	3/26/02	X	X		X $^{(12)}$	X	X		O	X/O	O						
	MFC-40	1.5, 3.0, 4.5, 5.0 $^{(8)}$	3/26/02	X/O	X/O	X/O	X	X	X		O	X/O	O						
	MFC-41	1.5, 2.5, 4.0, 4.5 $^{(8)}$	3/26/02	X/O	X/O	X/O	X	X	X		O	X/O	O			X	X	X	X
	MFC-42 $^{(13)}$																		
	MFC-43	1.5, 4.5	3/28/02	X	X	X	X	X	X										
	MFC-44	1.5, 4.5, 5.0 $^{(8)}$	3/26/02	X/O	X/O	X/O	X	X	X		O	X/O	O						
	MFC-45	1.5, 4.5	3/28/02	X	X	X	X	X	X		O	X/O	O			X	X	X	X
	MFC-46	4.0, 7.0, 7.5 $^{(8)}$	3/27/02	X/O	X/O	X/O	X	X											

Notes:

X = analyzed by STL San Francisco

O = analyzed by Mobile Chem Labs

(1) "TVH" indicates Total Volatile Hydrocarbons as gasoline by EPA Method 8015 modified for both soil and groundwater samples. Soil gas samples were analyzed by EPA Method TO-3.

"TEH" indicates Total Extractable Hydrocarbons as diesel, jet fuel, kerosene, and motor oil,by EPA Method 8015 modified.

Samples were treated with a silica gel column clean-up prior to analysis.

"VOCs" indicates halogenated volatile compounds by EPA Method 8260. Compound lists from Mobile Chem Lab and STL San Francisco differ.

"BTEX" indicates benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020.

"SVOCs" indicates semi-volatile organic compounds by EPA Method 8270.

"Metals" indicates Title 26 Metals (Ag, As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Ti, V, Zn) by EPA Method 6010/6020/7471 and Cr VI by EPA Method 7196A.

"Organic Lead" indicates organic lead (OL) by CA Leaking Underground Storage Tank (LUFT) Method

"Methane" indicates methane by ASTM Method D1946.

"Fixed Gases" indicates fixed gases (carbon dioxide, oxygen, and nitrogen) by ASTM Method D1946.

(2) Soil samples are collected in six-inch tubes beginning with depth indicated.

(3) Shallow soil samples (1 foot or less) were not tested for VOCs since it is unlikely that these compounds persist in surface soils because of their volatile nature.

(4) Samples from this boring location were composited into one sample for this analysis.

(5) These analysis were repeated on samples taken on 03/28/02.

(6) All soil gas samples were collected from a depth of approximately 4.0 ' bgs.

(7) Shallow samples not analyzed for VOCs were instead analyzed for BTEX compounds only.

(8) Sample was analyzed on site in a mobile laboratory.

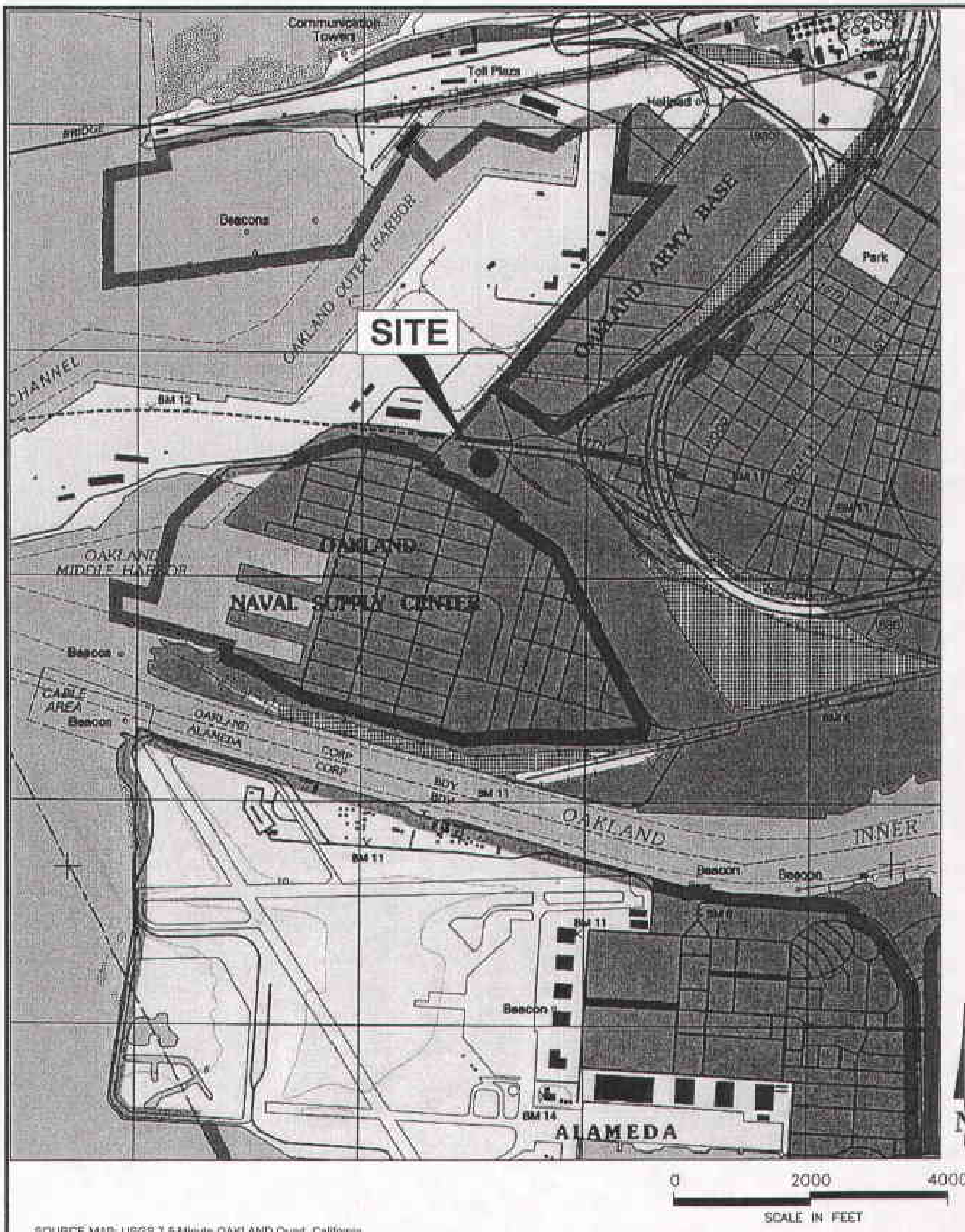
(9) Organic Lead was analyzed in only the deepest of the soil samples collected at each location.

(10) An adjacent six-inch tube was collected as a duplicate soil sample at the depth indicated.

(11) Mobile Chem Lab samples only analyzed for Total Extractable Hydrocarbons (TEH) in the diesel range.

(12) The samples at this location were not composited for SVOC analysis.

(13) No samples were collected at this location due the limited depth of the boring.

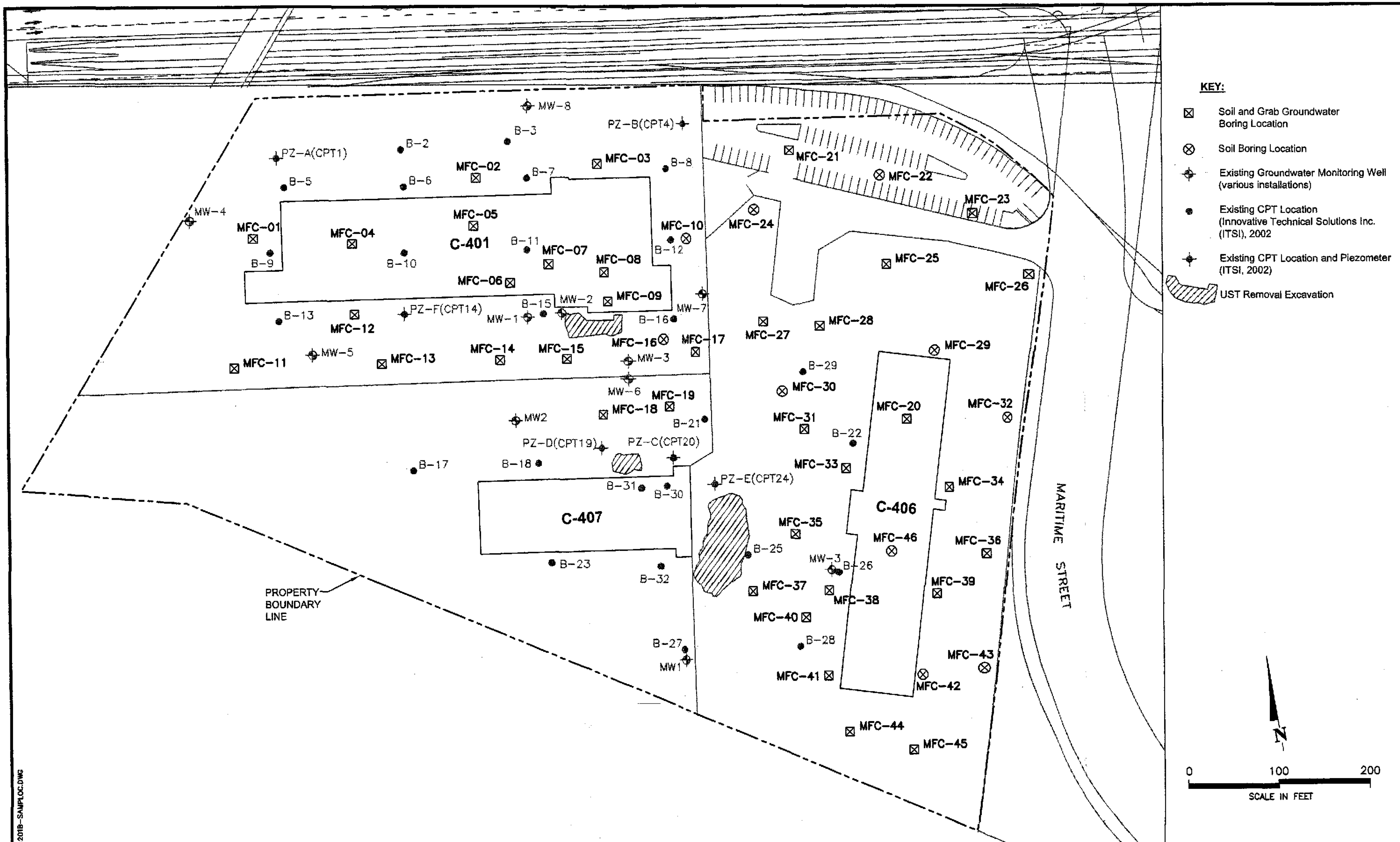


SOURCE MAP: USGS 7.5 Minute OAKLAND Quad, California.

01201A-VICMAP.DWG

IRIS ENVIRONMENTAL 1615 Broadway, Suite 1003, Oakland, California 94612	**Site Location Map** Future Port Field Support Services Complex Oakland, California	Figure **1**

Drafter: MS | Date: 1/13/02 | Contract Number: 01-201A | Approved: | Revised:

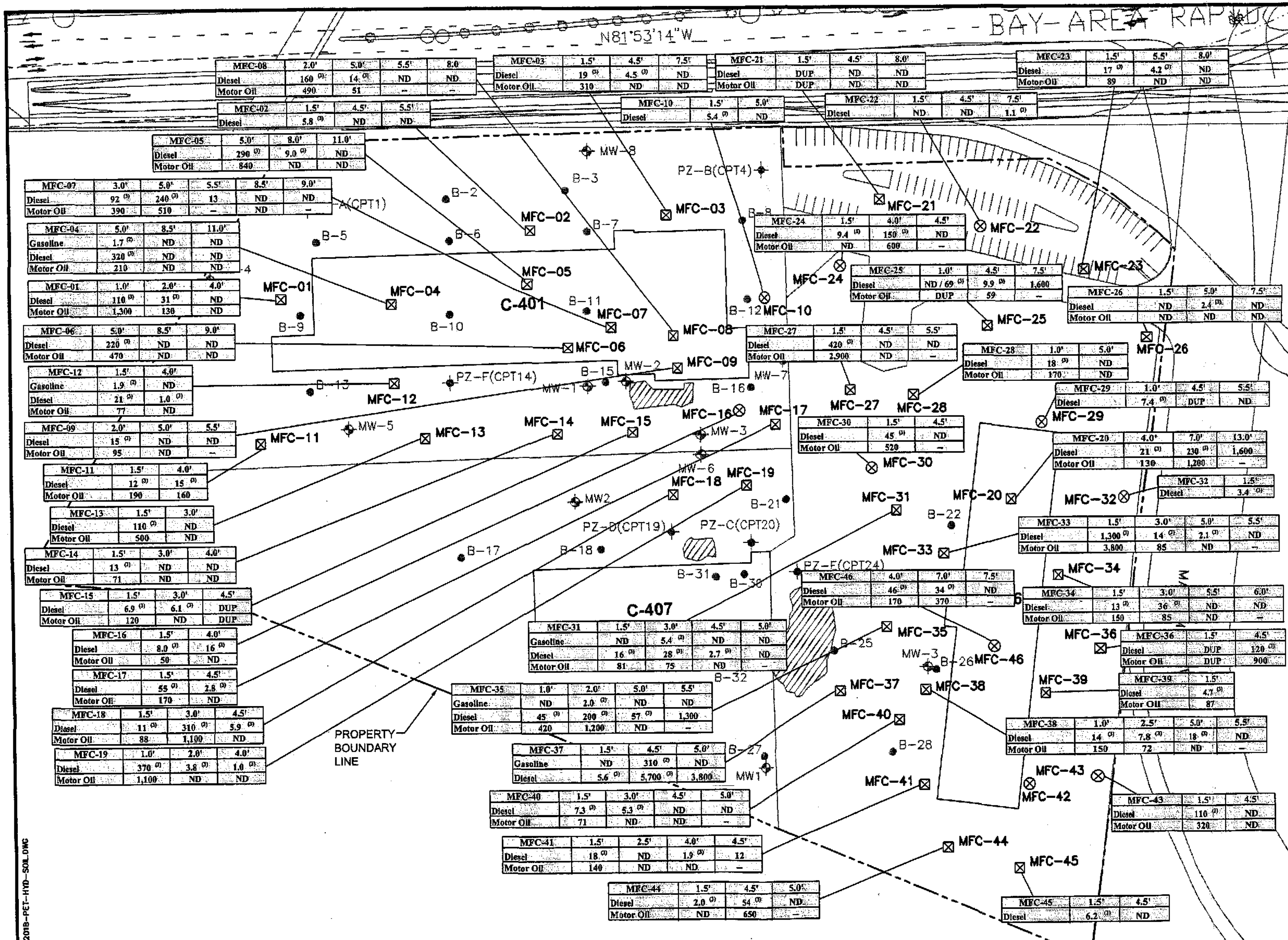


IRIS ENVIRONMENTAL
1615 Broadway, Suite 1003, Oakland, California 94612

Sampling Locations and Site Layout
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure
2

Drafter: MAS	Date: 4/3/02	Contract Number: 01-201B	Approved:	Revised:



MFC-01	1.0'	2.0'	4.0'
Diesel	110 (3)	31 (3)	ND
Motor Oil	1,300	130	ND

MFC-02	1.5'	4.5'	5.5'
Diesel	5.8 (3)	ND	ND

MFC-03	1.5'	4.5'	7.5'
Diesel	19 (3)	4.5 (3)	ND
Motor Oil	310	ND	ND

MFC-04	5.0'	8.5'	11.0'
Gasoline	1.7 (2)	ND	ND
Diesel	320 (3)	ND	ND
Motor Oil	210	ND	ND

MFC-05	5.0'	8.0'	11.0'
Diesel	290 (3)	9.0 (3)	ND
Motor Oil	840	ND	ND

MFC-06	5.0'	8.5'	9.0'
Diesel	220 (3)	ND	ND
Motor Oil	470	ND	ND

MFC-07	3.0'	5.0'	5.5'	8.5'	9.0'
Diesel	92 (3)	240 (3)	13	ND	ND
Motor Oil	390	510	–	ND	–

MFC-08	2.0'	5.0'	5.5'	8.0'
Diesel	160 (3)	14 (3)	ND	ND
Motor Oil	490	51	–	–

MFC-09	2.0'	5.0'	5.5'
Diesel	15 (3)	ND	ND
Motor Oil	95	ND	–

MFC-10	1.5'	5.0'
Diesel	5.4 (3)	ND

MFC-11	1.5'	4.0'
Diesel	12 (3)	15 (3)
Motor Oil	190	160

MFC-12	1.5'	4.0'
Gasoline	1.9 (2)	ND
Diesel	21 (3)	1.0 (3)
Motor Oil	77	ND

MFC-13	1.5'	3.0'
Diesel	110 (3)	ND
Motor Oil	500	ND

MFC-14	1.5'	3.0'	4.0'
Diesel	13 (3)	ND	ND
Motor Oil	71	ND	ND

MFC-15	1.5'	3.0'	4.5'
Diesel	6.9 (3)	6.1 (3)	DUP
Motor Oil	120	ND	DUP

MFC-16	1.5'	4.0'
Diesel	8.0 (3)	16 (3)
Motor Oil	50	ND

MFC-17	1.5'	4.5'
Diesel	55 (3)	2.8 (3)
Motor Oil	170	ND

MFC-18	1.5'	3.0'	4.5'
Diesel	11 (3)	310 (3)	5.9 (3)
Motor Oil	88	1,100	ND

MFC-19	1.0'	2.0'	4.0'
Diesel	370 (3)	3.8 (3)	1.0 (3)
Motor Oil	1,100	ND	ND

MFC-20	4.0'	7.0'	13.0'
Diesel	21 (3)	230 (3)	1,600
Motor Oil	130	1,200	–

MFC-21	1.5'	4.5'	8.0'
Diesel	DUP	ND	ND
Motor Oil	DUP	ND	ND

MFC-22	1.5'	4.5'	7.5'
Diesel	ND	ND	1.1 (3)

MFC-23	1.5'	5.5'	8.0'
Diesel	17 (3)	4.2 (3)	ND
Motor Oil	89	ND	ND

MFC-24	1.5'	4.0'	4.5'
Diesel	9.4 (3)	150 (3)	ND
Motor Oil	ND	600	–

MFC-25	1.0'	4.5'	7.5'
Diesel	ND / 69 (3)	9.9 (3)	1,600
Motor Oil	DUP	59	–

MFC-26	1.5'	5.0'	7.5'
Diesel	ND	2.4 (3)	ND
Motor Oil	ND	ND	ND

MFC-27	1.5'	4.5'	5.5'
Diesel	420 (3)	ND	ND
Motor Oil	2,900	ND	–

MFC-28	1.0'	5.0'
Diesel	18 (3)	ND
Motor Oil	170	ND

MFC-29	1.0'	4.5'	5.5'
Diesel	7.4 (3)	DUP	ND

MFC-30	1.5'	4.5'
Diesel	45 (3)	ND
Motor Oil	520	–

MFC-31	1.5'	3.0'	4.5'	5.0'
Gasoline	ND	5.4 (2)	ND	ND
Diesel	16 (3)	28 (3)	2.7 (3)	ND
Motor Oil	81	75	ND	–

MFC-32	1.5'
Diesel	3.4 (3)

MFC-33	1.5'	3.0'	5.0'	5.5'
Diesel	1,300 (3)	14 (3)	2.1 (3)	ND
Motor Oil	3,800	85	ND	–

MFC-34	1.5'	3.0'	5.5'	6.0'
Diesel	13 (3)	36 (3)	ND	ND
Motor Oil	150	85	ND	–

MFC-35	1.0'	2.0'	5.0'	5.5'
Gasoline	ND	2.0 (2)	ND	ND
Diesel	45 (3)	200 (3)	57 (3)	1,300
Motor Oil	420	1,200	ND	–

MFC-36	1.5'	4.5'
Diesel	DUP	120 (3)
Motor Oil	DUP	900

MFC-37	1.5'	4.5'	5.0'
Gasoline	ND	310 (2)	ND
Diesel	5.6 (3)	5,700 (3)	3,800

MFC-38	1.0'	2.5'	5.0'	5.5'
Diesel	14 (3)	7.8 (3)	18 (3)	ND
Motor Oil	150	72	ND	–

MFC-39	1.5'
Diesel	4.7 (3)
Motor Oil	87

MFC-40	1.5'	3.0'	4.5'	5.0'
Diesel	7.3 (3)	5.3 (3)	ND	ND
Motor Oil	71	ND	ND	–

MFC-41	1.5'	2.5'	4.0'	4.5'
Diesel	18 (3)	ND	1.9 (3)	12
Motor Oil	140	ND	ND	–

MFC-43	1.5'	4.5'
Diesel	116 (3)	ND
Motor Oil	320	ND

MFC-44	1.5'	4.5'	5.0'
Diesel	2.0 (3)	54 (3)	ND
Motor Oil	ND	650	–

MFC-45	1.5'	4.5'
Diesel	6.2 (3)	ND

MFC-46	4.0'	7.0'	7.5'
Diesel	46 (3)	34 (3)	ND
Motor Oil	170	370	–

KEY:

- ⊠ Soil and Grab Groundwater Boring Location
- ⊗ Soil Boring Location
- Existing Groundwater Monitoring Well (various installations)
- Existing CPT Location (Innovative Technical Solutions Inc. (ITSI), 2002
- Existing CPT Location and Piezometer (ITSI, 2002)
- UST Removal Excavation

Sample Location — Collection Depth — Hydrocarbon Range — Concentration in mg/kg

MFC-32	1.5'
Diesel	3.4 (3)

NOTES:

(1) Soil chemical concentrations in milligrams per kilogram (mg/kg) unless otherwise indicated.
(2) Hydrocarbon does not match the pattern of laboratory gasoline standard
(3) Hydrocarbon does not match the pattern of laboratory diesel standard.
(4) ND = Not Detected; – = Not Analyzed
(5) Detections in soil samples shown for Total Petroleum Hydrocarbons (TPHs) in the gasoline, diesel, and motor oil ranges by EPA Method 8015M .
(6) Soil Samples collected in six-inch tubes beginning with the depth indicated during the field investigation from 3/25/02 to 3/28/02.

N

0 100 200
SCALE IN FEET

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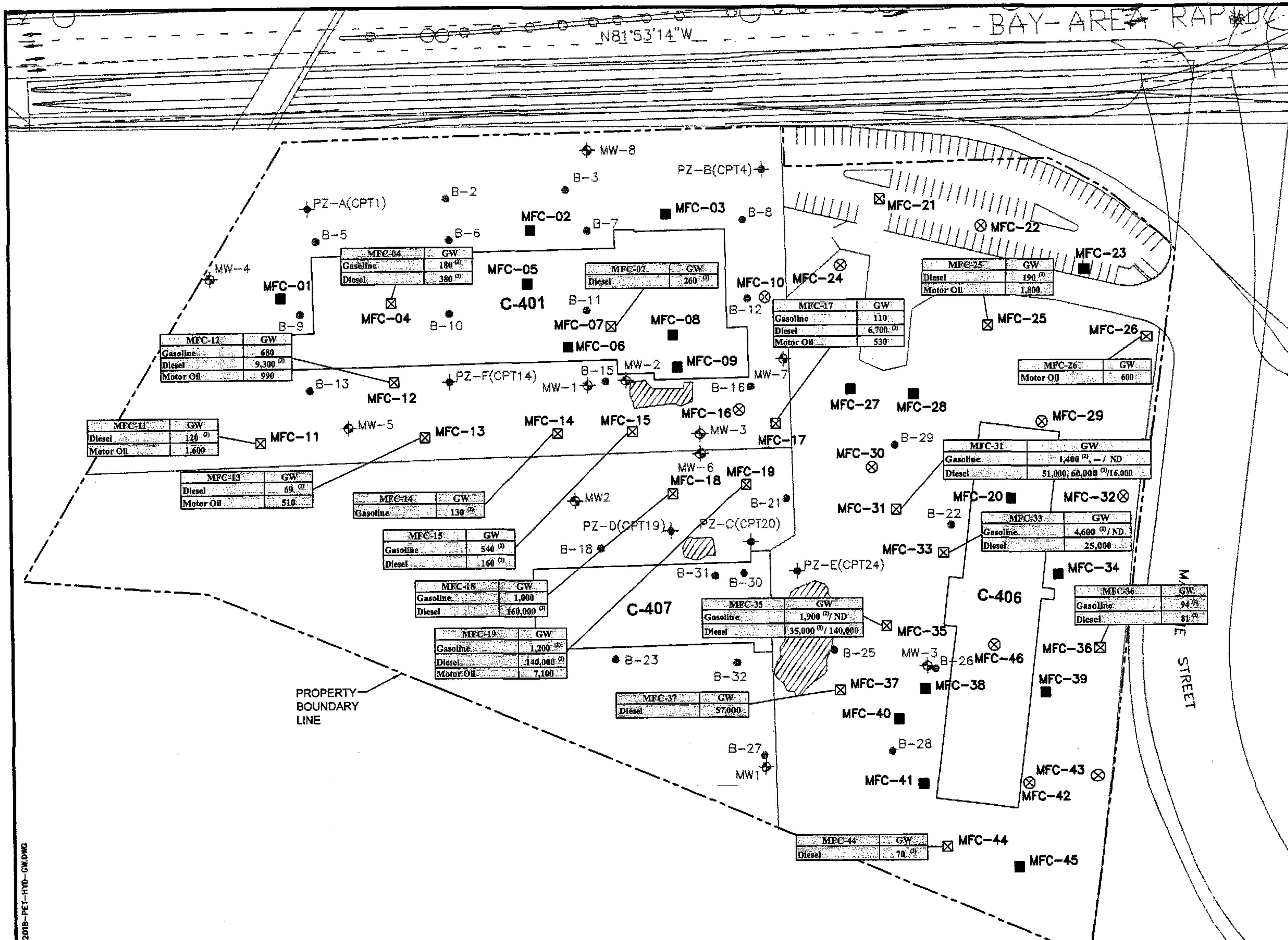
TOTAL PETROLEUM HYDROCARBON (TPH) DETECTIONS IN SOIL
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure
3

Drafter: MAS | Date: 6/2/02 | Contract Number: 01-201B | Approved: | Revised:



KEY:

- ☒ Soil and Grab Groundwater Boring
- ⊗ Soil Boring
- ■ or ● Location Sampled But No Compounds Detected
- Existing Groundwater Monitoring Well (various installations)
- Existing CPT Location (Innovative Technical Solutions Inc. (ITSI), 2002
- Existing CPT Location and Piezometer (*ITSI, 2002*)
- UST Removal Excavation

Sample Location — Sample Matrix — Hydrocarbon Range — Concentration in µg/L

MFC-33	GW
Gasoline	4,600 (2)

NOTES:

(1) Groundwater chemical concentrations in micrograms per liter (µg/L) unless otherwise indicated.
(2) Hydrocarbon does not match the pattern of laboratory gasoline standard
(3) Hydrocarbon does not match the pattern of laboratory diesel standard.
(4) Detections in grab groundwater samples shown for Total Petroleum Hydrocarbons (TPHs) in the gasoline, diesel and motor oil ranges by EPA Method 8015M .
(5) GW = Grab groundwater sample
(6) Grab groundwater samples collected during field investigation from 3/25/02 to 3/28/02.

MFC-31	GW
Gasoline	1,400 (2), -- / ND
Diesel	51,000, 60,000 (3) / 16,000

Data from STL San Francisco from samples taken on 3/25/02, 3/28/02

Data from Mobile Chem Lab from samples taken on 3/28/02

N

0 100 200

SCALE IN FEET

IRIS ENVIRONMENTAL

1615 Broadway, Suite 1003, Oakland, California 94612

TOTAL PETROLEUM HYDROCARBON (TPH) DETECTIONS IN GROUNDWATER

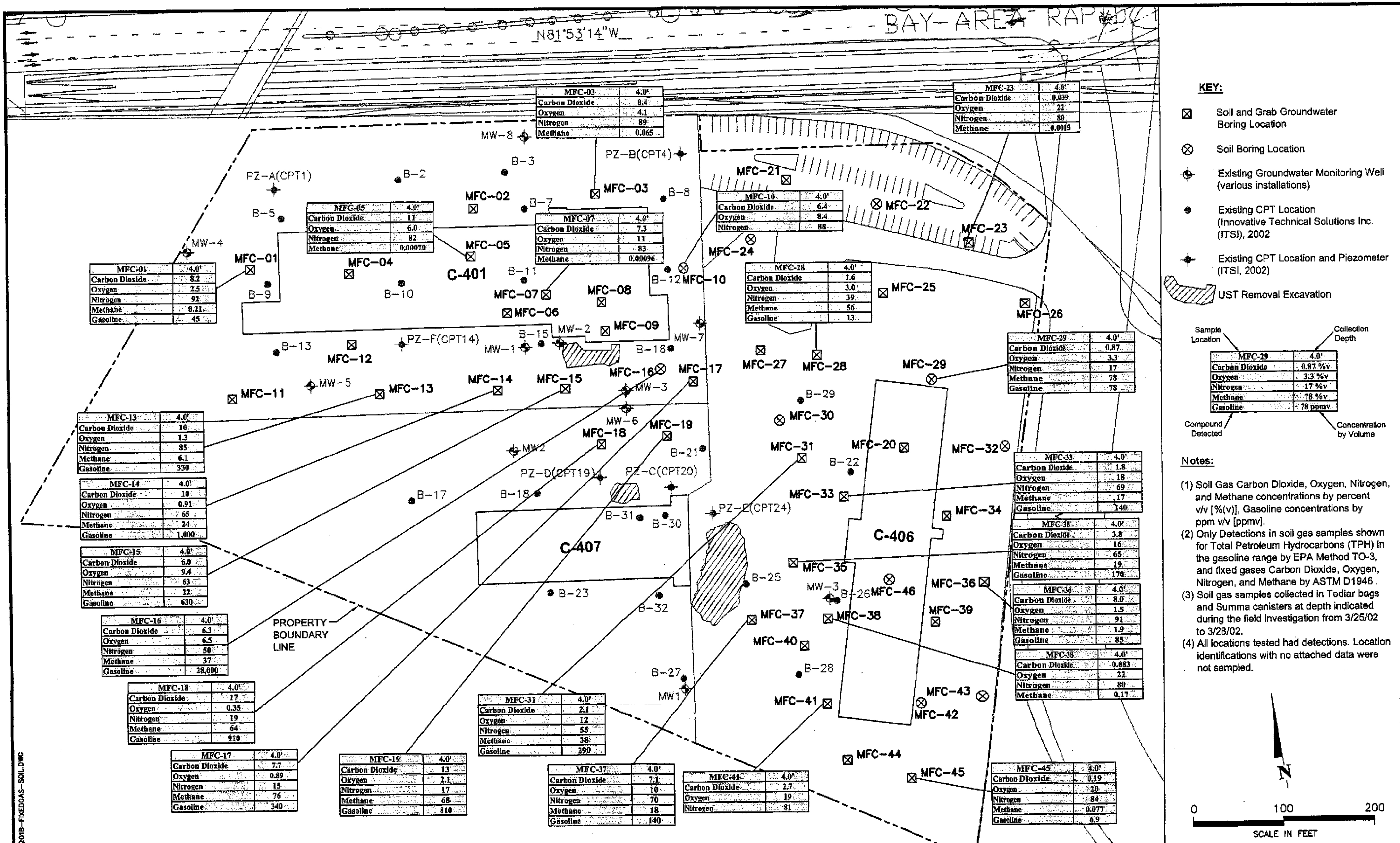
Port of Oakland Future Port Field Support Services Complex

2225 and 2277 7th Street

Oakland, California

Figure **4**

Drafter: MAS | Date: 5/20/02 | Contract Number: 01-201B | Approved: | Revised:



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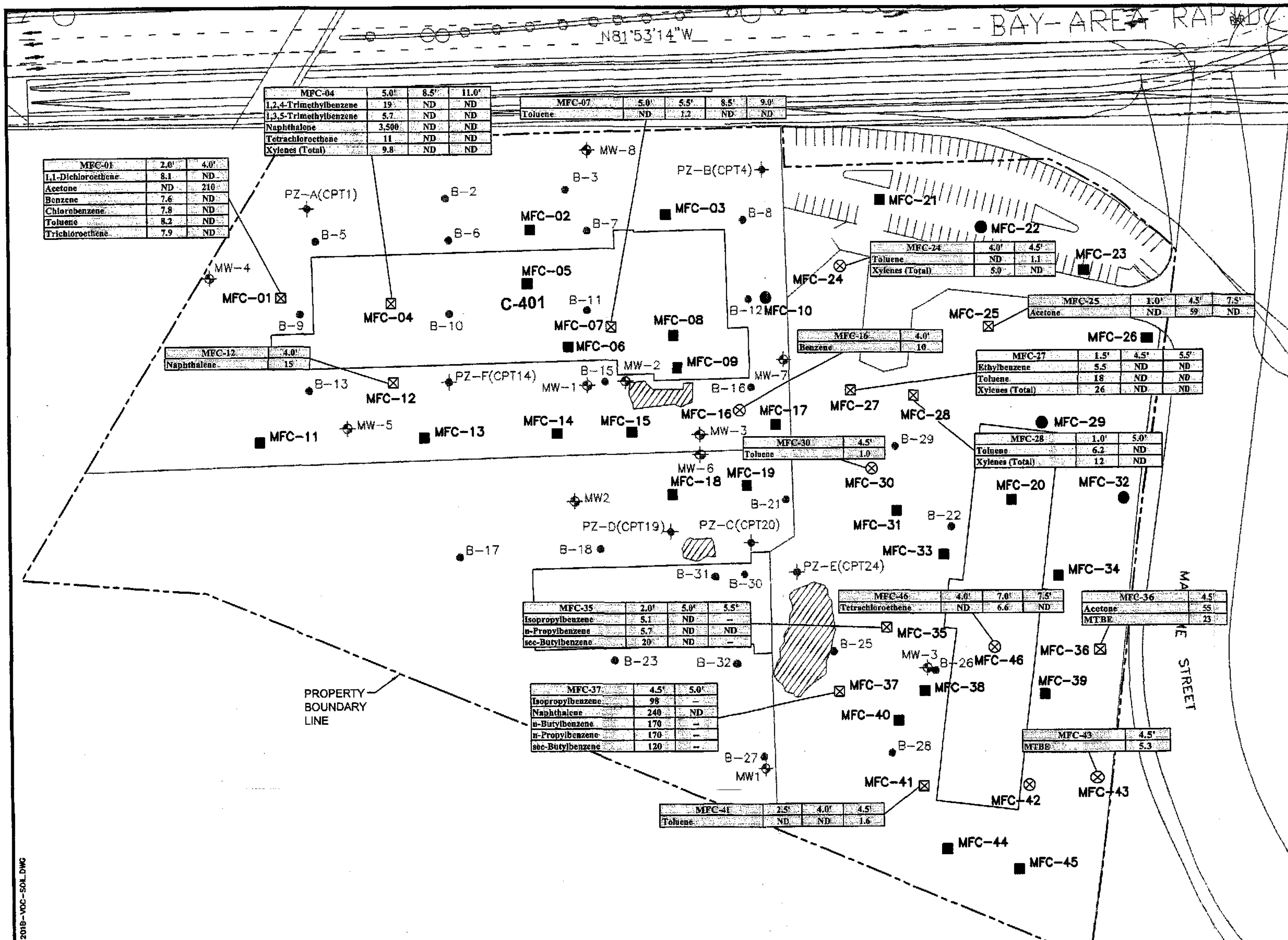
TOTAL PETROLEUM HYDROCARBONS (TPHs) IN SOIL GAS
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure 5

Drafter: MAS | Date: 6/3/02 | Contract Number: 01-201B | Approved: | Revised:



MFC-01	2.0'	4.0'
1,1-Dichloroethene	8.1	ND
Acetone	ND	210
Benzene	7.6	ND
Chlorobenzene	7.8	ND
Toluene	8.2	ND
Trichloroethene	7.9	ND

MFC-04	5.0'	8.5'	11.0'
1,2,4-Trimethylbenzene	19	ND	ND
1,3,5-Trimethylbenzene	5.7	ND	ND
Naphthalone	3,500	ND	ND
Tetrachloroethene	11	ND	ND
Xylenes (Total)	9.8	ND	ND

MFC-07	5.0'	5.5'	8.5'	9.0'
Toluene	ND	1.2	ND	ND

MFC-12	4.0'
Naphthalene	15

MFC-16	4.0'
Benzene	10

MFC-24	4.0'	4.5'
Toluene	ND	1.1
Xylenes (Total)	5.0	ND

MFC-25	1.0'	4.5'	7.5'
Acetone	ND	59	ND

MFC-27	1.5'	4.5'	5.5'
Ethylbenzene	5.5	ND	ND
Toluene	18	ND	ND
Xylenes (Total)	26	ND	ND

MFC-30	4.5'
Toluene	1.0

MFC-28	1.0'	5.0'
Toluene	6.2	ND
Xylenes (Total)	12	ND

MFC-35	2.0'	5.0'	5.5'
Isopropylbenzene	5.1	ND	--
n-Propylbenzene	5.7	ND	ND
sec-Butylbenzene	20	ND	--

MFC-46	4.0'	7.0'	7.5'
Tetrachloroethene	ND	6.6	ND

MFC-36	4.5'
Acetone	55
MTBE	23

MFC-37	4.5'	5.0'
Isopropylbenzene	98	--
Naphthalene	240	ND
n-Butylbenzene	170	--
n-Propylbenzene	170	--
sec-Butylbenzene	120	--

MFC-43	4.5'
MTBE	5.3

MFC-41	2.5'	4.0'	4.5'
Toluene	ND	ND	1.6

KEY:

- ⊠ Soil and Grab Groundwater Boring Location
- ⊗ Soil Boring Location
- ■ or ● Location Sampled But No Compounds Detected
- Existing Groundwater Monitoring Well (various installations)
- Existing CPT Location (Innovative Technical Solutions Inc. (ITSI), 2002
- Existing CPT Location and Piezometer (ITSI, 2002)
- UST Removal Excavation

MFC-30	4.5'
Toluene	1.0

Sample Location; Collection Depth; Compound Detected; Concentration in µg/kg

NOTES:

(1) Soil chemical concentrations in micrograms per kilogram (µg/kg) unless otherwise indicated.
(2) ND = Not Detected; -- = Not Analyzed
(3) Detections in soil samples shown for Volatile Organic Compounds (VOCs) by EPA Method 8260.
(4) Soil samples collected in six-inch tubes beginning with the depth indicated during the field investigation from 3/25/02 to 3/28/02.

N

0 100 200
SCALE IN FEET

012018-VOC-SOIL.DWG

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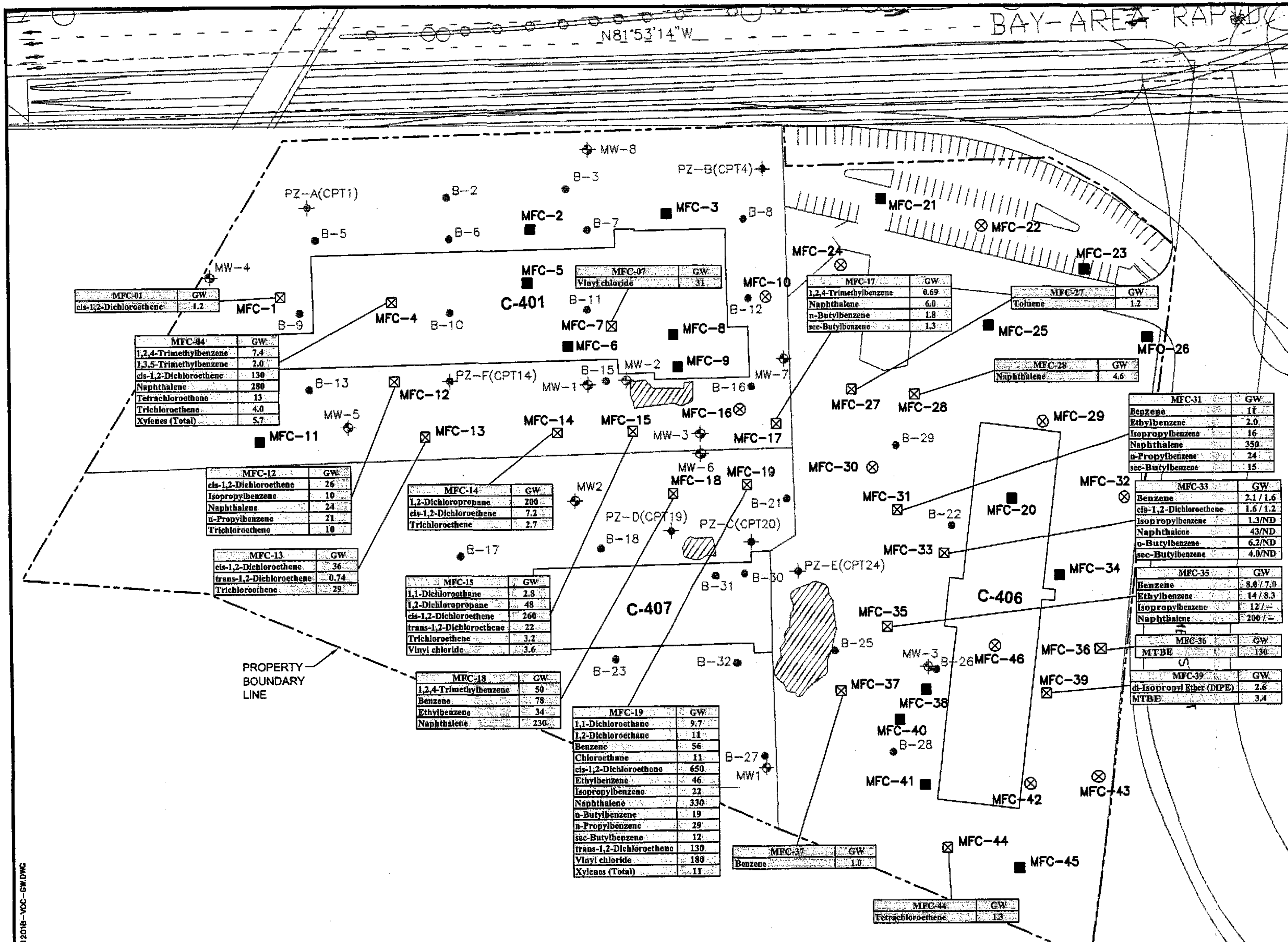
VOLATILE ORGANIC COMPOUND (VOC) DETECTIONS IN SOIL
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure 6

Drafter: MAS | Date: 6/3/02 | Contract Number: 01-2018 | Approved: | Revised:



MFC-01	GW
cis-1,2-Dichloroethene	1.2

MFC-04	GW
1,2,4-Trimethylbenzene	7.4
1,3,5-Trimethylbenzene	2.0
cis-1,2-Dichloroethene	130
Naphthalene	280
Tetrachloroethene	13
Trichloroethene	4.0
Xylenes (Total)	5.7

MFC-07	GW
Vinyl chloride	31

MFC-12	GW
cis-1,2-Dichloroethene	26
Isopropylbenzene	10
Naphthalene	24
n-Propylbenzene	21
Trichloroethene	10

MFC-13	GW
cis-1,2-Dichloroethene	36
trans-1,2-Dichloroethene	0.74
Trichloroethene	29

MFC-14	GW
1,2-Dichloropropane	200
cis-1,2-Dichloroethene	7.2
Trichloroethene	2.7

MFC-15	GW
1,1-Dichloroethane	2.8
1,2-Dichloropropane	48
cis-1,2-Dichloroethene	260
trans-1,2-Dichloroethene	22
Trichloroethene	3.2
Vinyl chloride	3.6

MFC-18	GW
1,2,4-Trimethylbenzene	50
Benzene	78
Ethylbenzene	34
Naphthalene	230

MFC-19	GW
1,1-Dichloroethane	9.7
1,2-Dichloroethane	11
Benzene	56
Chloroethane	11
cis-1,2-Dichloroethene	650
Ethylbenzene	46
Isopropylbenzene	22
Naphthalene	330
n-Butylbenzene	19
n-Propylbenzene	29
sec-Butylbenzene	12
trans-1,2-Dichloroethene	130
Vinyl chloride	180
Xylenes (Total)	11

MFC-17	GW
1,2,4-Trimethylbenzene	0.69
Naphthalene	6.0
n-Butylbenzene	1.8
sec-Butylbenzene	1.3

MFC-27	GW
Toluene	1.2

MFC-28	GW
Naphthalene	4.6

MFC-31	GW
Benzene	11
Ethylbenzene	2.0
Isopropylbenzene	16
Naphthalene	350
n-Propylbenzene	24
sec-Butylbenzene	15

MFC-33	GW
Benzene	2.1 / 1.6
cis-1,2-Dichloroethene	1.6 / 1.2
Isopropylbenzene	1.3/ND
Naphthalene	43/ND
n-Butylbenzene	6.2/ND
sec-Butylbenzene	4.0/ND

MFC-35	GW
Benzene	8.0 / 7.0
Ethylbenzene	14 / 8.3
Isopropylbenzene	12 / --
Naphthalene	200 / --

MFC-36	GW
MTBE	130

MFC-39	GW
di-Isopropyl Ether (DIPE)	2.6
MTBE	3.4

MFC-37	GW
Benzene	1.0

MFC-44	GW
Tetrachloroethene	13

KEY:

- Soil and Grab Groundwater Boring
- Soil Boring
- ■ or ● Location Sampled But No Compounds Detected
- Existing Groundwater Monitoring Well (various installations)
- Existing CPT Location (Innovative Technical Solutions Inc. (ITSI), 2002
- Existing CPT Location and Piezometer (ITSI, 2002)
- UST Removal Excavation

Sample Location — Sample Matrix — Compound Detection — Concentration in µg/L

MFC-07	GW
Vinyl chloride	31

NOTES:

(1) Groundwater chemical concentrations in micrograms per liter (µg/L) unless otherwise indicated.
(2) ND = Not Detected; -- = Not Analyzed
(3) Detections in groundwater samples shown for Volatile Organic Compounds (VOCs) by EPA Method 8260.
(4) GW = Grab groundwater
(5) Grab groundwater samples collected during field investigation from 3/25/02 to 3/28/02.
(6) Locations with multiple reported concentrations represent sample data from two sources. STL San Francisco and Mobile Chem Lab

Data from Mobile Chem Lab

MFC-33	GW
Benzene	2.1/1.6
cis-1,2-Dichloroethene	1.6/1.2

Data from STL San Francisco

The analytical origin for all other data is presented in the laboratory reports associated with this report.

N

0 100 200

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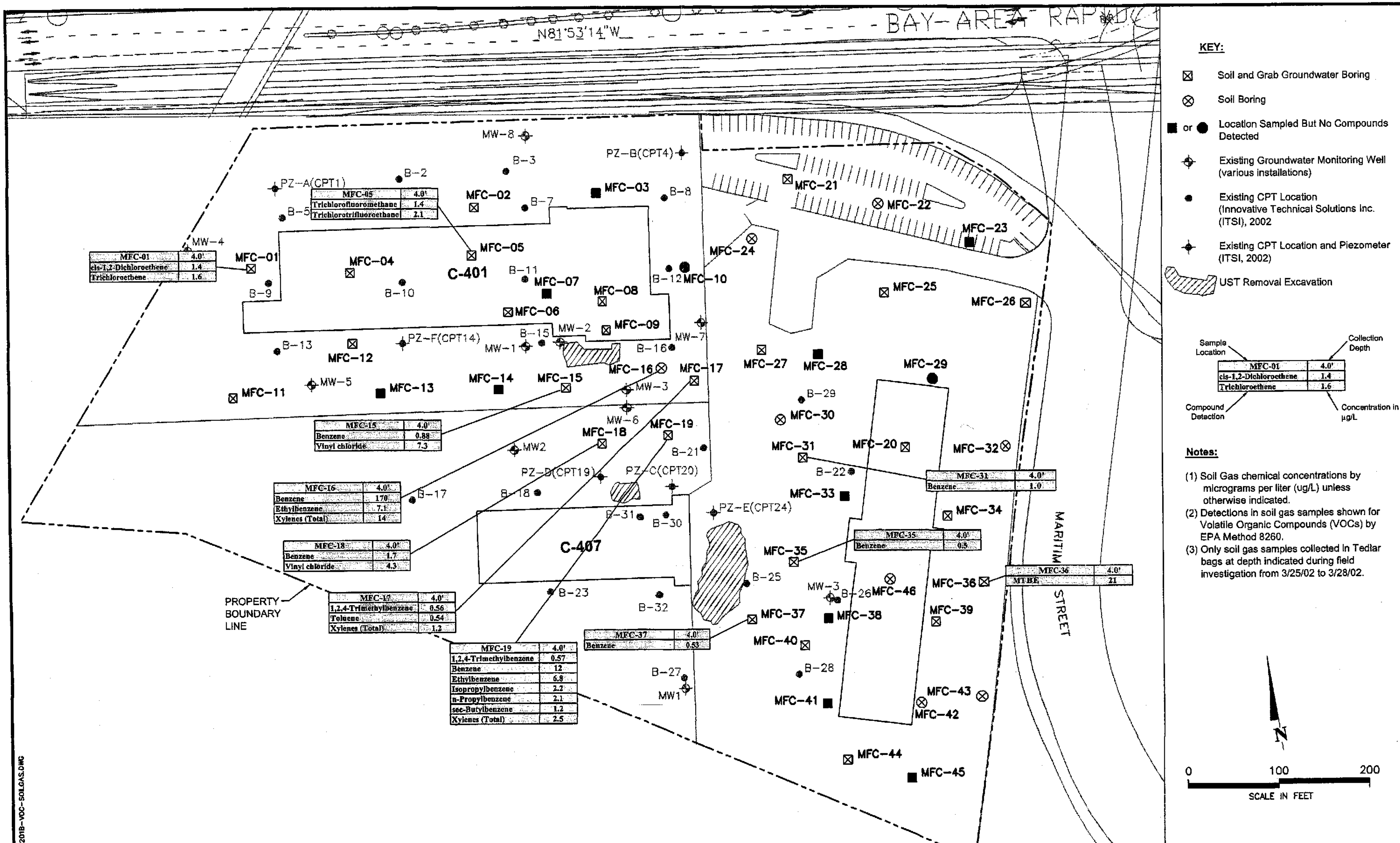
VOLATILE ORGANIC COMPOUND (VOC) DETECTIONS IN GROUNDWATER
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure **7**

Drafter: MAS | Date: 5/23/02 | Contract Number: 01-201B | Approved: | Revised:



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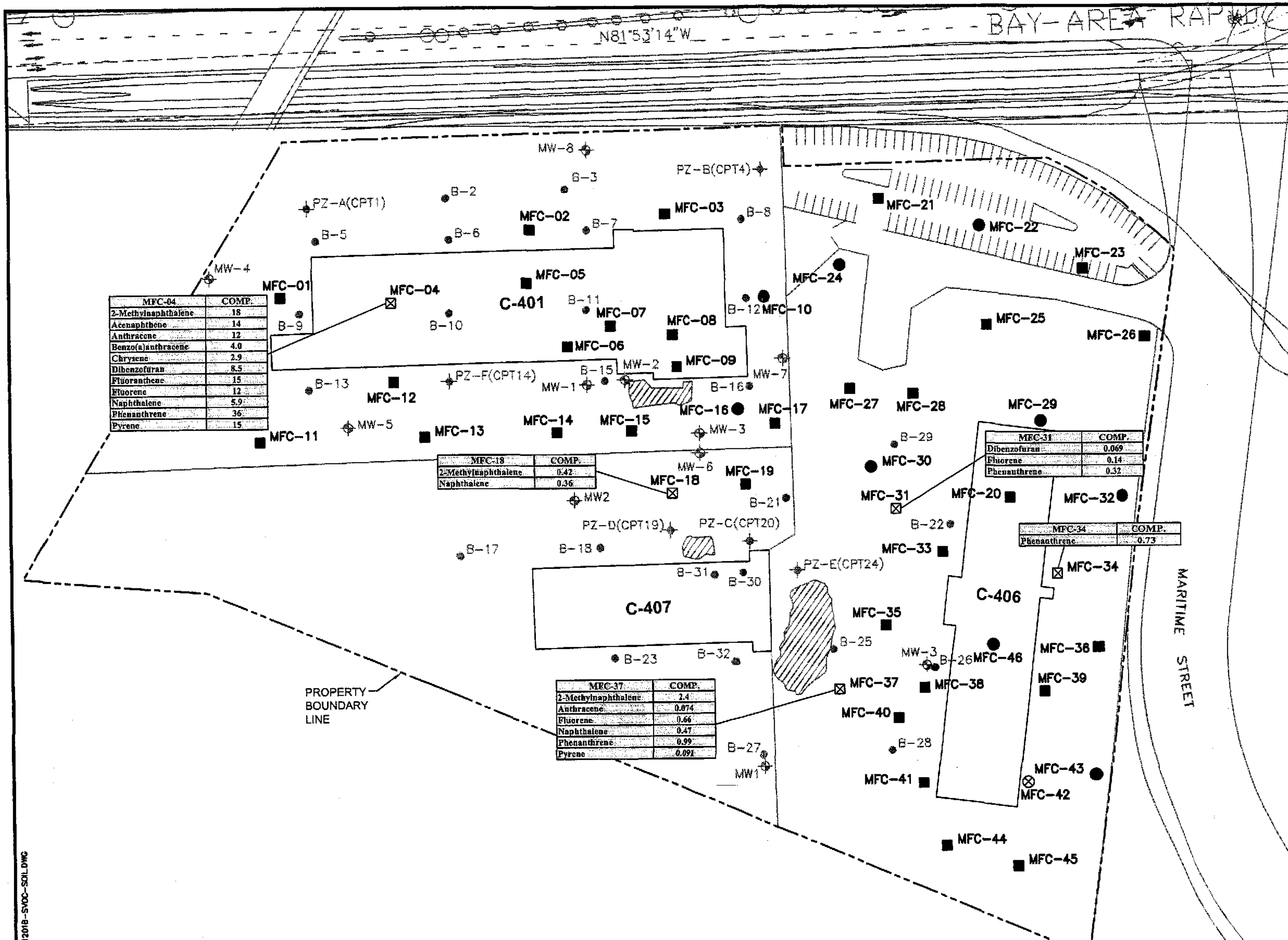
VOLATILE ORGANIC COMPOUND (VOC) DETECTIONS IN SOIL GAS
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure **8**

Drafter: MAS | Date: 5/23/02 | Contract Number: 01-201B | Approved: | Revised:

01201B-VOC-SOILGAS.DWG



MFC-04	COMP.
2-Methylnaphthalene	18
Acenaphthene	14
Anthracene	12
Benzo(a)anthracene	4.0
Chrysene	2.9
Dibenzofuran	8.5
Fluoranthene	15
Fluorene	12
Naphthalene	5.9
Phenanthrene	36
Pyrene	15

MFC-18	COMP.
2-Methylnaphthalene	0.42
Naphthalene	0.36

MFC-31	COMP.
Dibenzofuran	0.069
Fluorene	0.14
Phenanthrene	0.32

MFC-34	COMP.
Phenanthrene	0.73

MFC-37	COMP.
2-Methylnaphthalene	2.4
Anthracene	0.074
Fluorene	0.66
Naphthalene	0.47
Phenanthrene	0.99
Pyrene	0.091

KEY:

- ⊠ Soil and Grab Groundwater Boring Location
- ⊗ Soil Boring Location
- ■ or ● Location Sampled But No Compounds Detected
- Existing Groundwater Monitoring Well (various installations)
- Existing CPT Location (Innovative Technical Solutions Inc. (ITSI), *2002*
- Existing CPT Location and Piezometer (ITSI, 2002)
- UST Removal Excavation

Sample Location — Sample Type

MFC-34	COMP.
Phenanthrene	0.73

Detected Compound — Concentration in mg/kg

Notes:

(1) Soil chemical concentrations in milligrams per kilogram (mg/kg) unless otherwise indicated.
(2) Detections in soil samples shown for Semivolatile Organic Compounds (SVOCs) by EPA Method 8270.
(3) COMP. = Composite sample; samples from multiple depths were combined into a single sample for chemical analysis.

N

0 100 200
SCALE IN FEET

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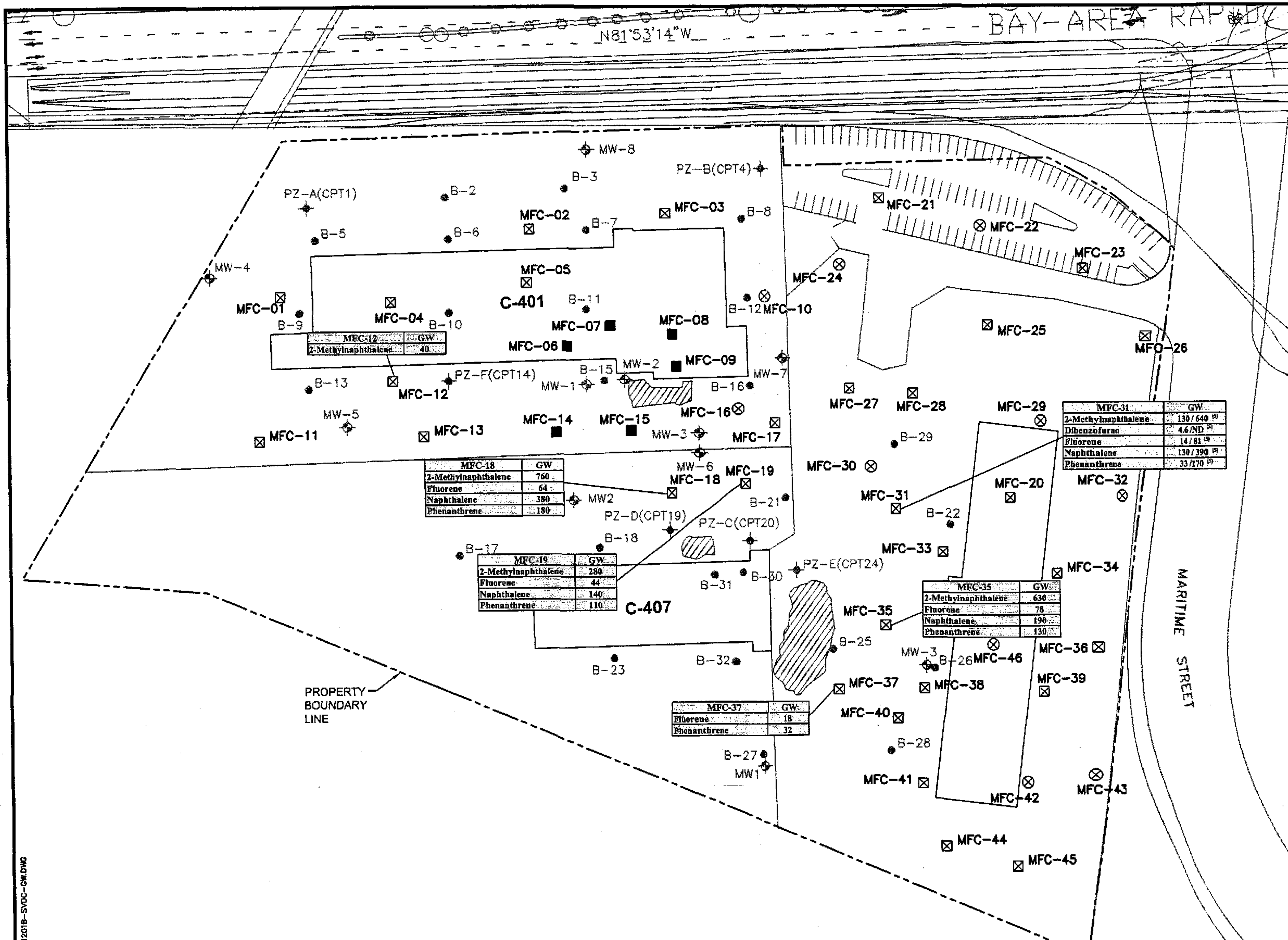
SEMIVOLATILE ORGANIC COMPOUND (SVOC) DETECTIONS IN SOIL
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

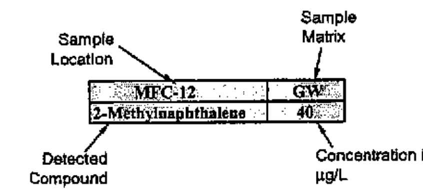
Figure 9

Drafter: MAS | Date: 6/3/02 | Contract Number: 01-201B | Approved: | Revised:



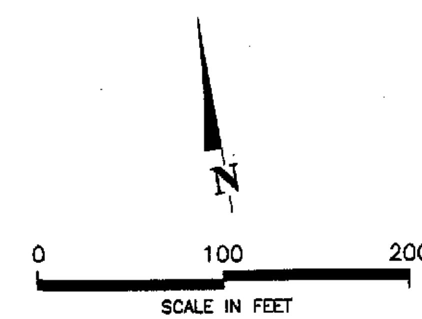
KEY:

- Soil and Grab Groundwater Boring
- Soil Boring
- or Location Sampled But No Compounds Detected
- Existing Groundwater Monitoring Well (various installations)
- Existing CPT Location (Innovative Technical Solutions Inc. (ITSI), 2002
- Existing CPT Location and Piezometer (ITSI, 2002)
- UST Removal Excavation



Notes:

(1) Groundwater chemical concentrations in micrograms per liter (µg/L) unless otherwise indicated.
(2) Detections in groundwater samples shown for Semivolatile Organic Compounds (SVOCs) by EPA Method 8270.
(3) GW = Grab groundwater sample
(4) Grab groundwater samples collected during field investigation from 3/25/02 to 3/28/02.
(5) Additional grab groundwater sample collected on 3/28/02.



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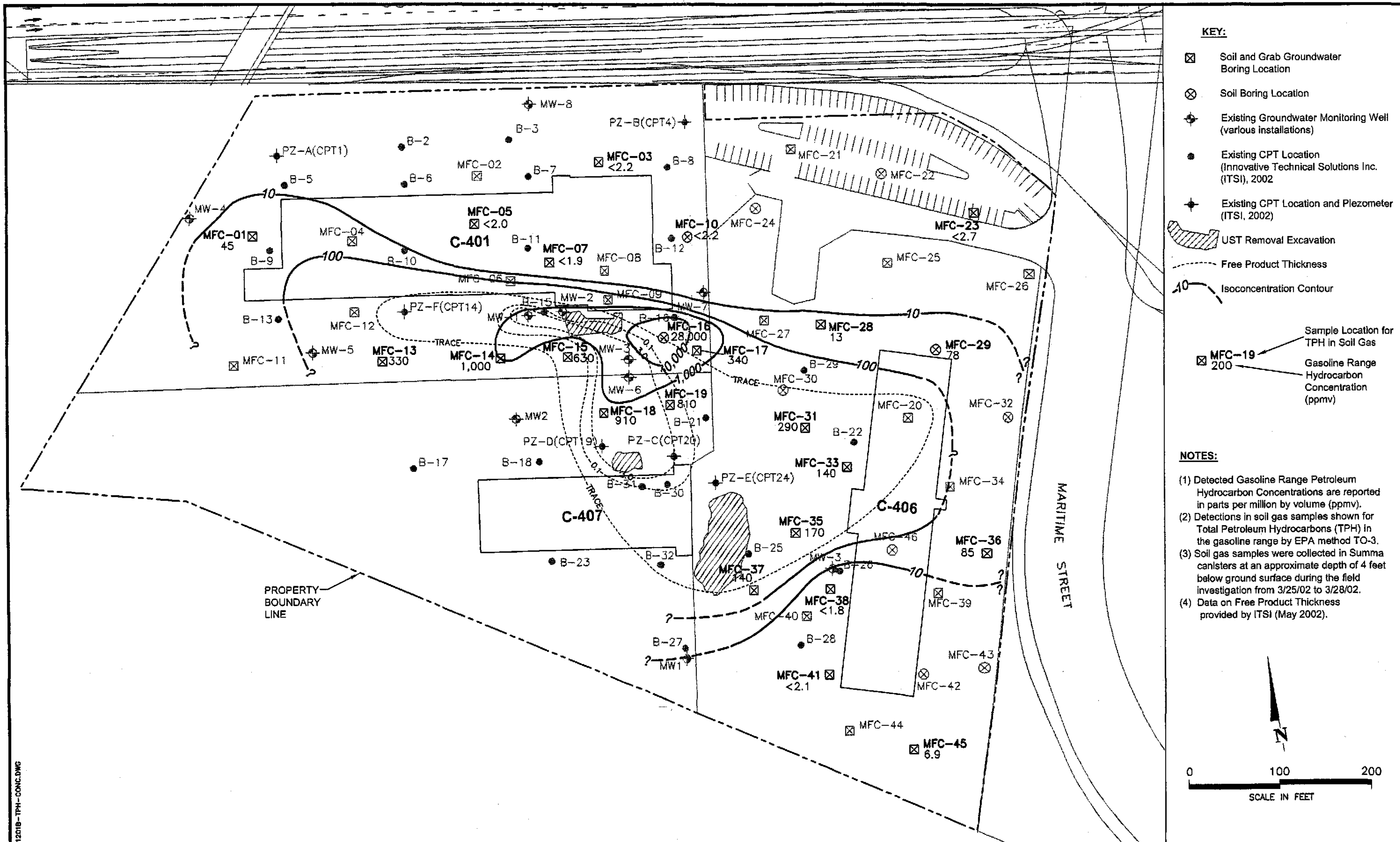
SEMIVOLATILE ORGANIC COMPOUND (SVOC) DETECTIONS IN GROUNDWATER
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure **10**

Drafter: MAS | Date: 5/23/02 | Contract Number: 01-201B | Approved: | Revised:



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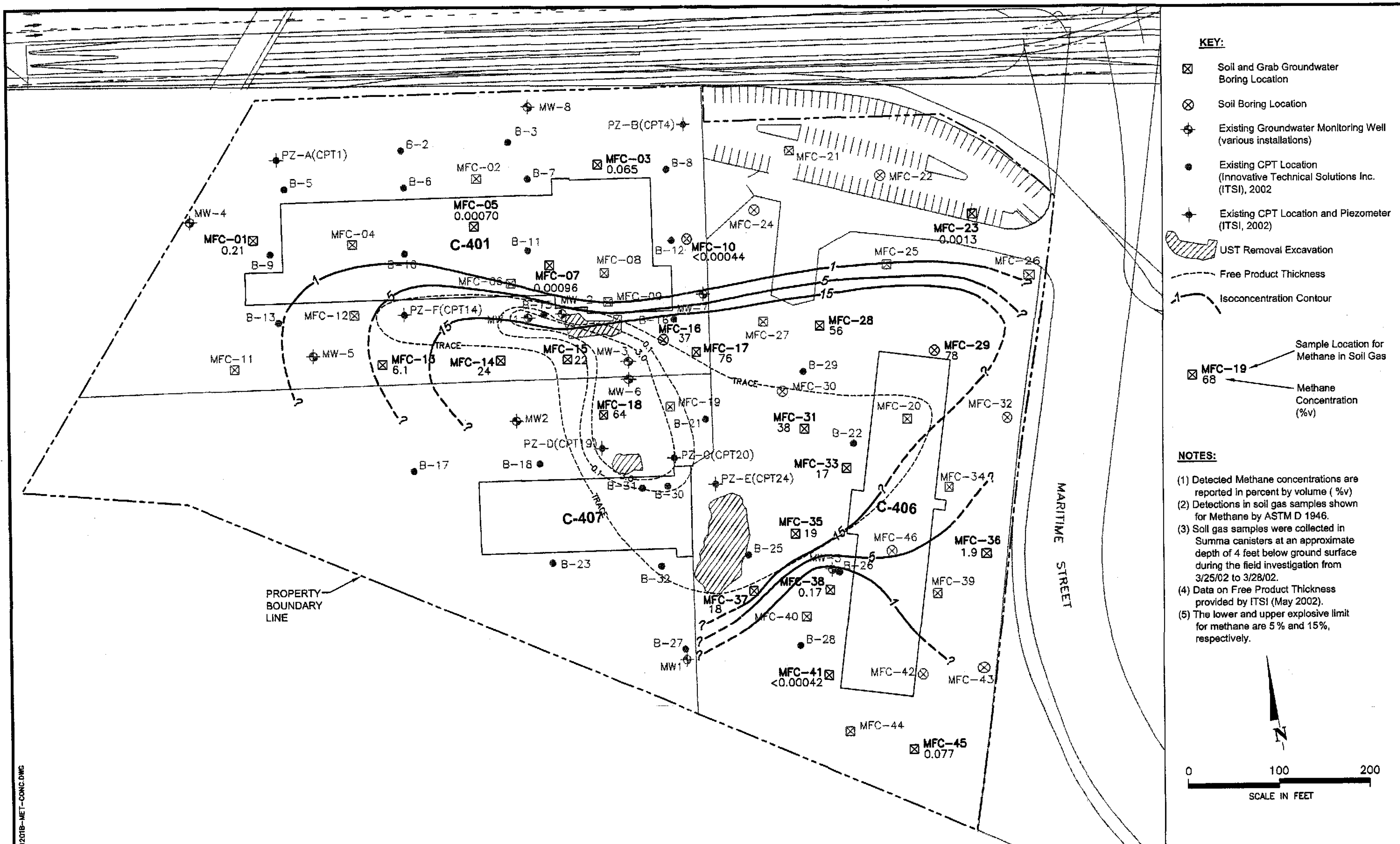
Concentrations of Total Petroleum Hydrocarbons in Soil Gas
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure
11

Drafter: MAS | Date: 6/2/02 | Contract Number: 01-2018 | Approved: | Revised:



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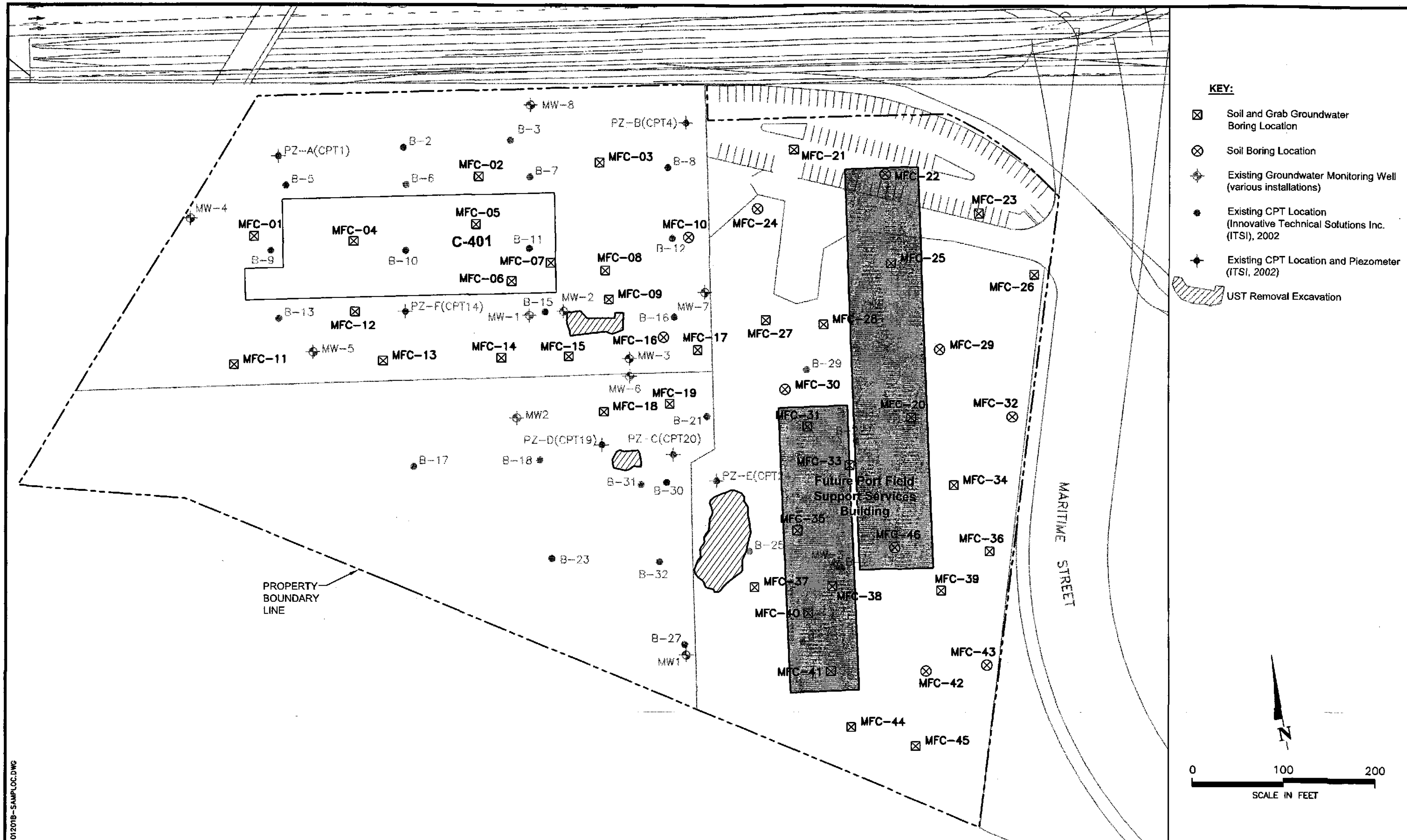
Concentrations of Methane in Soil Gas
Port of Oakland Future Port Field Support Services Complex
2225 and 2277 7th Street
Oakland, California

Figure
12

Drafter: MAS | Date: 6/2/02 | Contract Number: 01-2018 | Approved: | Revised:



IRIS ENVIRONMENTAL 1615 Broadway, Suite 1003, Oakland, California 94612	**Sampling Locations and Future Building Configuration** Port of Oakland Future Port Field Support Services Complex 2225 and 2277 7th Street Oakland, California	Figure **13**

Drafter: MAS Date: 11/3/02 Contract Number: 01-201B Approved: Revised:

HUMAN HEALTH RISK ASSESSMENT FOR THE FUTURE PORT OF OAKLAND FIELD SUPPORT SERVICES COMPLEX 2225 and 2277 SEVENTH STREET OAKLAND, CALIFORNIA

Prepared for:

Port of Oakland
Oakland, California

Prepared by:

IRIS ENVIRONMENTAL
Oakland, California

October 2002
Project No. 02-201-B

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

ACHCSA:	Alameda County Health Care Services Agency
ASTM:	American Society for Testing and Materials
BART:	Bay Area Rapid Transit
Cal/EPA:	California Environmental Protection Agency
CDI:	chronic daily intake
COPC:	chemical of potential concern
CSF:	cancer slope factor
CSM:	conceptual site model
DTSC:	Department of Toxic Substances Control
EPA/USEPA:	United States Environmental Protection Agency
ESA:	Environmental Site Assessment
FISCO:	Fleet Industrial Supply Center Oakland
HEAST:	Health Effects Assessment Summary Tables
HHRA:	human health risk assessment
HI:	hazard index
IRIS:	EPA's Integrated Risk Information System
JITR:	Port of Oakland Joint Intermodal Transport Railway
LBNL:	Lawrence Berkeley National Laboratory
LEL:	lower explosive limit
NOEL:	no observed effects level
OEHHA:	Cal/EPA Office of Environmental Health Hazard Assessment
PCB:	polychlorinated biphenyl
REL:	reference exposure level
RfD/RfC:	reference dose/reference concentration
SVOC:	semi-volatile organic compound
TPH:	total petroleum hydrocarbons
TPPH:	total purgeable petroleum hydrocarbons
TRT:	Three Rivers Trucking Company
UST:	underground storage tank
VOC:	volatile organic compound

EXECUTIVE SUMMARY

Iris Environmental prepared this baseline human health risk assessment (HHRA) on behalf of the Port of Oakland ("the Port"), to support the design, engineering, construction, and safe future use of the proposed Field Support Services Complex ("the Complex") on the subject Site ("the Site"). The Site is approximately 12 acres in size and is located at 2225 and 2227 Seventh Street, immediately west of Maritime Street and south of the adjacent Bay Area Rapid Transit (BART) right-of-way, on Port property in Oakland, California (Figure 1). Approximately eight acres of the Site are designated for construction of the Complex.

The proposed project involves the demolition of two existing structures and one-quarter of a third structure, the excavation of existing building footings and demolition debris, the importation of clean fill, and the construction of a new Field Support Services Complex.

The purpose of this risk evaluation is to determine whether the residual chemicals at the Site could adversely impact human health during development and throughout the proposed future use of the Site. Specifically, this report assesses the human health risks associated with possible exposures to Port employees from chemicals detected in soils, soil gas, and groundwater during the March 2002 Phase II investigation of the Site (Iris Environmental, 2002a). As exposure to these chemicals of potential concern (COPCs) could potentially occur both during Site development and future use of the Complex, the health risks associated with the development and future land use phases are both evaluated.

The Site was also evaluated under worst-case baseline conditions (the "baseline evaluation"), where specific design elements that will be incorporated into the Site development are not included. These specific design elements include the planned passive soil venting systems that will be placed beneath the proposed building and the asphalt cap that will completely cover the Site. We then evaluated the Site under actual Site development conditions (the "Site development evaluation") reflective of and consistent with the aforementioned design elements. Note that these design elements will only affect the evaluation of the commercial worker scenario.

All COPCs are evaluated based on their potential to cause cancer or chronic noncancer health effects in human populations under the development and future land use exposure scenarios. Select volatile organic compounds (VOCs) were also evaluated for potential explosive hazards. Furthermore, the generation of methane at the Site was evaluated as an additional transport mechanism that may potentially enhance chemical transport of VOCs.

In preparing this HHRA, Iris Environmental used standard risk assessment techniques and regulatory assumptions recommended by the United States Environmental Protection Agency (USEPA) and the California Environmental Protection Agency (Cal/EPA), as well as conservative modeling approaches. Given the multiple conservative assumptions, the potential health risks presented in this analysis are likely overestimates of the actual risks that may be associated with the proposed development project. Risk assessment results for the three receptor populations identified in Section 3.2 are summarized in the table and bullets on the following page.

Baseline Evaluation Results			
Exposure Scenarios	Cancer Risk [(1)]	Noncancer HI [(2)]	Maximum Explosive Hazard Ratio [(3)]
Development Phase			
On-Site Construction Worker (Intrusive)	3.7×10^{-06} [(4)]	0.9	0.2
Future Land Use Phase			
On-Site Commercial Worker	2.6×10^{-05}	0.2	0.03
On-Site Intrusive Worker	1.5×10^{-06}	0.01	0.2
Site Development Evaluation Results			
Future Land Use Phase			
On-Site Commercial Worker	3.5×10^{-06}	0.02	0.004

Note:

(1) Cancer Risk is defined as the incremental probability that an individual will develop cancer over the course of a lifetime as a result of exposure to the potential carcinogen. The USEPA defines the range of acceptable cancer risks to be between 1 per 10,000 (1E-04, or 10^{-4}) and 1 per 1,000,000 (1E-06, or 10^{-6}). The risk level generally considered acceptable by Cal/EPA DTSC is 1 in 100,000 (1E-5, or 10^{-5}).

(2) Noncancer HI (Hazard Index) is the parameter used to evaluate the potential for adverse noncancer health effects. The HI represents a ratio of the projected exposure to an "acceptable" level of exposure; the USEPA defines the acceptable Noncancer Hazard Index as 1.0 or less (i.e., the projected exposure is below the "acceptable" exposure).

(3) Maximum explosive hazard ratio is the parameter used to evaluate potential levels of combustible gases/vapors. It is the ratio of the predicted combustible gas concentrations to the chosen hazard thresholds. Explosive hazard thresholds are not regulated by USEPA or Cal/EPA DTSC.

(4) 3.7×10^{-6} is scientific notation approximately equivalent to the fraction 1/270,000 ($3.7 \times 10^{-6}/1$ = 1/270,000; a calculated incremental cancer risk of 1 per 270,000 can thus be interpreted).

1. Baseline incremental cancer risks estimated for on-Site construction workers during development and on-Site commercial and intrusive workers during future use, respectively, are 3.7×10^{-06}, 2.6×10^{-05}, and 1.5×10^{-06}. These risks are all within USEPA's acceptable risk range of 1×10^{-4} to 1×10^{-6}. The risks for construction workers during development are below 1×10^{-5}, a risk level generally considered acceptable by Cal/EPA DTSC for commercial land-use scenarios. For on-Site construction workers, exposures should be mitigated through standard health and safety practices that will be documented in their Health and Safety Plan. Incorporating planned Site development design elements such as passive vapor controls and the Site-wide asphalt cover into the risk analysis results in cancer risks well within USEPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} and below 1×10^{-5}, a level generally considered acceptable by Cal/EPA DTSC for commercial land-use scenarios.

2. Exposures to noncancer agents result in noncancer HIs within health guidelines (i.e., less than one) for the three exposed populations. For on-Site construction workers, exposures will be mitigated further through standard health and safety practices that will be documented within the Health and Safety Plan; and,

3. The predicted worst-case on-Site concentrations of explosive vapors are below the respective lower explosive limits (LEL) with a safety factor of four. While actual explosive hazard to the on-Site intrusive and construction worker is likely low, potential hazards should be mitigated within the Health and Safety Plan.

1.0 INTRODUCTION AND OBJECTIVES

Iris Environmental prepared this human health risk assessment on behalf of the Port of Oakland ("the Port"), in support of the design, engineering, construction, and future use of the proposed Field Support Services Complex and associated grounds ("the Complex" and "the Site," respectively). The Site is approximately 12 acres in size and is located at 2225 and 2227 Seventh Street, immediately west of Maritime Street and south of the adjacent Bay Area Rapid Transit (BART) right-of-way, on Port property in Oakland, California (Figure 1). Approximately eight of the 12 acres are designated for the Complex.

The proposed project involves the demolition of two existing structures and one-quarter of one structure, the excavation of existing building footings and demolition debris, the importation of clean fill, and the construction of a new Complex, to be used by the Port for field services and associated support activities.

The purpose of this risk evaluation is to determine whether the residual chemicals at the Site could adversely impact human health during development and proposed future use of the Site. Specifically, this report assesses the human health risks associated with possible exposures to Port employees from chemicals detected in soils, soil gas, and groundwater during the March 2002 Phase II investigation of the Site (Iris Environmental, 2002a). As exposure to these chemicals of potential concern (COPCs) could potentially occur both during Site development and future use of the Complex, the health risks associated with the development and future land use phases are both evaluated.

The Site was also evaluated under worst-case baseline conditions (the "baseline evaluation"), where specific design elements that will be incorporated into the Site development are not included. These specific design elements include the planned passive soil venting systems that will be placed beneath all constructed buildings and the asphalt cap that will completely cover the Site. The Site was then evaluated under actual Site development conditions (the "Site development evaluation") reflective of and consistent with the aforementioned design elements. Note that these design elements will only affect the evaluation of the commercial worker scenario.

All COPCs are evaluated based on their potential to cause cancer or chronic noncancer health effects in human populations under the development and future land use exposure scenarios. We also evaluated select volatile organic compounds (VOCs) for potential explosive hazards. Furthermore, the generation of methane at the Site was evaluated as an additional transport mechanism that may potentially enhance chemical transport of VOCs.

The methodology used in this HHRA is consistent with risk assessment guidelines provided by the United States Environmental Protection Agency's (USEPA) *"Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final"* (USEPA 1989) and by the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control's (DTSC) "*Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities*" (Cal/EPA 1992). As described by USEPA, a human health risk assessment estimates the potential for adverse health effects to occur as a result of exposure to COPCs. According to the USEPA (1989), and as summarized below, there are four basic steps in the quantitative human health risk assessment process: (1) data collection and analysis, (2) exposure assessment, (3) toxicity assessment, and (4) risk characterization. These steps are summarized briefly as follows:

- Data Collection and Analysis: For this HHRA, environmental sampling data from the 2002 Phase II ESA were reviewed to identify COPCs and their concentrations at the Site;
- Exposure Assessment: Site physical features were evaluated to develop a conceptual Site model which identifies the pathways by which potential receptors could potentially be exposed to Site-specific constituents. The magnitude of the potential human exposures was estimated;
- Toxicity Assessment: This phase of the risk assessment presents the relationship between the magnitude of exposure and potential adverse effects (dose-response assessment). As a part of the toxicity assessment, toxicity values were determined or derived and were then used to estimate the likelihood of adverse effects which potentially could occur at different exposure levels; and,
- Risk Characterization: The exposure and toxicity assessments were combined to characterize and quantify the potential for adverse health effects as a result of potential Site-specific exposures. The risk characterization estimates the likelihood that the estimated potential exposures to COPCs at the Site will result in either cancer or other noncancer adverse health effects.

The remaining sections of this report are as follows: Section 2.0 provides descriptions of the Site and the proposed project, and summarizes sampling activities that have been conducted at the Site. Section 3.0 identifies the populations that may potentially be exposed to Site COPCs, and the pathways by which potential exposures may occur. Section 4.0 identifies the COPCs that have been included in this HHRA. Section 5.0 presents the methodology for estimating representative exposure concentrations for chemicals present in soil, soil gas, and groundwater. Section 6.0 presents the toxicity values and explosive limits used in the calculation of the cancer risks, noncancer hazard indices, and explosive hazards. Section 7.0 presents the methodology used to calculate the cancer risks, noncancer hazard indices, and explosive hazards and summarizes the results of the HHRA. The references used in this report are presented in Section 8.0. There are four Appendices that accompany the report. Appendix A presents the data collected during the Phase II ESA, from which a representative subset was selected to characterize the representative concentrations present in the Site media. Appendix B presents the modeling used by Iris Environmental to estimate the mass flux emissions of COPCs from the Site and the corresponding predicted air concentrations to which the various human populations may be exposed, and Appendix C discusses the uncertainties inherent in the health risk assessment. The output from LEADSPREAD, the Cal/EPA DTSC-developed model used to evaluate potential health effects from exposure to lead, is presented in Appendix D.

2.0 SITE CHARACTERIZATION

This section provides a brief description of the Site layout and other physical features, as well as a summary of the development and proposed future land use of the Site. This information is used as the basis for identifying the exposure pathways that are relevant at the Site. In addition, previous and recent Site investigation activities are discussed below.

2.1 Site Location

The Site is approximately 12 acres in size and is located at 2225 and 2227 Seventh Street, immediately west of Maritime Street and south of the adjacent Bay Area Rapid Transit (BART) right-of-way, on Port property in Oakland, California (Figure 1). Access to the Site is from Maritime Street.

2.2 Site Description

The Site is generally surrounded by railroad, trucking, ocean shipping, and other facilities used for freight transportation. The Site is bound by the Port's Joint Intermodal Transport Railway (JITR) and the Bay Area Rapid Transit (BART) right-of-way to the north (just south of Seventh Street), Maritime Street to the east, and Port-owned (but former Navy Fleet Industrial Supply Center Oakland [FISCO]) property to the south and west, as shown on Figure 2. Thus, the human populations present in areas surrounding the Site are industrial/commercial workers; there is no nearby residential land use. As part of the Port's Vision 2000 expansion plan, the areas to the south and west have been raised approximately three to five feet relative to the Site with fill dredged from the Oakland estuary.

The Site is currently paved and relatively flat. The current description of the Site encompasses three Port-owned buildings (Figure 2) that are scheduled for demolition or modification prior to development of the Complex:

- Port Building C-401 is located at 2277 Seventh Street, in the northern portion of the Site. The building is approximately 44,000 square feet. Approximately 75% of the structure is a raised, open-walled transloading platform now leased by Three Rivers Trucking Company (TRT). Approximately 25% of the structure is office space and vehicle maintenance bays which will be demolished;

- Port Building C-407 is located at 2277 Seventh Street in the center of the Site. The building is approximately 19,000 square feet, and is currently vacant. The building contains an unused truck wash, several open truck bays, and a warehouse area with offices on a mezzanine level; and

- Port Building C-406 is located at 2225 Seventh Street on the eastern side of the Site. The building is approximately 28,000 square feet. The northern two-thirds are unused and damaged by fire (loading dock and former multi-floor office space), and the southern third was used until recently as a loading dock by TRT.

The history of these buildings and past Site use is presented in Section 2.4.

2.3 Planned Development and Future Use

The planned development and proposed future use of the Site includes the demolition of Building C-406 and Building C-407, demolition of the eastern one-quarter of Building C-401, and the removal of demolished structure footings and excavation of the asphalt pavement. Following demolition, the overall grade at the Site will be raised through the importation of one to two feet of clean fill. Construction of the Complex will encompass an eight acre portion of the Site, located on the eastern portion of the Site. The conceptual layout of the Complex is illustrated by the Port Development Plan presented in Figure 3. Development of the Complex will last approximately 6 months (120 construction days). A brief description of the development activities (obtained from the Port) is summarized below.

2.3.1 Demolition

Buildings C-406 and C-407 will be completely demolished, and the eastern one-quarter of Building C-401 (the enclosed office portion of the structure) will be demolished. All debris will be transported off-Site for disposal. The footings of all demolished structures will be removed and transported off-Site for disposal. The monitoring well free-product recovery system has recently been relocated to avoid potential damage during demolition.

2.3.2 Excavation of Pavement and Importation of Fill

Approximately eight acres of pavement will be removed to prepare the Site for imported fill and regrading. The exposed surface and building footing excavations will be covered with clean imported fill and re-graded to provide adequate drainage. The overall effect will be to raise the average height of the Site approximately one and one-half feet.

2.3.3 Construction

Approximately eight acres of the Site will be dedicated to the Complex. The proposed size of the structure is 61,000 square feet. A passive soil vapor venting system with a permeable sand and gravel layer below the structure footprint will allow for enhanced control of volatile subsurface chemicals. The rest of the Site will then be completely paved over with asphalt.

2.4 Site History

All information contained in the Site History section of this report was obtained from the Phase I ESA (Iris Environmental, 2002b). Complete references and further information may be found in the Phase I ESA.

2.4.1 Pre-demolition Building History

Prior to demolition activities, the Site includes three buildings that are owned by the Port of Oakland (Figure 2). These buildings are evident on a 1989 aerial photograph, but were likely constructed at least 25 years ago. Aerial photographs dated 1949 and 1959 indicate that railroad tracks and freight storage were located on the Site. Aerial photos between 1959 and 1989 were unavailable. Descriptions of these buildings are included below for reference.

2.4.1.1 C-401 (2277 Seventh Street)

Building C-401 was vacant and unused until recently, when TRT moved into the western portion of the building. The building was last occupied by Pacific Container Company (PCC), and was occupied by SeaLand prior to PCC. The building was occupied by Shippers Imperial prior to SeaLand.

The eastern end of building C-401 was formerly used for truck repair and has several service bays with roll-up doors. Office space is also located in the eastern end of the building. The western portion of the building has an elevated floor, corrugated steel roof, and no walls, and was formerly used as a loading dock.

Four underground storage tanks (USTs) were removed from the area adjacent to the south side of Building C-401 in 1993, as shown on Figure 2. An active product recovery system is located adjacent to the south side of the building. The system was installed in 1996 to collect free product from an active skimmer in one groundwater monitoring well (MW-3 at 2277 Seventh Street) and a passive skimmer installed in one groundwater monitoring well (MW-1 at 2277 Seventh Street). The monitoring wells are used to extract free product associated with releases from the former USTs. Alameda County Health Care Services Agency (ACHCSA) is currently the lead regulatory agency for the Site.

2.4.1.2 C-406 (2225 Seventh Street)

The Port reacquired the lot and building from lessee Dongary Investments in June 1999 after it had been damaged by fire in late 1997 or early 1998. The northern two-thirds of Building C-406 were damaged in the fire, including the two-story office space portion near the center of the building.

2.4.1.3 C-407 (2277 Seventh Street)

Building C-407 is separated into three distinct sections by one fixed and one temporary wall. The middle and western sections were vacated in early 2002 by a hotel operator which used the building to store furniture and durable goods. The eastern portion of Building C-407 was formerly used as a truck washing and maintenance facility. A drive-through truck wash is located in the eastern end of the building. The washing facility has been out of use for at least four years. A vehicle maintenance pit, which is currently covered by plywood, is located inside the eastern portion of the building. The maintenance pit is approximately four feet wide, 40 feet long, and 5 feet deep.

The building was formerly subleased from Dongary Investments to SeaLand and became part of the operations at 2277 Seventh Street. A total of nine USTs were removed from the area adjacent to the northeast and east sides of Building C-407 in 1990 and 1992. Alameda County Health Care Services Agency (ACHCSA) is currently the lead regulatory agency for the Site.

Currently, the road located adjacent to the Site to the east is Maritime Street. A vacant lot is located west of the Site, but a bridge (the BART/JITR "flyover") and roadway (former extension of Maritime Street) extended along the west side of the Site until their demolition was completed in July 2000. Maritime Street and Middle Harbor Road were rerouted as part of the Port's Vision 2000 plan, and the flyover bridge and roadway were removed at that time.

2.4.2 Underground Storage Tanks and Free-Phase Product

A total of nine USTs were removed from an area adjacent to Building C-407 in 1990 and 1992, including a "nest" of seven diesel tanks and two oil tanks. Free product diesel has been recovered from an active pumping system located adjacent to Building C-401 since the excavation of the tanks. Quarterly monitoring is currently conducted by Harding ESE. Alameda County Health Care Services Agency (ACHCSA) is currently the lead regulatory agency for the Site.

Four USTs were removed from the area adjacent to the south side of Building C-401 in September 1993. Holes from corrosion were noted in some of the excavated tanks, and free product was noted on the surface of groundwater during excavations and investigations (Uribe, 1994). Previous soil and groundwater investigations have identified the presence of a diesel fuel plume containing free product between Buildings C-407 and C-401 (see Figure 4).

A recovery system connected to monitoring wells is part of ongoing mitigation efforts. A quarterly groundwater monitoring report from late 2001 (Harding ESE, 2001) noted measurable free product in the two wells used for product recovery at the 2277 Seventh Street area. The active skimmer in one well (MW-3) had removed in excess of 7,000 gallons of product between December 1997 and mid-2001, and product thickness in the same well in the first seven months of 2001 ranged from 1.25 to 1.50 feet. The quarterly monitoring report also indicated measurable quantities (in at least one well) of the following compounds: total petroleum hydrocarbons (TPH) as gasoline, TPH as diesel, benzene, toluene, ethylbenzene, xylenes, and methyl tertiary butyl ether (MTBE).

An expanded free product recovery system is proposed to replace the existing system. Seven recovery wells equipped with pneumatic, self-controlled free product skimmer pumps and eight replacement groundwater monitoring wells are proposed for the redeveloped Site in order to continue the mitigation and Site monitoring program (ITSI, 2002).

Data obtained from monitoring wells associated with the recovery system have been supplemented by data obtained during the Phase II ESA (Iris Environmental, 2002a). When free product was encountered during the Phase II ESA, Innovative Technical Solutions, Inc. (ITSI) collected product samples and logged findings. Results are found in the *Additional Site Characterization and Remedial Action Plan for 2225 and 2277 Seventh Street, Oakland, California* (ITSI, 2002). ITSI identified the plume as consisting generally of medium range boiling point petroleum hydrocarbons, such as diesel or kerosene. Migration of free product appears to have been retarded by low permeability sediments in the plume region (ITSI, 2002). A figure in ITSI 2002 (duplicated as Figure 4) indicates a region of free product at least three inches thick between Building C-401 and Building C-407. An area of trace plume thickness extends from the area adjacent to the south side of Building C-401 to the area near the southeast corner of Building C-407 and the northern half of Building C-406 (see Figure 4).

2.5 Geology and Hydrogeology

The geology and hydrology of the Site was most recently characterized during the Phase II ESA (Iris Environmental, 2002a), and the information presented below was obtained from the Phase II ESA.

2.5.1 Underlying Geologic Materials

The entire Site is covered either with asphalt pavement or buildings. The asphalt pavement was typically an inch or two thick with several inches to a foot of underlying base rock. Soil materials encountered beneath the base rock consisted of various types of imported fill materials placed over Bay Mud-type soils. The Site was known to have been constructed on hydraulically placed dredge spoils, and these materials were encountered in each of the 46 borings. An additional fill material was encountered in several borings above the dredged materials. This upper fill material was a heterogeneous, interlayered mix of gravel, sand, and silt that often contained demolition debris (bricks, wood fragments, glass, and slag-like waste).

Bay Mud was encountered at the Site at depths ranging from approximately 8.5 feet below ground surface (bgs), in boring MFC-13 located south of Building C-401 in the central portion of the Site, to 11 feet bgs in the boring MFC-45, located near the southeastern-most property boundary. The coloration of the Bay Mud varies from olive gray to greenish gray. Muds and clays generally have low permeabilities, theoretically restricting vertical groundwater migration and limiting horizontal migration. For the purposes of this risk assessment, we have assumed for the baseline evaluation that the soils at the Site may be conservatively represented by sandy loam. As a passive soil vapor venting system with a permeable sand and gravel layer will be incorporated into the site development evaluation, the soils underneath the Complex will assumed to be sand for this evaluation.

2.5.2 Hydrogeological Setting

Based on a review of the 1993 Oakland West USGS topographic map, ground elevation at the Site is less than ten feet above mean sea level. The topography of the Site is generally flat. The Site was developed in the 1930s using hydraulically-placed dredge sediments. The nearest surface water, which is located approximately one-half mile northwest of the Site, is the Oakland Outer Harbor, which is part of the San Francisco Bay. The Oakland Middle Harbor and Inner Harbor Channel are also located approximately one-half mile west and south of the Site, respectively.

Groundwater was typically encountered during Phase II drilling activities from 4.5 feet bgs to 13.0 feet bgs. Groundwater was notably depressed in areas under the building footprints. Groundwater was not encountered at several boring locations (MFC-10, MFC-24, MFC-30, MFC-32 and MFC-42). In areas where temporary wells were installed, it was noted that the general recharge of groundwater was slow and it was often difficult to collect enough groundwater for the entire analytical bottle set. Additional information on groundwater elevations at the time of drilling is noted on the boring logs found in the Phase II ESA. For the purposes of this risk assessment, the depth to groundwater was determined based on site specific data: to estimate the flux of COPCs from groundwater to the surface, an average depth of groundwater across the Site of 8.75 feet was used; to estimate the flux from groundwater to the Complex, the average groundwater depth below the Complex (7 feet) was used.

Storm water runoff at the facility is currently discharged to storm drains located in the paved areas on the Site. Storm drains discharge to the San Francisco Bay.

2.6 Site Investigation Activities

The Site has been the subject of multiple soil and groundwater investigations over the past decade. Investigation of the Site in the 1990s followed the removal of 13 underground storage tanks (USTs) from 1990 to 1993. These investigations focused exclusively on total petroleum hydrocarbons and do not address the Site as a whole, or address other potential COPCs. Therefore, these investigations are inadequate for use in this risk assessment: they are briefly discussed below. To assess the COPCs that may be present at the Site and to thoroughly understand the lateral and vertical extent of said COPCs across the Site, Iris Environmental and the Port in 2002 implemented an expanded environmental Site assessment, or Phase II (Iris Environmental, 2002a). This Phase II is discussed in detail below.

2.6.1 Previous Investigations (1993-2002)

Iris Environmental identified a number of investigations and reports and used the following select documents for investigating the extent of TPH in Site soils and groundwater following the excavation of the USTs and the discovery of associated releases:

- Ramcon Engineering and Environmental Contracting (1993), *Soil and Groundwater Site Assessment: Dongary Investments—Oakland*;
- Uribe & Associates (1994), *Report of Additional Investigation and Groundwater Monitoring Well Installation and Sampling at 2277 Seventh Street, Oakland, California*; and
- Harding ESE (2001), *Third Quarter 2001 Quarterly Groundwater Monitoring and Product Recovery Report, 2277 and 2225 Seventh Street.*

These reports address activities and Site conditions directly related to the USTs removed from the Site and potential impacts to the Site from leaks associated with these tanks. Laboratory analysis of samples collected during this effort was limited to total petroleum hydrocarbons (TPH). Free-phase hydrocarbons in soil and dissolved-phase hydrocarbons (primarily as diesel fuel-grade petroleum hydrocarbons, but with some gasoline-grade petroleum hydrocarbons) were identified in soil and groundwater at the Site in these investigations, and a monitoring and extraction system was designed and implemented to address TPH impacts at the Site. The investigations were focused on hydrocarbon impacts in the vicinity of the former USTs. In order to further characterize the hydrocarbon impacts, the following investigation listed below was conducted in early 2002:

- Innovative Technical Solutions, Inc. [ITSI] (2002), *Additional Site Characterization and Remedial Action Plan, 2225 and 2277 Seventh Street, Oakland, California.*

The ITSI report focused on identification of the condition and extent of the free-phase and dissolved-phase petroleum hydrocarbon plumes and fuel fingerprinting of product samples.

Again, sample collection was limited to the vicinity of the former USTs and laboratory analysis of samples collected during this effort was limited to TPH.

2.6.2 Rational for Focused Investigation

Upon review of the Site investigations mentioned above, it was determined that the analytic data was inadequate for a complete baseline HHRA, as the dataset was based solely on petroleum-related investigations and TPH analyses, did not attempt to characterize other potential chemicals of concern, and did not adequately investigate other areas of the Site away from the TPH releases. Therefore, the ACHCSA-approved Phase II ESA Workplan (Iris Environmental, 2002c) was developed with the following objectives:

- evaluation of Site media for a comprehensive set of hazardous chemicals, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), and metals;

- definition of the lateral and vertical extent of the existing hydrocarbon plume in both soil and groundwater; and

- characterization of media likely to be encountered during Site development and during future Site use, to support risk assessment for redevelopment planning.

By meeting these objectives, the dataset collected during the Phase II ESA is the only dataset that includes a comprehensive list of COPCs and adequately characterizes all parts of the Site. Therefore, the data from the 2002 Iris Environmental Phase II ESA was the only dataset that could be used to estimate chemical concentrations for the purpose of exposure modeling and human health risk assessment. A complete summary of the data collected as a part of this Phase II ESA, illustrating the extent and breadth of the sampling conducted, is presented below.

2.6.3 Summary of Phase II Sampling (2002)

Subsurface data for the Phase II ESA (Iris Environmental, 2002a) were collected during a single sampling event conducted from March 25 through March 28, 2002. A total of 46 borings were drilled as part of the program. Locations of borings are presented on Figure 2. During the investigation, an on-Site mobile laboratory was used to analyze selected samples to provide real time data on sample concentrations of VOCs and TPH. The sample collection locations could then be adjusted as necessary to refine the field investigation. An off-Site laboratory was used for the remaining analyses. Chemical analyses included TPH, and VOCs, as well as SVOCs, metals, and fixed gases (including methane). As polychlorinated biphenyls (PCBs) were not previously detected at the Site, they were not included in the Phase II list of analytes. No history of pesticide use or storage was identified in the Phase I ESA, and therefore pesticides were not considered in Phase II ESA analyses.

Table 2-1 provides an overall summary of all sample collection and chemical analyses from the Phase II ESA. Table 4-2, presented in Section 4.0 of this report, presents a detailed summary and breakdown of the results of analytical testing of samples collected during the Phase II sampling event.

In this section, the recent Phase II Site investigation activities undertaken at the Site are presented. This includes soil sampling, groundwater sampling, and soil gas sampling. Each section discusses the locations of sampling, the number of samples collected, and the laboratory methods used to analyze the samples.

2.6.3.1 Soil Sampling

Between one and three soil samples were collected from each of the 46 boring locations advanced during the Phase II investigation for laboratory analysis. In general, a shallow soil sample was collected from a depth of approximately 0.5 feet below ground surface (bgs), an intermediate sample was collected from approximately 2.5 feet bgs, and a deeper sample was collected from approximately 5.5 feet bgs. Samples analyzed for SVOCs were vertically composited at each sample location for analysis due to cost considerations. Additional soil duplicate samples were collected for quality control analyses. Soil samples collected from saturated materials were not submitted for chemical analyses.

Soil samples collected during this investigation were tested for various chemical compounds as summarized in Table 2-1. Soil samples from each boring were analyzed for TPH as gasoline, diesel, kerosene, jet fuel, and motor oil (TPHg/d/k/j/mo, respectively) by EPA Method 8015M; VOCs by EPA Method 8260/8260B; SVOCs by EPA Method 8270; and Title 26 Metals by EPA Methods 6010, 6020, 7471, and 7196A. Selected samples were also analyzed for organic lead by the California Leaking Underground Storage Tank (LUFT) Method. Select soil samples were tested for TPHg using EPA Method 8260G by Mobile Chem Laboratory. Phase II ESA soil chemical data tables are presented in Appendix A.

2.6.3.2 Groundwater Sampling

Grab groundwater samples were collected through temporary PVC well casings set into twenty-five selected boreholes immediately after soil sample collection. Water sample locations were distributed across the Site and groundwater sampling was subject to the ability to drill to groundwater and collect a sufficient amount of water. The temporary wells were constructed using factory cleaned, two inch diameter PVC casing with machine cut slots. Each temporary well was allowed to equilibrate for a minimum of forty-five minutes prior to sampling. The upper water column was observed for evidence of free product prior to sampling. If free product thickness greater than a sheen was present, a free product sample was collected by ITSI. The groundwater samples were collected from the temporary wells using a pre-cleaned, PVC disposable bailer. Groundwater was transferred directly from the bailer into sampling containers provided by the laboratory.

Groundwater samples collected during this investigation were tested for various chemical compounds as summarized in Table 2-1. Groundwater samples were analyzed for TPHg, TPHd, TPHk, TPHj, and TPHmo by EPA Method 8015M; VOCs by EPA Method 8260/8260B; SVOCs by EPA Method 8270; and organic lead by the CA LUFT Method. Phase II ESA groundwater chemical data tables are presented in Appendix A.

2.6.3.3 Soil Gas Sampling

Twenty-four soil gas samples were collected from selected boring locations for chemical analyses. Soil gas was collected at a depth of approximately 4.0 feet bgs in both Tedlar sample bags and Summa canisters. Each soil gas sample set was collected directly through Teflon™ tubing routed down a 1-inch diameter drill rod and connected to a sealed, retractable tip. The drill rod was advanced to approximately 4.0 feet bgs and retracted a short distance to open the tip and expose the soil interface. A calculated volume of air was then purged from the tubing and borehole space using a vacuum pump. Tedlar bag samples were collected using a differential pressure chamber connected to the vacuum pump. The Tedlar bag was placed in the chamber, connected to the sample tubing, and opened. As the chamber is evacuated and pressure dropped below ambient soil pressure levels, soil gas flowed into the bag. After filling the Tedlar sample bag, the sample tubing was closed and transferred to an evacuated Summa canister for additional sampling. Samples collected in Tedlar sample bags and Summa canisters were transported under chain-of-custody protocol to STL San Francisco for chemical analysis.

Soil gas samples collected during this investigation were tested for various chemical compounds as summarized in Table 2-1. Soil gas samples were analyzed for VOCs by EPA Method 8260; methane and fixed gases by ASTM Method D1946; and total purgeable petroleum hydrocarbons (TPPH) (gasoline) by Standard Method TO-3. Phase II ESA soil gas chemical data tables are presented in Appendix A.

2.6.4 Nature and Extent of Chemical Impacts

As summarized in the Phase II, results of the soil, groundwater, and soil gas sampling conducted identified a pattern of chemical impacts that are consistent with past Site use and known petroleum hydrocarbon releases from USTs. Free product distribution patterns characterized by ITSI (2002) and included on Figure 4 are consistent with gradient-driven groundwater transport of separate-phase petroleum hydrocarbon releases from known UST locations. Distributions of TPHg in soil gas, TPHg and TPHd in groundwater, and TPHd and TPHmo in soil suggest a broader pattern of petroleum hydrocarbon releases or migration than is evidenced by the free product distribution pattern. This broader pattern may be the result of fluctuating groundwater flow directions and elevation over time that expanded the distribution of dissolved phase hydrocarbons beyond the free product plume area.

Low level concentrations and inconsistent distributions of VOCs and SVOCs observed in the sampling results did not identify a clear source area for the detected chemicals. The areal extent of VOC and SVOC detections in soil and groundwater samples does coincide roughly with the TPH detection pattern in soil and groundwater, although no systematic area of elevated concentrations was identified.

TPHg and methane detections in soil gas were relatively consistent to the pattern of free product. Soil gas patterns followed the observed deflection of the free product plume westward along the southern edge of Building C-401, suggesting that geologic and possibly building foundation controls have an effect on chemical migration in this area.

3.0 IDENTIFICATION OF POTENTIALLY EXPOSED POPULATIONS AND EXPOSURE PATHWAYS

To determine whether the levels of constituents present at the Site could pose a risk to human health, it is necessary to identify both the populations that may be present in the area and the pathways through which potential exposures may occur. The identification of the potentially exposed populations is based upon the human activities and land use patterns at and around the Site. Once the potentially exposed populations are identified, the complete pathways by which the individuals may be exposed to chemicals present at the Site must be determined.

An exposure pathway is defined as "the course a chemical or pollutant takes from the source to the organism exposed" (USEPA 1988). An exposure route is "the way a chemical or pollutant enters an organism after contact" (USEPA 1988). A complete exposure pathway requires four key elements: on-Site chemical sources; release mechanism and transport pathway; an exposure point for contact (i.e., fill, air, or water); and human exposure routes (i.e., oral, dermal, inhalation). An exposure pathway is not complete unless all four elements are present. Conceptual Site Models (CSMs) are used to show the relationship between chemical sources, exposure pathways, and potential receptors for a Site. These source-pathway-receptor relationships provide the basis for the quantitative exposure assessment. Only complete source-pathway-receptor relationships are included in this HHRA.

As we have evaluated the Site under both under worst-case baseline conditions and actual Site development conditions, the exposure pathways for the commercial worker scenario will vary. As the Site development will include an asphalt cover for the Site, the particulate inhalation and dermal exposure pathways for the commercial worker scenario will be altered. These changes will be noted in Section 3.3.2 below.

3.1 Chemical Sources and Potential Release Mechanisms

Hydrocarbons known to have been released to soil and groundwater from former underground storage tanks represent the primary source of COPCs that have been encountered during Site investigations. Spills and leaks related to the former underground storage tanks are the primary known potential release mechanisms for TPH related COPCs at the Site. Suspected handling of chemicals by previous Site users may be the source of other, non-TPH related COPCs. Once released into the air, soil gas, soil, or groundwater, COPCs may be transported via potential secondary release mechanisms into exposure media such as soil, ambient air, indoor air, surface water, and groundwater.

As the Site will first undergo development and then be used as a service Complex, future activities at the Site may be divided into two parts: 1) Site construction activities; and 2) future land use. During Site construction activities, there is one receptor population of concern: on-Site construction workers. During future land use, there are two receptor populations of concern: on-Site intrusive workers (who could be involved in periodic subsurface repair activities) and on-Site commercial workers (Port employees). The respective source-pathway-receptor relationships for each period are summarized in the CSM (Figure 5), and are summarized below.

3.1.1 Site Construction Activities

The potential mechanisms through which chemicals can be released during the construction at the Site include the following:

- Wind erosion of soil and atmospheric dispersion of particulate-bound COPCs (dust) into ambient air;
- Volatilization and atmospheric dispersion of COPCs in soil, soil gas, and groundwater into ambient air;
- Leaching and groundwater transport of COPCs to groundwater and surface water; and
- Runoff of precipitation that has come into contact with soil, allowing transport of COPCs to nearby surface water.

The mechanisms listed above represent the theoretically complete mechanisms through which COPCs at the Site can be released and transported from one environmental medium to another. A discussion of each of these transport mechanisms, including those that are considered incomplete, is incorporated into Section 3.3, below.

3.1.2 Future Land Use

The potential baseline mechanisms through which chemicals may be released following the construction of the Complex include the following (in the absence of any controls such as a Site-wide surface cap or passive subsurface vapor barriers):

- Wind erosion of soil and atmospheric dispersion of particulate-bound COPCs (dust) into ambient air;
- Volatilization and atmospheric dispersion of COPCs in soil, soil gas, and groundwater into ambient air;
- Volatilization of COPCs in soil, soil gas, and groundwater into the indoor air of on-Site structures;
- Infiltration or percolation of COPCs in soil vertically into underlying groundwater and lateral migration into surface water; and
- Runoff of precipitation that has come into contact with soil, allowing transport of COPCs to nearby surface water.

The mechanisms listed above represent the theoretically complete mechanisms through which COPCs at the Site can be released and transported from one environmental medium to another. A discussion of each of these transport mechanisms, including those that are considered incomplete, is incorporated into Section 3.3, below.

3.2 Potentially Exposed Populations

During the development of the Complex, demolition, excavation, grading, and construction activities will be performed on-Site. The populations that may be exposed to COPCs during the development process include:

- On-Site construction workers involved in the development. All workers are conservatively modeled as workers potentially exposed to subsurface conditions and in contact with all environmental media.

Following development, the Complex built on the Site will be used. Accordingly, the populations who could become exposed to chemicals present at the Site after the development is complete include:

- On-Site commercial workers (e.g., Port employees working in and around the proposed structure) who will be using the Complex (structure and grounds); and

- On-Site intrusive workers (e.g., Port utility workers installing, repairing, or removing utility lines in trenches at the Site). Exposure of Port utility workers to COPCs is assumed to be similar to on-Site construction workers, as discussed above.

3.3 Exposure Pathways

The following section identifies the potentially complete exposure pathways through which various populations could be exposed to COPCs detected at the Site. The section also provides the rationale for excluding certain exposure pathways from further consideration. All exposure pathways included in the HHRA are identified in Figure 5, the Conceptual Site Model for the Site.

3.3.1 Complete Exposure Pathways

Complete exposure pathways included in this HHRA were considered respective to the two parts of the proposed project mentioned above: Site Construction Activities and Future Land Use.

3.3.1.1 Site Construction Activities

On-Site construction workers involved in the development of the Site will potentially be exposed to COPCs present in the soil, soil gas, and groundwater via the following complete pathways:

- Inhalation of ambient air vapors resulting from the volatilization and dispersion of COPCs present in soil, soil gas, and groundwater;

- Inhalation of airborne particulates resulting from dust emissions and dispersion of COPCs present in soil;

- Ingestion of COPCs present in surface and subsurface soil;

- Dermal contact with COPCs present in surface and subsurface soil; and,

- Dermal contact with COPCs present in groundwater.

3.3.1.2 Future Land Use

During future land use, on-Site commercial workers and on-Site intrusive workers (e.g., Port utility repair worker) may potentially be exposed to COPCs present in soil, soil gas, and groundwater via the following complete pathways:

- Ingestion of COPCs present in surface and subsurface soil;
- Dermal contact with COPCs present in surface and subsurface soil;
- Inhalation of ambient/indoor air vapors resulting from the volatilization and dispersion of COPCs present in the soil, soil gas, and groundwater; and
- Inhalation of airborne particulates resulting from dust emissions and dispersion of COPCs present in soil.

3.3.2 Incomplete Exposure Pathways

Baseline exposure pathways considered incomplete were not included in the risk evaluation. Development and future land use exposure pathways considered incomplete are discussed below:

- Ingestion of groundwater: Excavation at the Site is anticipated to be limited to depths required for the removal of building footings and installation of subgrade utilities. Compliance with a Health and Safety Plan during demolition and construction is likely to limit exposure to groundwater, and ingestion of groundwater is therefore unlikely. Ingestion is also unlikely for on-Site intrusive workers, as proposed utility lines are located above groundwater level.
- Ingestion of and dermal contact with surface water: During construction, engineering controls will be implemented to reduce standing water and encourage drainage of any precipitation. Surface drains and proper grading will ensure that users of the Complex will not encounter surface water. The nearest naturally-occurring surface water is approximately one-half mile away, and is unlikely to be impacted by COPCs at the Site.
- Use of Potable Water: Groundwater beneath the Site is highly impacted with TPH-related chemicals and will likely not be used as a potable water source for the proposed service Complex.

The inclusion of Site development design elements will cause the following additional exposure pathways to be considered incomplete for the commercial worker scenario:

- Dermal contact with soil and inhalation of soil particulate. Site development includes the construction of a Site-wide asphalt cover. This cover will prevent Port commercial workers from contacting or inhaling Site soils.

3.4 Exposure Assumptions

Intake of a chemical is dependent on various exposure assumptions including exposure duration, inhalation rate, body weight, and averaging time. The baseline route-specific exposure assumptions used to estimate exposure to COPCs in the soil, soil gas, and groundwater at the Site are presented in Table 3-1. The changes to the exposure assumptions for the commercial worker as a result of planned Site development design elements are presented in Table 3-2. Note that all other scenarios are unchanged. These are the specific exposure assumptions that are used in the calculation of the intake of a chemical, as discussed in Section 7.2. Default exposure assumptions are obtained from Cal/EPA and USEPA guidance documents, wherever possible or applicable.

To determine whether short-term exposures to COPCs at the Site during the development phase of the Site could adversely impact human health, Iris Environmental has conservatively estimated that complete development of the Site will take 6 months (120 work days) and that the construction worker could be exposed throughout this time period.

To determine whether long-term exposures to COPCs at the Site after development could adversely impact human health, Iris Environmental has estimated the lifetime exposure for on-Site commercial workers using default parameters. The on-Site commercial worker was assumed to work at the Site for 250 days per year for a 25-year period. As it is highly unlikely that any individual would work at the Site for a 25-year period, exposures and risks estimated for the future on-Site commercial worker are expected to be significantly lower than presented in this analysis. To estimate exposures that could be incurred by a future intrusive worker who may be involved in limited subsurface repair activities, Iris Environmental has assumed a 2-day per year exposure frequency. To account for the possibility that the same repair worker could be assigned to the Site and return on an annual basis, we have assumed that the intrusive worker could be exposed 2 days per year, for a 25-year exposure period.

4.0 SELECTION OF CHEMICALS FOR INCLUSION IN THE RISK EVALUATION

The purpose of this section is to identify COPCs at the Site to be included in the HHRA. All Site-related data collected during previous and recent Site investigations as discussed in Section 2.6 were qualitatively evaluated for use in the HHRA. As previous Site investigations focused on TPH-related impacts and the recent Phase II ESA was conducted to provide an adequate dataset of all potential chemicals of concern on-Site for the purpose of conducting a risk assessment, only Phase II ESA data was used in this HHRA. The selection of COPCs to be included in the quantitative evaluation was based on guidance provided by USEPA (1989) and Cal/EPA (1997). Analytical data collected as part of the Phase II ESA was compiled, and Site-wide statistics for each chemical were calculated and summarized (e.g., frequency of detection, maximum detected concentration, mean concentration). The summary of chemicals detected across the Site is presented in Table 4-1.

All chemicals ever detected in soils, soil gas, and groundwater were initially included in the quantitative evaluation. Consistent with general risk assessment guidance, the only chemicals excluded from the quantitative evaluation are metals that were detected at levels within regional background levels. Regional background levels of metals in "Colluvium & Fill" soils, as published by Lawrence Berkeley National Laboratory (LBNL) in 1995, were compared to metal concentration levels at the Site. Based on these criteria, the 95% Upper Confidence Limit (95% UCL) of the mean concentration of eight of the detected metals were below the LBNL 95% UCL background levels: antimony, chromium, copper, mercury, nickel, selenium, thallium, and zinc. These metals were not selected as COPCs for evaluation in the HHRA. See Table 4-2 for the comparison of Site-specific levels to background levels published by LBNL.

Even if a compound was only detected once, it was conservatively included in the risk assessment. The selection of chemicals is summarized in the rightmost column of Table 4-1. As indicated by Tables 2-1 and 4-1:

- Out of a possible 154 compounds, 56 were detected in soil, soil gas, or groundwater and selected for use in the HHRA; of these:
  - 27 were VOCs (17 in soil, 19 in groundwater, and 14 in soil gas):
  - 11 were SVOCs (11 in soil and five in groundwater):
  - two were total petroleum hydrocarbons;
  - 15 were metals; and
  - additionally, methane was considered in soil gas.

Consistent with DTSC risk assessment guidance (Cal/EPA 1994), risks associated with the presence of TPH are assessed by evaluating the significance of individual chemical constituents within the TPH mixture.

5.0 ESTIMATION OF REPRESENTATIVE EXPOSURE CONCENTRATIONS

The purpose of this section is to estimate the representative concentrations of COPCs in soil, soil gas, and groundwater to which human populations may be exposed. As described in preceding sections, on-Site construction workers during development and on-Site commercial and intrusive workers during the proposed future land use scenario (the "Receptors") could potentially be exposed to COPCs identified in the environmental media (i.e., soil, soil gas, and groundwater; i.e., "the Source") at the Site. An estimate of the potential total exposure to COPCs requires that the exposures resulting from each pathway be estimated and included in a calculation of total exposure.

Developing a Source-Receptor relationship requires estimating representative concentrations of the COPCs in the soil, soil gas, and groundwater and then conducting fate and transport modeling to estimate the concentrations of COPCs that may be present in the air where the Receptors are located. To provide a conservative estimate of potential health risks posed by COPCs at the Site under the development and future land use scenarios, Iris Environmental estimated potential exposures under baseline conditions, with the assumption that the Site is developed without the benefit of the various specific engineering design elements that will mitigate exposure (i.e., the baseline conditions do not incorporate the reduction in exposures that will result from the passive venting system that is a component of the building design and the asphalt cover that will preclude daily direct contact with soils) Exposures were then estimated by incorporating the specific engineering design elements that will minimize exposures, specifically the passive soil venting system and the asphalt cap that will cover all soils at the Site.

The remaining parts of this section discuss the methods used to estimate the representative COPC concentrations to which the Receptors may be exposed based on the existing analytic data and the predicted emissions from the Source. A detailed discussion of the modeling approaches used in this risk assessment is presented in Appendix B.

5.1 Estimation of COPC Concentrations in Soil, Soil Gas, and Groundwater

The list of COPCs which may be encountered in each medium (soil, soil gas, and groundwater) was determined using the sampling results presented above in Section 4.0. A comprehensive summary of all sampling for chemicals in various media, and the COPCs selected for evaluation in the HHRA, are presented in Table 4-1.

USEPA recommends the use of the 95% upper confidence limit (UCL) of the arithmetic mean concentration as the representative exposure point concentration (EPC; USEPA 1989). For the purposes of this risk assessment, Iris Environmental utilized the 95% UCL of chemical concentration based on Phase II ESA analytical results, except in instances where the 95% UCL was greater than the maximum detected concentration. Consistent with USEPA guidance, the maximum detected concentration was used as the representative EPC where the 95% UCL was greater than the maximum. The representative EPCs for soil, soil gas, and groundwater used in the HHRA are presented in Table 4-1.

Where possible, only discrete samples for soil (by boring location and depth) were used in the risk assessment. This was not possible for SVOC samples, which were depth-composited in the field for cost-effective laboratory analysis. Some soil samples were analyzed for on-Site feedback purposes by Mobile Chem Laboratory, as indicated in Section 2.6.3. On-Site laboratory results were selected as representative of a particular sample location if the detected level of a particular chemical was higher than that reported by the off-Site laboratory; conversely, for results reported as non-detect by both laboratories, the sample result with the lower detection limit was selected as representative of the particular sample location. No duplicate sample results or co-located sample results were selected for use in the risk assessment to ensure unbiased chemical characterization.

5.2 Estimation of Air Concentrations Resulting from the Emissions from Soil, Soil Gas, and Groundwater

Various models were used to estimate on-Site indoor and outdoor ambient air concentrations associated with the emission and dispersion of COPCs in soil, soil gas, and groundwater. The estimation of the COPC concentrations at on-Site receptors consisted of two steps: (i) the estimation of emission rates of COPCs into air; and, (ii) the estimation of the dispersion these emissions into trenches and indoor environments. The trench and indoor air concentrations were calculated by multiplying the volatilization flux by the dispersion factor.

A table summarizing the models used for each scenario and the associated input concentration is presented below. Further description of all Models used to determine air concentrations is included in Appendix B. The physicochemical properties of the COPCs used in these models are presented in Table 5-1. The Site data properties are presented in Table 5-2. Table 5-3 presents the air concentrations associated with the baseline modeling and Table 5-4 presents the ambient air concentrations associated with the engineering control modeling.

Population	Exposure Pathway/Media	Input Concentration(s)	Model
On-Site Construction Worker; On-Site Intrusive Worker	Soil Particulate	Soil	Dust
	Ambient Air	Soil, soil gas, groundwater	Trench
On-Site Commercial Worker	Soil Particulate	Soil	Dust
	Indoor Ambient Air	Soil, soil gas, groundwater	Johnson & Ettinger

As discussed in Appendix B, Iris Environmental incorporated pressurized methane flow that results in enhanced migration of other COPCs through the soil column. Methane concentrations at the Site are likely the result of the use of hydrocarbons as a food substrate by subsurface microorganisms. As the microorganisms consume the hydrocarbons as food, methane is released as a byproduct. The generation of methane builds up the local gas pressure, resulting in a pressure gradient between the source of the TPH and the surface. This pressure gradient causes methane, and other collocated gases, to be "pushed" to surface at a rate greater that expected from the diffusion gradient. Therefore, we have conservatively incorporated this additional transport pathway in our baseline modeling.

6.0 TOXICITY ASSESSMENT

The following section has two primary objectives. The first objective is to present the toxicity values that will be used in subsequent sections to quantify potential health impacts associated with the predicted chemical exposures. The second objective is to briefly discuss the basis for these values.

The toxicity assessment, also referred to as the dose-response assessment, characterizes the relationship between the magnitude of exposure to a chemical and the potential for adverse health effects to occur as a result of that exposure. Guidance from Cal/EPA and USEPA requires that risk assessments evaluate two different categories of toxic effects: carcinogenic and noncarcinogenic. Different methods are used to estimate the potential for carcinogenic and noncarcinogenic health effects to occur. Some chemicals that produce carcinogenic effects may also be associated with noncarcinogenic effects. Most regulatory agencies consider carcinogens, such as benzene, to pose a risk for cancer at all exposure levels (i.e., a "no-threshold" assumption); that is, any increase in dose is associated with an increase in the probability of developing cancer over the course of a lifetime. Noncarcinogens, in contrast, are thought to produce adverse health effects only when some minimum exposure level is exceeded (i.e., a threshold dose).

In this HHRA, the possibility for the potential exposures occurring during the development and post-development use of the Site to result in cancer or noncancer health effects was evaluated. Additionally, the potential for exposures resulting releases during Site development to result in explosive hazards under the on-Site construction scenario was evaluated. The specific sources of toxicity information used for this analysis correspond to Cal/EPA's and USEPA's recommended toxicity sources, as described further in the remaining sections.

The remaining sections present the specific toxicity values that will be used to quantify the potential for carcinogenic and noncarcinogenic health effects to result from predicted exposures. Additionally, this section describes the specific method that is recommended by Cal/EPA to evaluate potential adverse health effects from exposure to lead. Finally, this section concludes with a description of the threshold concentrations that will be used in Section 7.0 to assess the potential for the predicted exposures to pose an unacceptable explosive hazard.

6.1 Toxicity Assessment for Carcinogenic Effects

Current health risk assessment practice for carcinogens is based on the assumption that, for most substances, there is no threshold dose below which carcinogenic effects do not occur. This current "no-threshold" assumption for carcinogenic effects is based on an assumption that the carcinogenic processes are the same at high and low doses. This approach has generally been adopted by regulatory agencies as a conservative practice to protect public health. The "no-threshold" assumption is used in this risk assessment for evaluating carcinogenic effects. Although the magnitude of the risk declines with decreasing exposure, the risk is believed to be zero only at zero exposure.

Cancer slope factors (CSFs) are used to quantify the response potency of a potential carcinogen. The CSF represents the excess lifetime cancer risk due to a continuous, constant lifetime exposure to a specified level of a carcinogen. CSFs are generally reported as excess incremental cancer risk per milligram of chemical per kilogram body weight per day $(mg/kg/day)^{-1}$. The Cal/EPA and USEPA have published a list of CSFs recommended for use in risk assessments. The Cal/EPA-recommended CSFs are maintained on the Cal/EPA Office of Environmental Health Hazard Assessment's (OEHHA) on-line toxicity criteria database (Cal/EPA 2002). The USEPA-recommended CSFs are maintained on the USEPA's *Integrated Risk Information System* on-line database (USEPA, 2002). Consistent with Cal/EPA risk assessment guidance, the OEHHA CSFs are used, when available USEPA CSFs are used when OEHHA CSFs are not available. The CSFs used to evaluate the potential carcinogenicity of COPCs are presented in Table 6-1.

6.2 Toxicity Assessment for Noncarcinogenic Effects

The toxicity assessment for noncarcinogenic effects requires the derivation of an exposure level below which no adverse health effects in humans are expected to occur. USEPA refers to these levels as reference doses (RfDs) for oral exposure and reference concentrations (RfCs) for inhalation exposure (USEPA, 1989). The noncancer RfD represents a dose, given in milligrams of chemical per kilogram of body weight per day, that would not be expected to cause adverse noncancer health effects in potentially exposed populations. The noncancer RfD, reported in units of mg/kg/day, is often referred to as the "acceptable dose." The noncancer Reference Concentration (RfC) represents the airborne concentration (in units of micrograms per cubic meter [$\mu g/m^3$]) that would not be expected to cause adverse noncancer health effects in populations exposed through the inhalation pathway. OEHHA refers to these "acceptable air concentrations" as Reference Exposure Levels (RELs). As the inhalation RfCs/RELs are derived from inhalation toxicity studies, they are used for evaluating inhalation exposures, when available, and are converted to corresponding inhaled doses (inhalation RfDs) using USEPA standard conversion assumptions. As recommended by USEPA, inhalation RfCs/RELs are converted to inhaled doses (inhalation RfDs) by assuming a breathing rate of 20 m^3/day, and a body weight of 70 kilograms (i.e., RfC/REL ($\mu g/m^3$) x (20 m^3/day) x (1/70 kg) x (1 mg/1000 μg) = RfD (mg/kg/day)). If inhalation RfCs/RELs were not available, then RfDs obtained from an oral study (oral RfDs) were extrapolated and applied to the inhalation in this evaluation (i.e., the inhalation RfD was assumed to be equivalent to the oral RfD, under the toxicological assumption that the chemical could produce the same type of noncancer effects via the inhalation route as observed through the oral route of exposure).

As recommended by USEPA (USEPA, 1989), RfDs are obtained from the *Integrated Risk Information System* (IRIS) (USEPA, 2002) or from the Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997). As recommended by DTSC, noncancer RELs, (in units of $\mu g/m^3$), obtained from OEHHA's on-line toxicity database (Cal/EPA, 2002), are used for evaluating noncancer effects from inhalation exposures, where available. If OEHHA-RELs are not available, RfCs are obtained from the IRIS (USEPA, 2002) or from HEAST (USEPA, 1997). All noncarcinogenic toxicity values used in this risk assessment are presented in Table 6-1.

6.3 Toxicity Assessment for Lead

The traditional RfD approach to the evaluation of chemicals is not applied to lead because most human health effects data are based on blood lead concentrations, rather than external dose

(Cal/EPA, 1992). Blood lead concentration is an integrated measure of internal dose, reflecting total exposure from Site-related and background sources. A clear no observed effects level (NOEL) has not been established for such lead-related endpoints as birth weight, gestation period, heme synthesis and neurobehavioral development in children and fetuses, and blood pressure in middle-aged men. Dose-response curves for these endpoints appear to extend down to 10 micrograms/deciliter (μg/dL) or less (ATSDR, 1993). The DTSC has developed a methodology for evaluating exposure and the potential for adverse health effects resulting from exposure to lead in the environment (Cal/EPA, 1992). The methodology results in a blood lead concentration of concern for the protection of human health and presents an algorithm for estimating blood lead concentrations in children and adults based on a multi-pathway analysis.

DTSC has provided a spreadsheet (LEADSPREAD) based on its guidance for evaluating lead toxicity (Cal/EPA, 1993). Per DTSC risk assessment guidance, the updated version spreadsheet model, LEADSPREAD Version 7, has been used in this HHRA. As recommended by DTSC, the estimated 99th percentile blood lead concentration for the given exposure scenarios in the spreadsheet are used to screen against the target endpoint of 10 ug (lead)/dL (blood). The default parameters for the construction and intrusive worker in the DTSC LEADSPREAD model have been modified to reflect the exposure assumptions depicted in Table 3-1. The results of the blood lead concentration calculations are presented in Appendix D and are discussed in Section 7.0 (Risk Characterization).

6.4 Assessment of Explosive Hazards

Explosive hazard thresholds are used to evaluate potential explosive hazards from hydrocarbons detected at the Site. The results of this screening evaluation will be used to determine if explosive hazard control measures will need to be implemented during Site development. Methane was detected in soil gas at high concentrations, and diesel and gasoline were detected in soil and water. These hydrocarbons may cause an explosive hazard, particularly in confined spaces. The available explosive threshold for methane used in this screening evaluation is 1.25% by volume of air. Note that this threshold incorporates a safety factor of four. The explosive threshold selected for gasoline in this evaluation was 0.35% by volume of air. The explosive threshold selected for No. 1 grade diesel fuel in this evaluation was 0.875% by volume in air. Explosive thresholds selected in this evaluation incorporate a safety factor of four (i.e., the explosive threshold selected is 25% of the lower explosive limit [LEL]), and LEL sources are noted in tables 7-10 and 7-11.

7.0 RISK CHARACTERIZATION

7.1 Introduction

Risk characterization is the final step of a risk assessment; the exposure and toxicity assessments are combined to produce an estimate of risk and a characterization of the uncertainties in the estimated risks. This section presents the results of the HHRA. A discussion of the uncertainties inherent in all risk assessments, including this one, is presented in Appendix C.

The risk posed by chemicals is directly related to the amount of exposure that an individual has to the chemicals. The amount of exposure that the identified potential receptor populations will incur is Site-specific, and is a function of the following elements:

- the initial concentration of chemicals in the soil, soil gas, and groundwater;
- the ability of COPC to migrate from the soil, soil gas, and groundwater into the ambient outdoor and/or indoor environment;
- the influence of Site-specific development plans, such as a Site-wide asphalt cover and vapor controls (e.g., subgrade venting system) beneath buildings used by Port commercial workers, on the potential exposures to COPCs incurred by Site receptors;
- the predicted airborne concentration in the ambient and indoor air after atmospheric dispersion of the chemicals from all sources (i.e., chemicals in the soil, soil gas, and groundwater) has occurred; and
- the amount of time that a potential receptor may be present and exposed to the combined chemical concentrations from the soil, soil gas, and groundwater.

Each of the elements listed above was integrated into an exposure model using standard regulatory guidelines for risk assessment. This exposure information is then combined with the toxicity values to estimate the likelihood that the predicted exposures will result in adverse health effects. The overall goal of the State and Federal agencies is to protect public health. Consequently, the risk assessment relies on a series of health protective assumptions that typically overestimate the potential for exposure and risk. For example, health protective assumptions were used to estimate the movement of chemicals from one environmental medium (i.e., soil, soil gas, and groundwater) to another (i.e., outdoor or indoor air). The assumptions in the baseline exposure model are designed to provide a conservative (i.e., high) estimate of an individual's exposure to chemicals. Similarly, the techniques used by the agencies to develop carcinogenic and noncarcinogenic toxicity values rely on a series of health protective assumptions. The combination of conservative assumptions used in the exposure and toxicity assessment ensures that the likelihood of underestimating the health risks is low.

The methodology used to evaluate the likelihood that potential exposures will result in cancer or noncancer health effects is described in the following section.

7.2 Methodology

Estimating cancer risks and noncancer hazard indices for exposures to chemicals in soil, soil gas, and groundwater requires information regarding chemical concentrations in the various media, the level of intake of the chemical, and the relationship between intake of the chemical and its toxicity as a function of human exposure to the chemical. The methodology used to derive the cancer risks and noncancer hazard indices for the selected chemicals of concern is based on guidance provided in the regulatory documents listed below.

- U.S. Environmental Protection Agency (USEPA). 1989. *Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual (Part A). Interim Final.* Office of Emergency and Remedial Response. EPA/540/1-89/002. Washington, D.C. December.

- U.S. Environmental Protection Agency (USEPA). 1991b. *Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual. Supplemental Guidance. Standard Default Exposure Factors.* Office of Emergency and Remedial Response. March 25.

- California Environmental Protection Agency (Cal/EPA). 1992. *Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities.* Department of Toxic Substances Control. July.

The potential risk associated with a measured concentration of a chemical in a medium is estimated using the following equations that describe the relationship between estimated intake of Site constituents, toxicity of specific chemicals, and overall risk for carcinogenic and noncarcinogenic health effects. For carcinogenic effects, the relationship is given by the following equation (USEPA, 1989):

$$\text{Cancer Risk} = \text{CDI} \times \text{CSF}$$

Where:

Cancer Risk	=	Cancer risk; the probability of an individual developing cancer as a result of exposure to a particular cumulative dose of a potential carcinogen (unitless);
CDI	=	Chronic Daily Intake of a chemical (mg chemical/kg body weight-day);
CSF	=	Cancer Slope Factor; the toxicity value which indicates the upper limit on lifetime incremental cancer risk per unit of dose of chemical (mg chemical/kg body weight-day)$^{-1}$.

The relationship for a noncarcinogenic chemical is given by the following equation (USEPA, 1989):

$$\text{Hazard Quotient} = \text{CDI/RfD}$$
$$\text{Hazard Index} = \sum \text{Hazard Quotient}$$

Where:

Hazard Quotient	=	Hazard Quotient; an expression of the potential for a chemical to cause noncarcinogenic effects, which relates the allowable amount of a chemical (reference dose [RfD]) to the estimated Site-specific intake (unitless);
Hazard Index	=	Hazard Index; the sum of the chemical-specific Hazard Quotients, which represents the cumulative potential for predicted exposures to result in noncarcinogenic effects (unitless);
CDI	=	Chronic Daily Intake of a chemical (mg chemical/kg body weight-day);
RfD	=	Reference dose; the toxicity value indicating the threshold amount of chemical contacted below which no adverse health effects are expected (mg chemical/kg body weight-day).

Intake is dependent on the exposure concentration and contact rate. The equations and used to calculate the chronic daily intake for each chemical via the identified complete exposure pathways under the development and future land use scenarios are presented in Table 7-1. These equations are used to derive the cancer risks and noncancer hazard indices associated with exposure to chemicals at the Site. State and Federal agencies have established acceptable incremental cancer risk levels to be within the range of one-in-ten thousand (1×10^{-4}) and one-in-one million (1×10^{-6}); that is, they consider a calculated excess cancer risk within this range of numbers to be acceptable. Regulatory agencies consider the one-in-one million risk level to be an insignificant risk, and terms such as "negligible risk" and "safe dose" have been used to characterize the one-in-one million risk level. As a risk management policy, the Cal/EPA DTSC generally requires risks to be closer to the 1×10^{-5} end of the target range for commercial scenarios, consistent with California Code of Regulations (CCR, Title 22) use of 1×10^{-5} risk target in estimating No Significant Risk Levels for Proposition 65 listed carcinogenic chemicals. The CDIs for carcinogens, calculated under baseline conditions, are presented in Table 7-2. The CDIs for carcinogens, calculated under Site development conditions, are presented in Table 7-3.

For noncancer health hazards, an HI of one (1) is identified as the target level of concern. Chemical exposures that yield hazard indices of less than 1 are not expected to result in adverse noncancer health effects (USEPA, 1989). The CDIs for noncarcinogens, calculated under baseline conditions, are presented in Table 7-4. The CDIs calculated for noncarcinogens, calculated under Site development plans are presented in Table 7-5.

7.3 Risk Assessment Results

The probability that populations will develop cancer or suffer noncancerous adverse health effects from exposure to chemicals associated with the Site was determined by combining the toxicity values for each chemical (presented in Section 6.0) with the quantitative estimates of exposure (discussed in Sections 3.0 and 5.0). Cancer risks and noncancer hazard indices were calculated for exposure to chemicals present in soil, soil gas, and groundwater.

A discussion of the potential cancer risks and noncancer hazard indices associated with the development phase and the proposed future land use of the Site are described below, in Sections 7.3.1 and 7.3.2, respectively.

7.3.1 During Development

Development phase health risks for the on-Site construction worker, calculated as cancer risk, noncancer hazard indices, and lead exposure, are included below.

7.3.1.1 Cancer Risk Estimates

As indicated in Table 7-6, the total incremental cancer risk for the on-Site construction worker involved in the development of the Site is estimated to be 3.69×10^{-6}, which is within the acceptable incremental cancer risk range of 1×10^{-4} and 1×10^{-6} and within the 1×10^{-5} cancer risk level commonly considered by Cal/EPA DTSC as the "acceptable" risk level for commercial land-use scenarios. Approximately 56% of the predicted cancer risk for the on-Site construction worker is attributable to the soil ingestion pathway and 27% is attributable to inhalation of vapors which have migrated up from groundwater. Further, approximately 66% of the total cancer risk for on-Site construction workers is attributable to arsenic in soils and 24% is attributable to vinyl chloride in groundwater. In sum, the chemical exposures that could occur during the development of the Site would not be expected to result in unacceptable cancer risks for workers involved in the development of the Site. The predicted cancer risks associated with the development phase of the project are within levels that are often considered acceptable by USEPA and below the risk level often considered by Cal/EPA DTSC, particularly for industrial/commercial exposure scenarios. It is important to note that although 24% of the risk is attributable to vinyl chloride, this compound was detected in only 3 out of a total of 37 groundwater samples. Thus, it does not appear to be widespread throughout the Site and basing our risk estimates on this compound is likely conservative.

7.3.1.2 Noncancer Hazard Indices

As indicated in Table 7-7, the estimated cumulative noncancer HIs for exposure to chemicals present in the soil, soil gas, and groundwater is 0.892 for on-Site construction worker during Site development. The estimated cumulative noncancer HI for on-Site construction workers is below the target HI of 1, indicating that exposures to construction workers are within levels typically considered acceptable. Thirty-seven percent of the noncancer HI for the construction worker is attributable to the soil ingestion pathway and 30% is attributable to the particulate inhalation pathway. Sixty-two percent of the noncancer HI for on-Site construction workers is attributable to arsenic.

7.3.1.3 Lead

As previously described, the reference dose approach used for assessing potential noncarcinogenic effects is not used to evaluate exposure to lead. Rather, the DTSC has developed specific guidance for evaluating exposure and the potential for adverse health effects resulting from exposure to lead in the environment using a model based on absorbed doses and estimated blood-lead concentrations. The guidance is implemented using a spreadsheet, obtained from DTSC, in which a multi-pathway algorithm is used for estimating blood-lead concentrations in children and adults.

Appendix D presents the output from LEADSPREAD. Using the representative EPC of lead detected in soil (57.4 mg/kg), the 99th percentile blood lead level associated with construction worker exposures to lead from the Site and from the Site via all exposure pathways and from background sources in air, food, and drinking water is 3.8 ug/dl. This level is well below the target concentration of 10 ug/dl, developed to be protective of children's health (Cal/EPA, 1992). The results from LEADSPREAD for on-Site construction workers are presented in Table D-1.

7.3.2 Future Land Use

Future land use phase health risks for the on-Site commercial worker and on-Site intrusive worker, calculated as cancer risk, noncancer hazard indices, and lead exposures, are included below.

7.3.2.1 Cancer Risk Estimates

On-Site Commercial Worker

As indicated in Table 7-6, the total incremental baseline cancer risk predicted for the on-Site commercial workers during future land use of the Site is complete is estimated to be 2.56 x 10^{-5}, a level that is within USEPA's established acceptable incremental cancer risk range of 1 x 10^{-4} and 1 x 10^{-6}, but above the 1 x 10^{-5} risk level commonly considered as the "acceptable" risk level by Cal/EPA DTSC for commercial land-use scenarios. Approximately 44% of the predicted cancer risk for the future on-Site commercial worker is attributable to the soil ingestion pathway, and 32% is attributable to vapors from groundwater which have migrated up into indoor air. Approximately 60% of the total cancer risk for on-Site commercial workers is attributable to arsenic in soils and 26% is attributable to vinyl chloride in groundwater.

As shown in Table 7-8, the incorporation of planned Site development design features (i.e., passive vapor venting system and asphalt cover across the Site) results in a predicted cancer risk of 3.47 x 10^{-6}, a level that is well within USEPA's established acceptable incremental cancer risk range of 1 x 10^{-4} and 1 x 10^{-6}, and below the 1 x 10^{-5} risk level commonly considered as the "acceptable" risk level by Cal/EPA DTSC for commercial land-use scenarios. With controls, approximately 58% of the predicted cancer risk for the future on-Site commercial worker is attributable to vapors which have migrated up from groundwater and accumulated in indoor air. Approximately 50% of the total cancer risk for on-Site commercial workers is attributable to vinyl chloride in groundwater.

On-Site Intrusive Worker

As indicated in Table 7-6, the total incremental cancer risk for the on-Site intrusive worker involved in repeated annual subsurface maintenance activities at the Site is estimated to be 1.53 x 10^{-6}, which is well within USEPA's acceptable incremental cancer risk range of 1 x 10^{-4} and 1 x 10^{-6}, and below the 1 x 10^{-5} risk level commonly considered as the "acceptable" risk level by Cal/EPA DTSC for commercial land-use scenarios. Approximately 57% of the predicted cancer risk for the on-Site intrusive worker is attributable to the soil ingestion pathway, and 28% is attributable to the inhalation of vapors which have migrated to the trench from groundwater.

Further, approximately 67% of the total cancer risk for on-Site intrusive workers is attributable to arsenic in soils and 24% is attributable to vinyl chloride in groundwater.

7.3.2.2 Noncancer Hazard Indices

On-Site Commercial Worker

As indicated in Table 7-7, the estimated cumulative noncancer HI for exposure to chemicals present in the soil, soil gas, and groundwater is 0.226 for the on-Site commercial worker. The estimated cumulative noncancer HI is below the target HI of 1, indicating that exposures to commercial workers would not be expected to result in any adverse noncancer health effects. Approximately 32% of the noncancer HI for the on-Site commercial worker is from the soil ingestion pathway and 28% of the noncancer HI is from vapors which have migrated up from groundwater into indoor air. Fifty-nine percent of the cumulative noncancer HI for the on-Site commercial worker is attributable to arsenic.

As shown in Table 7-9, the incorporation of planned Site development design features (i.e., passive vapor venting system and asphalt cover across the Site) results in a predicted noncancer HI of 0.023 indicating that exposures to commercial workers would not be expected to result in any adverse noncancer health effects. Approximately 57% of the noncancer HI for the on-Site commercial worker in the development model is from the groundwater vapor inhalation pathway, and 42% is from the soil vapor inhalation pathway. Thirty-five percent of the cumulative noncancer HI for the on-Site commercial worker is attributable to 2-methylnaphthalene and 13% is attributable to naphthalene.

On-Site Intrusive Worker

As indicated in Table 7-7, the estimated cumulative noncancer HI for exposure to chemicals present in the soil, soil gas, and groundwater is 0.014 for the on-Site intrusive worker. This estimated cumulative noncancer HI is below the target HI of 1, indicating that the chemical exposures for on-Site intrusive workers that could occur during the proposed future land use would not be expected to result in adverse noncancer health effects. Approximately 41% of the noncancer HI for the on-Site intrusive worker is attributable to the soil ingestion pathway. Approximately 68% percent of the cumulative noncancer HI for the on-Site intrusive worker is attributable to arsenic.

7.3.2.3 Lead

Exposure to soils for the on-Site intrusive worker and the on-Site commercial worker (after incorporations of Site development design elements) will be less than that for on-Site construction workers. Thus, the output from LEADSPREAD model used for the on-Site construction worker is considered protective for both the on-Site intrusive worker and the on-Site commercial worker. As the projected blood-lead level fro the on-Site construction worker was estimated to be 3.8 ug/dl, a level well below the target concentration of 10 ug/dl. Accordingly, the predicted blood-lead levels for the on-Site intrusive worker and the on-Site commercial worker will be below 3.8 ug/dl. Therefore, the levels of lead present at the Site are well below levels that would result in unacceptable blood lead concentrations in either future on-Site intrusive workers or future on-Site commercial workers.

7.4 Explosive Hazard Estimates

As indicted in Table 7-10, the predicted combustible gas concentrations are below the respective lower explosive limits (LEL) with a safety factor of four for the compounds which pose the greatest risk. Furthermore, the modeling approaches used to estimate the diesel concentrations are conservative, and the weathering of the diesel in the groundwater is likely to reduce the volatility of the diesel mix. Nonetheless, while exceedances of the actual LEL are unlikely, the Health and Safety Plan for the development of the Site should consider the explosive potential of vapors encountered during construction activities at the Site. As indicated by Table 7-11, Site development conditions further reduce estimates for the indoor air explosive hazard. Finally, we note that predicted elevated levels of diesel gases may suggest the potential for odorous sulfur compounds to be present during construction activities. Monitoring for hydrogen sulfide is recommended.

7.5 Summary and Conclusions

A HHRA was conducted to ensure that development and use of the Site as a proposed service Complex can occur in a manner that is protective of human health. A baseline HHRA was conducted, to evaluate potential health risks under the assumption that the Site is developed without the benefit of the various specific design elements that will, from a practical standpoint, mitigate exposure (i.e., the baseline conditions do not incorporate the reduction in exposures that will result from the passive vapor venting system that is a component of the building design and the asphalt cover that will preclude daily direct contact with soils). Risks were also calculated assuming the inclusion of planned Site development design elements that will minimize exposures, specifically the passive vapor venting system and the asphalt cap that will cover all soils at the Site.

Under both scenarios, the risk assessment was intended to be very conservative, resulting in projected estimates of risk that are likely significantly higher than the actual risks that may be posed by the Site. The human receptors that could potentially be impacted throughout the development and use of the Site were identified and included in the evaluation. Further, all chemicals detected in recent sampling activities were included in the evaluation; under the assumption the 95% UCL represents the concentration to which human populations may be exposed. The models that were used to predict the movement of chemicals from one environmental media to another were very conservative, and tend to overestimate human exposures. The goal of the baseline approach is to identify those uses, activities, and chemical sources that have the potential to contribute most significantly to human health impacts. The identification of the most significant contributors to risk will facilitate the future development of the Site and will ensure that human health is protected throughout the entire Site development process.

As described in the preceding sections, the baseline risk assessment results indicate that absent mitigation, risks to on-Site commercial workers during future use of the Site may be slightly greater than levels typically considered acceptable by regulatory agencies such as Cal/EPA

DTSC. The projected risks are dominated by potential exposures resulting from the inhalation of vapors and the ingestion of soil.

However, based on the actual development plans that will be implemented at the Site, which will include the incorporation of vapor controls (e.g., a subgrade venting system) beneath the building and the covering of all exposed soils with an asphalt cover, risks to future commercial workers at the Site will be below (i.e., lower than) levels that would be considered acceptable by regulatory agencies.

The baseline risk assessment results indicate that absent mitigation, risks to on-Site construction workers during development of the Site are below levels typically considered acceptable by regulatory agencies such as Cal/EPA DTSC. The projected risks are dominated by potential exposures resulting from the inhalation of vapors and the ingestion of soil. Construction workers involved in the duration of the Site development should undertake all activities in accordance with a Site-specific Health and Safety Plan that meets the requirements of all relevant rules and regulations. Similarly, risks to future on-Site intrusive workers who may be engaged in ongoing, albeit periodic, subsurface repair activities are below levels that would be considered acceptable by regulatory agencies such as Cal/EPA DTSC. Accordingly, the risk assessment supports that the development of the Site, as currently planned by the Port, will result in a Site that is safe and appropriate for the intended commercial/industrial use.

8.0 REFERENCES

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TABLE 2-1: SAMPLING AND CHEMICAL ANALYSIS SUMMARY
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

	Soil Analyses Selected for HHRA								Groundwater Analyses Selected for HHRA						Soil Gas Analyses Selected for HHRA			Total data selected for use in the HHRA
Method	8015M/ 8260G	8015TEH	8015M	8260	8260B	8021B	8270C	6010/ 6020/ 7471	8015M/ 8260G	8015M	8015M	8260	8260B	8270C	8260B	TO-3	ASTM D1946	
	Gasoline [b]	TPHd [c]	TPHj/k/mo [c]	VOCs [d]		BTEX [e]	SVOCs [f]	Metals [g]	Gasoline [b]	TPHd [c]	TPHj/k/mo [c]	VOCs [d]		SVOCs [f]	VOCs [d]	Gasoline [b]	Methane [h]	
No. of samples considered [a]	112	113	107	varies [i]		41	45	107	36	33	31	varies [i]		13	23	23	23	231
No. of compounds considered	1	1	3	41	67	4	65	18	1	1	3	41	67	65	66	1	1	154
No. of compounds detected	1	1	1	17		4	11	15	1	1	1	19		5	14	1	1	56

Notes:

[a] Number of samples includes discrete soil samples from borings, groundwater samples, and soil gas samples. Composite soil sample results were used only for SVOCs. Duplicate samples were not included in the dataset used for site characterization.

[b] "Gasoline" indicates Total Volatile Hydrocarbons as gasoline by EPA Method 8015 modified for both soil and groundwater samples and Volatile Organic Compounds as Gasoline by EPA Method 8260B. Soil gas samples were analyzed by EPA Method TO-3.

[c] "TPHd/j/k/mo" indicates Total Petroleum Hydrocarbons as diesel, jet fuel, kerosene, and motor oil, by EPA Method 8015 modified (Total Extractable Hydrocarbons). Samples were treated with a silica gel column clean-up prior to analysis. Mobile Chem Lab samples only analyzed for Total Extractable Hydrocarbons in the diesel range.

[d] "VOCs" indicates halogenated volatile compounds by EPA Method 8260 and/or 8260B.

[e] "BTEX" indicates benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B.

[f] "SVOCs" indicates semi-volatile organic compounds by EPA Method 8270.

[g] "Metals" indicates Title 26 Metals (Ag, As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Ti, V, Zn) by EPA Method 6010/6020/7471 and Cr VI by EPA Method 7196A. Organic Lead was additionally analyzed by CA Leaking Underground Storage Tank (LUFT) Method. Organic Lead was not detected in any of the soil samples (12 samples) or grab groundwater samples (13 samples).

[h] "Methane" indicates CH4 by ASTM method D1946.

[i] 42 compounds and are listed on Method 8260 reporting from Mobile Chem Lab and 66 compounds are listed on Method 8260B reporting from STL San Francisco, and the list of chemicals evaluated in 8260B analysis did not include the entire list of chemicals evaluated in 8260 analysis. Each lab received a different number of samples. Because of the different analyte lists, the number of soil samples for each VOC was either 23, 66, or 71. The number of water samples for each VOC was 18, 21, or 37.

Reference:

Iris Environmental. 2002a. *Phase II Environmental Site Assessment, Future Port Field Support Services Complex, 2225 & 2277 Seventh Street, Port of Oakland, Oakland, California.* Oakland, California. June 11.

TABLE 3-1: BASELINE EXPOSURE ASSUMPTIONS

Future Port of Oakland Field Support Services Complex

2225 and 2277 Seventh Street

Oakland, California

Parameter	Symbol	Scenario: Development Phase — On-Site Construction Workers	Scenario: Future Land Use — On-Site Commerical Workers	Scenario: Future Land Use — On-Site Intrusive Workers	Units
Inhalation of Soil Particulates					
Breathing Rate[a]	BR	20	20	20	m^3/day
Transfer Coefficient[b]	TFp	5.0E-07	5.0E-08	5.0E-07	$(mg/m^3)/(mg/kg)$
Dermal Contact with Soil					
Surface Area[c]	SA	3300	5700	3300	cm^2/day
Adherence Factor[d]	AF	0.2	0.07	0.2	mg/cm^2
Absorption Factor-PAHs	ABS-PAH	See Chemical Properties Table (Table 5-1)			unitless
Absorption Factor-Metals	ABS-Met				unitless
Absorption Factor-Arsenic	ABS-As				unitless
Absorption Factor-Cadmium	ABS-Cd				unitless
Absorption Factor-Organics	ABS-Org				unitless
Conversion Factor	CF	1.0E-06	1.0E-06	1.0E-06	kg/mg
Dermal Contact with Groundwater					
Surface Area[c]	SA	3,300	NA	3300	cm^2/day
Chemical Specific Dermal Permeablility Coefficient	Kp	See Chemical Properties Table (Table 5-1)			cm^2/hr
Conversion Factor	CF	1.0E-03	NA	1.0E-03	L/cm^3
Ingestion of Soil					
Ingestion Rate	IR	480	50	480	mg/day
Conversion Factor	CF	1.0E-06	1.0E-06	1.0E-06	kg/mg
Inhalation of Vapors					
Breathing Rate[a]	BR	20	20	20	m^3/day
Population-Specific Intake Parameters					
Exposure Time		8	8	8	hrs/day
Exposure Frequency	EF	120	250	2	day/yr
Exposure Duration	ED	1	25	25	yr
Body Weight	BW	70	70	70	kg
Averaging Time-Carcinogens	ATc	25,550	25550	25550	day
Averaging Time-Noncarcinogens	ATnc	365	9,125	9,125	day

Notes:

[a] Recommended breathing rates for adults (20 m^3/day) (Cal/EPA 1992; Cal/EPA 1994).

[b] A soil-to-air transfer coefficient is calculated by assuming an airborne dust level of 50 $\mu g/m^3$, which corresponds to the National Ambient Air Quality Standard (Cal/EPA 1994).

[c] Corresponds to the area of exposed skin in each respective population. For commercial workers, corresponds to head, hands, forearms and lower legs (Cal/EPA 2000). For construction and intrusive workers, corresponds to head, hands, and forearms.

[d] Soil adherence factors recommended by Cal/EPA (2000).

Sources:

California Environmental Protection Agency (Cal/EPA). 1994. *Preliminary Endangerment Assessment Guidance Manual.* Department of Toxic Substances Control (DTSC). January.

California Environmental Protection Agency (Cal/EPA). 2000. *Draft: Guidance for the Dermal Exposure Pathway.* Memorandum from Department of Toxic Substances Control (DTSC). January 7.

TABLE 3-2: SITE DEVELOPMENT EXPOSURE ASSUMPTIONS

Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Parameter	Symbol	Scenario — Future Land Use — On-Site Commerical Workers	Units
Inhalation of Vapors			
Breathing Rate [a]	BR	20	m^3/day
Population-Specific Intake Parameters			
Exposure Time		8	hrs/day
Exposure Frequency	EF	250	day/yr
Exposure Duration	ED	25	yr
Body Weight	BW	70	kg
Averaging Time-Carcinogens	ATc	25550	day
Averaging Time-Noncarcinogens	ATnc	9,125	day
Exposure Duration	ED	788,760,000	s

Notes:

NA = Not applicable, incomplete exposure pathway.

[a] Recommended breathing rates for adults (20 m^3/day) (Cal/EPA 1992; Cal/EPA 1994).

Sources:

California Environmental Protection Agency (Cal/EPA). 1994. *Preliminary Endangerment Assessment Guidance Manual.* Department of Toxic Substances Control (DTSC). January.

California Environmental Protection Agency (Cal/EPA). 2000. *Draft: Guidance for the Dermal Exposure Pathway.* Memorandum from Department of Toxic Substances Control (DTSC). January 7.

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Volatile Organic Compounds					
Soil	1,1,1,2-Tetrachloroethane	0/66	ND	ND	--	No
Soil	1,1,1-Trichloroethane	0/71	ND	ND	--	No
Soil	1,1,2,2-Tetrachloroethane	0/71	ND	ND	--	No
Soil	1,1,2-Trichloroethane	0/71	ND	ND	--	No
Soil	1,1-Dichloroethane	0/71	ND	ND	--	No
Soil	1,1-Dichloroethene	1/71	ND - 0.0081	0.00217	--	Yes
Soil	1,1-Dichloropropene	0/66	ND	ND	--	No
Soil	1,2,3-Trichlorobenzene	0/66	ND	ND	--	No
Soil	1,2,4-Trichlorobenzene	0/66	ND	ND	--	No
Soil	1,2,4-Trimethylbenzene	1/66	ND - 0.019	0.00328	--	Yes
Soil	1,2-Dibromo-3-chloropropane	0/66	ND	ND	--	No
Soil	1,2-Dibromoethane	0/66	ND	ND	--	No
Soil	1,2-Dichlorobenzene	0/66	ND	ND	--	No
Soil	1,2-Dichloroethane	0/71	ND	ND	--	No
Soil	1,2-Dichloropropane	0/71	ND	ND	--	No
Soil	1,3,5-Trimethylbenzene	1/66	ND - 0.0057	0.00281	--	Yes
Soil	1,3-Dichlorobenzene	0/66	ND	ND	--	No
Soil	1,3-Dichloropropane	0/66	ND	ND	--	No
Soil	1,4-Dichlorobenzene	0/66	ND	ND	--	No
Soil	2,2-Dichloropropane	0/66	ND	ND	--	No
Soil	2-Butanone(MEK)	0/71	ND	ND	--	No
Soil	2-Chloroethylvinyl ether	0/66	ND	ND	--	No
Soil	2-Chlorotoluene	0/66	ND	ND	--	No
Soil	2-Hexanone	0/71	ND	ND	--	No
Soil	4-Chlorotoluene	0/66	ND	ND	--	No
Soil	4-Methyl-2-pentanone (MIBK)	0/71	ND	ND	--	No
Soil	Acetone	3/71	ND - 0.21	0.0263	--	Yes
Soil	Benzene	2/112	ND - 0.01	0.00239	--	Yes
Soil	Bromobenzene	0/66	ND	ND	--	No
Soil	Bromochloromethane	0/66	ND	ND	--	No
Soil	Bromodichloromethane	0/71	ND	ND	--	No
Soil	Bromoform	0/71	ND	ND	--	No
Soil	Bromomethane	0/71	ND	ND	--	No
Soil	Carbon disulfide	0/71	ND	ND	--	No
Soil	Carbon tetrachloride	0/71	ND	ND	--	No
Soil	Chlorobenzene	1/71	ND - 0.0078	0.00216	--	Yes
Soil	Chloroethane	0/71	ND	ND	--	No
Soil	Chloroform	0/71	ND	ND	--	No
Soil	Chloromethane	0/71	ND	ND	--	No
Soil	cis-1,2-Dichloroethene	0/71	ND	ND	--	No
Soil	cis-1,3-Dichloropropene	0/71	ND	ND	--	No
Soil	Dibromochloromethane	0/71	ND	ND	--	No
Soil	Dibromomethane	0/66	ND	ND	--	No
Soil	Dichlorodifluoromethane	0/66	ND	ND	--	No
Soil	di-Isopropyl Ether (DIPE)	0/23	ND	ND	--	No
Soil	Ethanol	0/23	ND	ND	--	No
Soil	Ethyl tert-Butyl Ether (ETBE)	0/23	ND	ND	--	No
Soil	Ethylbenzene	1/112	ND - 0.0055	0.00226	--	Yes
Soil	Hexachlorobutadiene	0/66	ND	ND	--	No
Soil	Isopropylbenzene	2/66	ND - 0.098	0.00642	--	Yes
Soil	Methylene chloride	0/71	ND	ND	--	No
Soil	MTBE	2/71	ND - 0.023	0.00286	--	Yes
Soil	Naphthalene	3/66	ND - 3.5	0.150	--	Yes
Soil	n-Butylbenzene	2/66	ND - 0.17	0.00932	--	Yes

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Volatile Organic Compounds (cont'd)					
Soil	n-Propylbenzene	1/66	ND - 0.17	0.00927	--	Yes
Soil	p-Isopropyltoluene	0/66	ND	ND	--	No
Soil	sec-Butylbenzene	2/66	ND - 0.12	0.00755	--	Yes
Soil	Styrene	0/71	ND	ND	--	No
Soil	tert-Amyl Ethyl Ether (TAME)	0/23	ND	ND	--	No
Soil	tert-Butylbenzene	0/66	ND	ND	--	No
Soil	Tertiary Butanol (TBA)	0/23	ND	ND	--	No
Soil	Tetrachloroethene	2/71	ND - 0.011	0.00236	--	Yes
Soil	Toluene	7/112	ND - 0.018	0.00263	--	Yes
Soil	trans-1,2-Dichloroethene	0/71	ND	ND	--	No
Soil	trans-1,3-Dichloropropene	0/71	ND	ND	--	No
Soil	Trichloroethene	1/71	ND - 0.0079	0.00216	--	Yes
Soil	Trichlorofluoromethane	0/66	ND	ND	--	No
Soil	Trichlorotrifluoroethane	0/66	ND	ND	--	No
Soil	Vinyl acetate	0/71	ND	ND	--	No
Soil	Vinyl chloride	0/71	ND	ND	--	No
Soil	Xylene(s)	3/112	ND - 0.026	0.00296	--	Yes
	Total Petroleum Hydrocarbons[e]					
Soil	Diesel	79/113	ND - 5700	186	--	Yes
Soil	Gasoline	6/112	ND - 310	7.89	--	Yes
Soil	Kerosene	0/107	ND	ND	--	No
Soil	Jet A	0/107	ND	ND	--	No
Soil	Motor Oil	49/107	ND - 3800	325	--	Yes
	Semi-volatile Organic Compounds					
Soil	1,3-Dichlorobenzene	0/45	ND	ND	--	No
Soil	1,4-Dichlorobenzene	0/45	ND	ND	--	No
Soil	2,4,5-Trichlorophenol	0/45	ND	ND	--	No
Soil	2,4,6-Trichlorophenol	0/45	ND	ND	--	No
Soil	2,4-Dichlorophenol	0/45	ND	ND	--	No
Soil	2,4-Dimethylphenol	0/45	ND	ND	--	No
Soil	2,4-Dinitrophenol	0/45	ND	ND	--	No
Soil	2,4-Dinitrotoluene	0/45	ND	ND	--	No
Soil	2,6-Dinitrotoluene	0/45	ND	ND	--	No
Soil	2-Chloronaphthalene	0/45	ND	ND	--	No
Soil	2-Chlorophenol	0/45	ND	ND	--	No
Soil	2-Methyl-4,6-dinitrophenol	0/45	ND	ND	--	No
Soil	2-Methylnaphthalene	3/45	ND - 18	1.39	--	Yes
Soil	2-Methylphenol	0/45	ND	ND	--	No
Soil	2-Nitroaniline	0/45	ND	ND	--	No
Soil	2-Nitrophenol	0/45	ND	ND	--	No
Soil	3,3-Dichlorobenzidine	0/45	ND	ND	--	No
Soil	3-Nitroaniline	0/45	ND	ND	--	No
Soil	4-Bromophenyl phenyl ether	0/45	ND	ND	--	No
Soil	4-Chloro-3-methylphenol	0/45	ND	ND	--	No
Soil	4-Chloroaniline	0/45	ND	ND	--	No
Soil	4-Chlorophenyl phenyl ether	0/45	ND	ND	--	No
Soil	4-Methylphenol	0/45	ND	ND	--	No
Soil	4-Nitroaniline	0/45	ND	ND	--	No
Soil	4-Nitrophenol	0/45	ND	ND	--	No
Soil	Acenaphthene	1/45	ND - 14	1.09	--	Yes
Soil	Acenaphthylene	0/45	ND	ND	--	No
Soil	Anthracene	2/45	ND - 12	0.975	--	Yes
Soil	Benzo(a)anthracene	1/45	ND - 4	0.514	--	Yes

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Semi-volatile Organic Compounds (cont'd)					
Soil	Benzo(a)pyrene	0/45	ND	ND	--	No
Soil	Benzo(b)fluoranthene	0/45	ND	ND	--	No
Soil	Benzo(g,h,i)perylene	0/45	ND	ND	--	No
Soil	Benzo(k)fluoranthene	0/45	ND	ND	--	No
Soil	Benzoic acid	0/45	ND	ND	--	No
Soil	Benzyl alcohol	0/45	ND	ND	--	No
Soil	Bis(2-chloroethoxy) methane	0/45	ND	ND	--	No
Soil	Bis(2-chloroethyl)ether	0/45	ND	ND	--	No
Soil	Bis(2-chloroisopropyl) ether	0/45	ND	ND	--	No
Soil	bis(2-Ethylhexyl) phthalate	0/45	ND	ND	--	No
Soil	Butyl benzyl phthalate	0/45	ND	ND	--	No
Soil	Chrysene	1/45	ND - 2.9	0.456	--	Yes
Soil	Dibenzo(a,h)anthracene	0/45	ND	ND	--	No
Soil	Dibenzofuran	2/45	ND - 8.5	0.770	--	Yes
Soil	Diethyl phthalate	0/45	ND	ND	--	No
Soil	Dimethyl phthalate	0/45	ND	ND	--	No
Soil	Di-n-butyl phthalate	0/45	ND	ND	--	No
Soil	Di-n-octyl phthalate	0/45	ND	ND	--	No
Soil	Fluoranthene	1/45	ND - 15	1.15	--	Yes
Soil	Fluorene	3/45	ND - 12	0.991	--	Yes
Soil	Hexachlorobenzene	0/45	ND	ND	--	No
Soil	Hexachlorobutadiene	0/45	ND	ND	--	No
Soil	Hexachlorocyclopentadiene	0/45	ND	ND	--	No
Soil	Hexachloroethane	0/45	ND	ND	--	No
Soil	Indeno(1,2,3-c,d)pyrene	0/45	ND	ND	--	No
Soil	Isophorone	0/45	ND	ND	--	No
Soil	Naphthalene	3/45	ND - 5.9	0.633	--	Yes
Soil	Nitrobenzene	0/45	ND	ND	--	No
Soil	N-Nitroso-di-n-propylamine	0/45	ND	ND	--	No
Soil	N-Nitrosodiphenylamine	0/45	ND	ND	--	No
Soil	Pentachlorophenol	0/45	ND	ND	--	No
Soil	Phenanthrene	4/45	ND - 36	2.44	--	Yes
Soil	Phenol	0/45	ND	ND	--	No
Soil	Pyrene	2/45	ND - 15	1.15	--	Yes
	Metals					
Soil	Antimony	17/107	ND - 22	2.32	5.9	No
Soil	Arsenic	105/107	ND - 880	41.9	14	Yes
Soil	Barium	107/107	2 - 180	60.7	--	Yes
Soil	Beryllium	0/107	ND	ND	0.9	No
Soil	Cadmium	107/107	0.55 - 14	2.45	1.5	Yes
Soil	Chromium	107/107	1.2 - 50	25.0	91.4	No
Soil	Chromium (Hexavalent)	0/107	ND	ND	--	No
Soil	Cobalt	107/107	2.3 - 14	6.58	--	Yes
Soil	Copper	107/107	2.5 - 380	47.7	59.6	No
Soil	Lead	107/107	1.1 - 680	57.4	14.7	Yes
Soil	Mercury	56/107	ND - 0.58	0.119	0.3	No
Soil	Molybdenum	4/107	ND - 2	0.568	91.4	No
Soil	Nickel	107/107	1.3 - 220	32.0	120.2	No
Soil	Selenium	4/107	ND - 2.5	1.09	5.6	No
Soil	Silver	0/107	ND	ND	1.7	No
Soil	Thallium	2/107	ND - 1.2	0.526	42.5	No
Soil	Vanadium	107/107	8.1 - 84	27.4	--	Yes
Soil	Zinc	107/107	7.1 - 600	63.6	91.5	No

ND = Chemical not detected.

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Volatile Organic Compounds				--	
Water	Carbon tetrachloride	0/37	ND	ND	--	No
Water	Ethanol	0/18	ND	ND	--	No
Water	Acetone	0/37	ND	ND	--	No
Water	Chloroform	0/37	ND	ND	--	No
Water	Benzene	6/37	ND - 0.078	0.00896	--	**Yes**
Water	1,1,1-Trichloroethane	0/37	ND	ND	--	No
Water	Bromomethane	0/37	ND	ND	--	No
Water	Chloromethane	0/37	ND	ND	--	No
Water	Dibromomethane	0/21	ND	ND	--	No
Water	Bromochloromethane	0/21	ND	ND	--	No
Water	Chloroethane	1/37	ND - 0.011	0.00284	--	**Yes**
Water	Vinyl chloride	3/37	ND - 0.18	0.0152	--	**Yes**
Water	Methylene chloride	0/37	ND	ND	--	No
Water	Carbon disulfide	0/37	ND	ND	--	No
Water	Bromoform	0/37	ND	ND	--	No
Water	Bromodichloromethane	0/37	ND	ND	--	No
Water	1,1-Dichloroethane	3/37	ND - 0.0097	0.00172	--	**Yes**
Water	1,1-Dichloroethene	1/37	ND - 0.00097	0.00132	--	**Yes**
Water	Tertiary Butanol (TBA)	0/18	ND	ND	--	No
Water	Trichlorofluoromethane	0/21	ND	ND	--	No
Water	Dichlorodifluoromethane	0/21	ND	ND	--	No
Water	Trichlorotrifluoroethane	0/21	ND	ND	--	No
Water	1,2-Dichloropropane	2/37	ND - 0.2	0.0170	--	**Yes**
Water	2-Butanone(MEK)	0/37	ND	ND	--	No
Water	1,1,2-Trichloroethane	0/37	ND	ND	--	No
Water	Trichloroethene	5/37	ND - 0.029	0.00343	--	**Yes**
Water	1,1,2,2-Tetrachloroethane	0/37	ND	ND	--	No
Water	1,2,3-Trichlorobenzene	0/21	ND	ND	--	No
Water	Hexachlorobutadiene	0/21	ND	ND	--	No
Water	Naphthalene	9/21	ND - 0.35	0.117	--	**Yes**
Water	2-Chlorotoluene	0/21	ND	ND	--	No
Water	1,2-Dichlorobenzene	0/21	ND	ND	--	No
Water	1,2,4-Trimethylbenzene	3/21	ND - 0.05	0.00750	--	**Yes**
Water	1,2-Dibromo-3-chloropropane	0/21	ND	ND	--	No
Water	tert-Butylbenzene	0/21	ND	ND	--	No
Water	Isopropylbenzene	5/21	ND - 0.022	0.00608	--	**Yes**
Water	p-Isopropyltoluene	0/21	ND	ND	--	No
Water	Ethylbenzene	4/37	ND - 0.046	0.00565	--	**Yes**
Water	Styrene	0/37	ND	ND	--	No
Water	n-Propylbenzene	4/21	ND - 0.029	0.00946	--	**Yes**
Water	n-Butylbenzene	4/21	ND - 0.019	0.00652	--	**Yes**
Water	4-Chlorotoluene	0/21	ND	ND	--	No
Water	1,4-Dichlorobenzene	0/21	ND	ND	--	No
Water	1,2-Dibromoethane	0/21	ND	ND	--	No
Water	1,2-Dichloroethane	1/37	ND - 0.011	0.00193	--	**Yes**
Water	Vinyl acetate	0/37	ND	ND	--	No
Water	4-Methyl-2-pentanone (MIBK)	0/37	ND	ND	--	No
Water	di-Isopropyl Ether (DIPE)	1/18	ND - 0.0026	0.00124	--	**Yes**
Water	1,3,5-Trimethylbenzene	1/21	ND - 0.002	0.00207	--	**Yes**
Water	Bromobenzene	0/21	ND	ND	--	No
Water	Toluene	1/37	ND - 0.0012	0.00132	--	**Yes**
Water	Chlorobenzene	0/37	ND	ND	--	No
Water	2-Chloroethylvinyl ether	0/21	ND	ND	--	No

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Volatile Organic Compounds (cont'd)				--	
Water	1,2,4-Trichlorobenzene	0/21	ND	ND	--	No
Water	Dibromochloromethane	0/37	ND	ND	--	No
Water	Tetrachloroethene	2/37	ND - 0.013	0.00191	--	Yes
Water	sec-Butylbenzene	5/21	ND - 0.015	0.00626	--	Yes
Water	1,3-Dichloropropane	0/21	ND	ND	--	No
Water	cis-1,2-Dichloroethene	8/37	ND - 0.65	0.0626	--	Yes
Water	trans-1,2-Dichloroethene	3/37	ND - 0.13	0.0108	--	Yes
Water	1,3-Dichlorobenzene	0/21	ND	ND	--	No
Water	1,1-Dichloropropene	0/21	ND	ND	--	No
Water	2-Hexanone	0/37	ND	ND	--	No
Water	2,2-Dichloropropane	0/21	ND	ND	--	No
Water	1,1,1,2-Tetrachloroethane	0/21	ND	ND	--	No
Water	Ethyl tert-Butyl Ether (ETBE)	0/18	ND	ND	--	No
Water	tert-Amyl Ethyl Ether (TAME)	0/18	ND	ND	--	No
Water	Xylene(s)	2/37	ND - 0.011	0.00296	--	Yes
Water	MTBE	2/37	ND - 0.13	0.0174	--	Yes
Water	cis-1,3-Dichloropropene	0/37	ND	ND	--	No
Water	trans-1,3-Dichloropropene	0/37	ND	ND	--	No
	Total Petroleum Hydrocarbons[e]					
Water	Gasoline	11/36	ND - 4.6	0.617	--	Yes
Water	Diesel	16/33	ND - 600	66.9	--	Yes
Water	Kerosene	0/31	ND	ND	--	No
Water	Jet A	0/31	ND	ND	--	No
Water	Motor Oil	7/31	ND - 7.1	5.70		Yes
	Semi-volatile Organic Compounds					
Water	Benzo(a)pyrene	0/13	ND	ND	--	No
Water	2,4-Dinitrophenol	0/13	ND	ND	--	No
Water	Dibenzo(a,h)anthracene	0/13	ND	ND	--	No
Water	Benzo(a)anthracene	0/13	ND	ND	--	No
Water	4-Chloro-3-methylphenol	0/13	ND	ND	--	No
Water	Benzoic acid	0/13	ND	ND	--	No
Water	Hexachloroethane	0/13	ND	ND	--	No
Water	Hexachlorocyclopentadiene	0/13	ND	ND	--	No
Water	Isophorone	0/13	ND	ND	--	No
Water	Acenaphthene	0/13	ND	ND	--	No
Water	Diethyl phthalate	0/13	ND	ND	--	No
Water	Di-n-butyl phthalate	0/13	ND	ND	--	No
Water	Phenanthrene	6/13	ND - 0.18	0.0856	--	Yes
Water	Butyl benzyl phthalate	0/13	ND	ND	--	No
Water	N-Nitrosodiphenylamine	0/13	ND	ND	--	No
Water	Fluorene	6/13	ND - 0.081	0.0394	--	Yes
Water	Hexachlorobutadiene	0/13	ND	ND	--	No
Water	Pentachlorophenol	0/13	ND	ND	--	No
Water	2,4,6-Trichlorophenol	0/13	ND	ND	--	No
Water	2-Nitroaniline	0/13	ND	ND	--	No
Water	2-Nitrophenol	0/13	ND	ND	--	No
Water	Naphthalene	5/13	ND - 0.39	0.167	--	Yes
Water	2-Methylnaphthalene	6/13	ND - 0.76	0.335	--	Yes
Water	2-Chloronaphthalene	0/13	ND	ND	--	No
Water	3,3-Dichlorobenzidine	0/13	ND	ND	--	No
Water	2-Methylphenol	0/13	ND	ND	--	No
Water	1,2-Dichlorobenzene	0/13	ND	ND	--	No
Water	2-Chlorophenol	0/13	ND	ND	--	No

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Semi-volatile Organic Compounds (cont'd)					
Water	2,4,5-Trichlorophenol	0/13	ND	ND	--	No
Water	Nitrobenzene	0/13	ND	ND	--	No
Water	3-Nitroaniline	0/13	ND	ND	--	No
Water	4-Nitroaniline	0/13	ND	ND	--	No
Water	4-Nitrophenol	0/13	ND	ND	--	No
Water	Benzyl alcohol	0/13	ND	ND	--	No
Water	4-Bromophenyl phenyl ether	0/13	ND	ND	--	No
Water	2,4-Dimethylphenol	0/13	ND	ND	--	No
Water	4-Methylphenol	0/13	ND	ND	--	No
Water	1,4-Dichlorobenzene	0/13	ND	ND	--	No
Water	4-Chloroaniline	0/13	ND	ND	--	No
Water	Phenol	0/13	ND	ND	--	No
Water	Bis(2-chloroethyl)ether	0/13	ND	ND	--	No
Water	Bis(2-chloroethoxy) methane	0/13	ND	ND	--	No
Water	bis(2-Ethylhexyl) phthalate	0/13	ND	ND	--	No
Water	Di-n-octyl phthalate	0/13	ND	ND	--	No
Water	Hexachlorobenzene	0/13	ND	ND	--	No
Water	Anthracene	0/13	ND	ND	--	No
Water	1,2,4-Trichlorobenzene	0/13	ND	ND	--	No
Water	2,4-Dichlorophenol	0/13	ND	ND	--	No
Water	2,4-Dinitrotoluene	0/13	ND	ND	--	No
Water	Pyrene	0/13	ND	ND	--	No
Water	Dimethyl phthalate	0/13	ND	ND	--	No
Water	Dibenzofuran	1/13	ND - 0.0046	0.00609	--	Yes
Water	Benzo(g,h,i)perylene	0/13	ND	ND	--	No
Water	Indeno(1,2,3-c,d)pyrene	0/13	ND	ND	--	No
Water	Benzo(b)fluoranthene	0/13	ND	ND	--	No
Water	Fluoranthene	0/13	ND	ND	--	No
Water	Benzo(k)fluoranthene	0/13	ND	ND	--	No
Water	Acenaphthylene	0/13	ND	ND	--	No
Water	Chrysene	0/13	ND	ND	--	No
Water	2-Methyl-4,6-dinitrophenol	0/13	ND	ND	--	No
Water	1,3-Dichlorobenzene	0/13	ND	ND	--	No
Water	2,6-Dinitrotoluene	0/13	ND	ND	--	No
Water	N-Nitroso-di-n-propylamine	0/13	ND	ND	--	No
Water	4-Chlorophenyl phenyl ether	0/13	ND	ND	--	No
Water	Bis(2-chloroisopropyl) ether	0/13	ND	ND	--	No
	Volatile Organic Compounds					
Air	Ethylbenzene	2/23	ND - 0.0071	0.00152	--	Yes
Air	Styrene	0/23	ND	ND	--	No
Air	cis-1,3-Dichloropropene	0/23	ND	ND	--	No
Air	trans-1,3-Dichloropropene	0/23	ND	ND	--	No
Air	n-Propylbenzene	1/23	ND - 0.0021	0.000844	--	Yes
Air	n-Butylbenzene	0/23	ND	ND	--	No
Air	4-Chlorotoluene	0/23	ND	ND	--	No
Air	1,4-Dichlorobenzene	0/23	ND	ND	--	No
Air	1,2-Dibromoethane	0/23	ND	ND	--	No
Air	1,2-Dichloroethane	0/23	ND	ND	--	No
Air	Vinyl acetate	0/23	ND	ND	--	No
Air	4-Methyl-2-pentanone (MIBK)	0/23	ND	ND	--	No
Air	1,3,5-Trimethylbenzene	0/23	ND	ND	--	No
Air	Bromobenzene	0/23	ND	ND	--	No
Air	Toluene	1/23	ND - 0.00054	0.000383	--	Yes

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
	Volatile Organic Compounds (cont'd)					
Air	Chlorobenzene	0/23	ND	ND	--	No
Air	2-Chloroethylvinyl ether	0/23	ND	ND	--	No
Air	1,2,4-Trichlorobenzene	0/23	ND	ND	--	No
Air	Dibromochloromethane	0/23	ND	ND	--	No
Air	Tetrachloroethene	0/23	ND	ND	--	No
Air	Xylene(s)	3/23	ND - 0.014	0.00215	--	Yes
Air	sec-Butylbenzene	1/23	ND - 0.0012	0.000773	--	Yes
Air	1,3-Dichloropropane	0/23	ND	ND	--	No
Air	cis-1,2-Dichloroethene	1/23	ND - 0.0014	0.000454	--	Yes
Air	trans-1,2-Dichloroethene	0/23	ND	ND	--	No
Air	MTBE	1/23	ND - 0.021	0.00528	--	Yes
Air	1,3-Dichlorobenzene	0/23	ND	ND	--	No
Air	Carbon tetrachloride	0/23	ND	ND	--	No
Air	1,1-Dichloropropene	0/23	ND	ND	--	No
Air	2-Hexanone	0/23	ND	ND	--	No
Air	2,2-Dichloropropane	0/23	ND	ND	--	No
Air	1,1,1,2-Tetrachloroethane	0/23	ND	ND	--	No
Air	Acetone	0/23	ND	ND	--	No
Air	Chloroform	0/23	ND	ND	--	No
Air	Benzene	7/23	ND - 0.17	0.0209	--	Yes
Air	1,1,1-Trichloroethane	0/23	ND	ND	--	No
Air	Bromomethane	0/23	ND	ND	--	No
Air	Chloromethane	0/23	ND	ND	--	No
Air	Dibromomethane	0/23	ND	ND	--	No
Air	Bromochloromethane	0/23	ND	ND	--	No
Air	Chloroethane	0/23	ND	ND	--	No
Air	Vinyl chloride	2/23	ND - 0.0073	0.00137	--	Yes
Air	Methylene chloride	0/23	ND	ND	--	No
Air	Carbon disulfide	0/23	ND	ND	--	No
Air	Bromoform	0/23	ND	ND	--	No
Air	Bromodichloromethane	0/23	ND	ND	--	No
Air	1,1-Dichloroethane	0/23	ND	ND	--	No
Air	1,1-Dichloroethene	0/23	ND	ND	--	No
Air	Trichlorofluoromethane	1/23	ND - 0.0014	0.000787	--	Yes
Air	Dichlorodifluoromethane	0/23	ND	ND	--	No
Air	Trichlorotrifluoroethane	1/23	ND - 0.0021	0.000844	--	Yes
Air	1,2-Dichloropropane	0/23	ND	ND	--	No
Air	2-Butanone(MEK)	0/23	ND	ND	--	No
Air	1,1,2-Trichloroethane	0/23	ND	ND	--	No
Air	Trichloroethene	1/23	ND - 0.0016	0.000475	--	Yes
Air	1,1,2,2-Tetrachloroethane	0/23	ND	ND	--	No
Air	1,2,3-Trichlorobenzene	0/23	ND	ND	--	No
Air	Hexachlorobutadiene	0/23	ND	ND	--	No
Air	Naphthalene	0/23	ND	ND	--	No
Air	2-Chlorotoluene	0/23	ND	ND	--	No
Air	1,2-Dichlorobenzene	0/23	ND	ND	--	No
Air	1,2,4-Trimethylbenzene	2/23	ND - 0.00057	0.000400	--	Yes
Air	1,2-Dibromo-3-chloropropane	0/23	ND	ND	--	No
Air	tert-Butylbenzene	0/23	ND	ND	--	No
Air	Isopropylbenzene	1/23	ND - 0.0022	0.000538	--	Yes
Air	p-Isopropyltoluene	0/23	ND	ND	--	No

ND = Chemical not detected.

TABLE 4-1: Summary of Chemicals Included in the Risk Assessment
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Sample Matrix	Chemical	On-Site Detection Frequency (Detections/Samples Analyzed)	Range of On-Site Concentrations [a] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	95% UCL of On-Site Concentrations [b] (mg/kg for soil; mg/L for groundwater; mg/L for soil gas)	LBNL 1995 Background Concentrations [c] (mg/kg)	Included in Risk Assessment [d]
Air	Methane	21/23	ND - 520.1079	218	--	Yes
Air	TPH-Gasoline	15/23	ND - 114.1	14.3	--	Yes

Notes:

[a] The range of concentrations of all on-site samples (at all depths) collected during the March 2002 Phase II ESA by Iris Environmental.

[b] Corresponds to the 95% Upper Confidence Level (UCL) of the arithmetic mean calculated by assuming that chemicals reported as non-detect (ND) are present at one-half the analytical detection limit as recommended by the USEPA (1989). Field duplicate samples were considered for quality assurance purposes only, and are not included in the calculations.

[c] See Section 4.0 of the report and Table 4-2. As listed in Lawrence Berkeley National Laboratory (LBNL) Environmental Restoration Program, Universi of California, Berkeley. 1995. *Protocol for Determining Background Concentrations of Metals in Soil at Lawrence Berkeley National Laboratory*. Berkeley, California. August.

[d] Chemicals were included in the risk assessment if they were detected, with the exception of metals. Only metals deetected in soil above background concentrations were included in the risk assessment. If the 95% UCL is greater than the maximum detected concentration, the maximum detected concentration is used for screening purposes.

[e] TPH evaluated using detected individual related constituents.

TABLE 4-2: COMPARISON OF DETECTION LEVELS OF METALS IN SOIL TO BACKGROUND CONCENTRATIONS
Future Port of Oakland Field Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Colluvium & Fill Background (LBNL, 1995)	Phase II ESA (Iris Environmental, 2002)	95% UCL Within Background?
	95% UCL Concentration (in ppm [mg/kg])	95% UCL Concentration (mg/kg)[a]	
Antimony	5.90	2.32	Yes
Arsenic	14.00	41.9	No
Barium	--	60.7	NA
Beryllium	0.90	ND	NA
Cadmium	1.50	2.45	No
Chromium	91.40	25.0	Yes
Chromium (Hexavalent)	--	ND	NA
Cobalt	--	6.58	NA
Copper	59.60	47.7	Yes
Lead	14.70	57.4	No
Mercury	0.30	0.119	Yes
Molybdenum	--	25.0	NA
Nickel	120.20	32.0	Yes
Selenium	5.60	1.09	Yes
Silver	1.70	ND	NA
Thallium	42.50	0.526	Yes
Vanadium	--	27.4	NA
Zinc	91.50	63.6	Yes

References:

Iris Environmental. 2002. *Phase II Environmental Site Assessment, Future Port Field Support Services Complex, 2225 & 2277 Seventh Street, Port of Oakland, Oakland, California*. Oakland, California. June 11.

Lawrence Berkeley National Laboratory (LBNL) Environmental Restoration Program, University of California, Berkeley. 1995. *Protocol for Determining Background Concentrations of Metals in Soil at Lawrence Berkeley National Laboratory*. Berkeley, California. August.

Notes:

[a] Corresponds to the 95% Upper Confidence Level (UCL) of the arithmetic mean calculated by assuming that chemicals reported as non-detect (ND) are present at one-half the analytical detection limit as recommended by the USEPA (1989). Field duplicate samples were considered for quality assurance purposes only, and are not included in the calculations.

-- = No data available.

NA = Not applicable.

ND = Not detected.

TABLE 5-1: PHYSICOCHEMICAL PROPERTIES OF THE CHEMICALS OF POTENTIAL CONCERN
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	VOC?	Diffusivity in air, Da (cm^2/s)	Source	Diffusivity in water, Dw (cm^2/s)	Source	Henry's law constant at reference temperature, H (atm-m^3/mol)	Source	Henry's law constant reference temperature, TR (oC)	Source	Enthalpy of vaporization at the normal boiling point, DHv,b (cal/mol)	Source	Normal boiling point, TB (oK)	Source	Critical temperature, TC (oK)	Source	Organic carbon partition coefficient, Koc (cm^3/g)	Source	Pure component water solubility, S (mg/L)	Source	MW	ABS	Source	Kp (cm/hr)	Source
Volatile Organic Compounds																								
1,1-Dichloroethane	Y	7.42E-02	1	1.05E-05	1	5.61E-03	1	2.50E+01	1	6.90E+03	1	3.31E+02	1	5.23E+02	1	3.16E+01	1	5.06E+03	1	99	0.1	6	0.0089	7
1,1-Dichloroethylene	Y	9.00E-02	1	1.04E-05	1	2.61E-02	1	2.50E+01	1	6.25E+03	1	3.05E+02	1	5.76E+02	1	5.89E+01	1	2.25E+03	1	97	0.1	6	0.0159	7
1,2,4-Trimethylbenzene	Y	7.50E-02	2	7.10E-06	2	5.70E-03	2	2.50E+01	4	NA	NA	4.42E+02	4	NA	NA	3.72E+03	2	5.70E+01	2	120.2	0.1	6	0.1331	7
1,2-Dichloroethane	Y	1.04E-01	1	9.90E-06	1	9.78E-04	1	2.50E+01	1	7.64E+03	1	3.57E+02	1	5.61E+02	1	1.74E+01	1	8.52E+03	1	99	0.1	6	0.0053	6
1,2-Dichloropropane	Y	7.82E-02	1	8.73E-06	1	2.80E-03	1	2.50E+01	1	7.59E+03	1	3.70E+02	1	5.72E+02	1	4.37E+01	1	2.80E+03	1	113	0.1	6	0.01	6
1,3,5-Trimethylbenzene	Y	7.50E-02	2	7.10E-06	2	7.71E-03	2	2.50E+01	4	NA	NA	4.38E+02	4	NA	NA	8.19E+02	2	4.80E+01	2	120.2	0.1	6	0.0944	7
Acetone	Y	1.24E-01	1	1.14E-05	1	3.88E-05	1	2.50E+01	1	6.96E+03	1	3.29E+02	1	5.08E+02	1	5.75E-01	1	1.00E+06	1	58	0.1	6	0.0006	7
Benzene	Y	8.80E-02	1	9.80E-06	1	5.56E-03	1	2.50E+01	1	7.34E+03	1	3.53E+02	1	5.62E+02	1	5.89E+01	1	1.75E+03	1	78.1	0.1	6	0.021	6
Chlorobenzene	Y	7.30E-02	1	8.70E-06	1	3.71E-03	1	2.50E+01	1	8.41E+03	1	4.05E+02	1	6.32E+02	1	2.19E+02	1	4.72E+02	1	113	0.1	6	0.041	6
Chloroethane	Y	1.04E-01	2	1.15E-05	2	1.10E-02	2	NA	NA	NA	NA	NA	NA	NA	NA	1.47E+01	2	5.70E+03	2	65	0.1	6	0.008	6
cis-1,2-Dichloroethylene	Y	7.36E-02	1	1.13E-05	1	4.07E-03	1	2.50E+01	1	7.19E+03	1	3.34E+02	1	5.44E+02	1	3.55E+01	1	3.50E+03	1	97	0.1	6	0.01	6b
Di-isopropyl ether	Y	7.36E-02	4	NA	NA	2.28E-03	4	2.50E+01	4	NA	NA	3.42E+02	4	NA	NA	1.31E+01	4	8.80E+03	4	102.2	0	0	0.0054	7
Ethylbenzene	Y	7.50E-02	1	7.80E-06	1	7.88E-03	1	2.50E+01	1	8.50E+03	1	4.09E+02	1	6.17E+02	1	3.63E+02	1	1.69E+02	1	106.2	0.1	6	0.074	6
Freon 113	Y	2.88E-02	2	8.07E-06	2	5.21E-01	2	NA	NA	NA	NA	NA	NA	NA	NA	1.60E+02	2	1.10E+03	2	187.4	0.1	6	0.024	7
Isopropylbenzene (Cumene)	Y	7.50E-02	2	7.10E-06	2	1.20E+00	2	NA	NA	NA	NA	NA	NA	NA	NA	2.20E+02	2	6.10E+01	2	120	0.1	6	0.1402	7
Methane	Y	2.10E-01	4	NA	NA	6.58E-01	4	2.50E+01	4	NA	NA	1.12E+02	4	NA	NA	4.81E+00	4	2.20E+01	4	16.04	0.1	6	0.009	7
Methyl tert-butyl ether	Y	8.10E-02	1	9.41E-05	1	5.87E-04	1	2.50E+01	1	6.68E+03	1	3.28E+02	1	4.97E+02	1	1.17E+01	1	4.80E+04	1	88.15	0.1	6	0.0026	7
Naphthalene	Y	5.90E-02	1	7.50E-06	1	4.83E-04	1	2.50E+01	1	1.04E+04	1	4.91E+02	1	7.48E+02	1	2.00E+03	1	3.10E+01	1	128.2	0.15	6	0.0694	7
n-Butylbenzene	Y	7.50E-02	2	7.80E-06	2	1.31E-02	2	NA	NA	NA	NA	NA	NA	NA	NA	2.83E+03	2	1.38E+01	2	134.2	0.1	6	0.3724	7
N-propylbenzene	Y	6.81E-02	4	NA	NA	1.05E-02	4	2.50E+01	4	NA	NA	4.32E+02	4	NA	NA	2.03E+03	4	5.22E+01	4	120.2	0.1	6	0.1468	7
sec-Butylbenzene	Y	7.50E-02	2	7.80E-06	2	1.87E-02	2	NA	NA	NA	NA	NA	NA	NA	NA	2.15E+03	2	1.70E+01	2	134.2	0.1	6	0.5081	7
Tetrachloroethylene	Y	7.20E-02	1	8.20E-06	1	1.84E-02	1	2.50E+01	1	8.29E+03	1	3.94E+02	1	6.20E+02	1	1.55E+02	1	2.00E+02	1	165.8	0.1	6	0.048	6
Toluene	Y	8.70E-02	1	8.60E-06	1	6.63E-03	1	2.50E+01	1	7.93E+03	1	3.84E+02	1	5.92E+02	1	1.82E+02	1	5.26E+02	1	92	0.1	6	0.045	6
trans-1,2-Dichloroethylene	Y	7.07E-02	1	1.19E-05	1	9.39E-03	1	2.50E+01	1	6.72E+03	1	3.21E+02	1	5.17E+02	1	5.25E+01	1	6.30E+03	1	97	0.1	6	0.0077	8
Trichloroethylene	Y	7.90E-02	1	9.10E-06	1	1.03E-02	1	2.50E+01	1	7.51E+03	1	3.60E+02	1	5.44E+02	1	1.66E+02	1	1.10E+03	1	131	0.1	6	0.016	6
Trichlorofluoromethane	Y	8.70E-02	2	1.30E-05	2	9.70E-02	2	NA	NA	NA	NA	NA	NA	NA	NA	1.60E+02	2	1.10E+03	2	137.4	0.1	6	0.017	6
Vinyl chloride (chloroethene)	Y	1.06E-01	1	1.23E-05	1	2.71E-02	1	2.50E+01	1	5.25E+03	1	2.59E+02	1	4.32E+02	1	1.86E+01	1	2.76E+03	1	98	0.1	6	0.0073	6
Xylenes	Y	7.00E-02	2	7.80E-06	2	7.34E-03	2	NA	NA	NA	NA	NA	NA	NA	NA	1.96E+02	2	1.61E+02	2	106.2	0.1	6	0.08	6a
Semi-Volatile Compounds																								
2-methylnaphthalene	Y	6.54E-02	4	NA	NA	5.18E-04	4	2.50E+01	4	NA	NA	2.41E+02	4	NA	NA	3.02E+03	4	2.46E+01	4	142.2	0.1	6	0.1423	7
Acenaphthene	Y	4.21E-02	1	7.69E-06	1	1.55E-04	1	2.50E+01	1	1.22E+04	1	5.51E+02	1	8.03E+02	1	7.08E+03	1	4.24E+00	1	154.2	0.15	6	0.1326	7
Anthracene	N	NA	NA	NA	NA	6.51E-05	1	2.50E+01	1	1.31E+04	1	6.15E+02	1	8.73E+02	1	2.95E+04	1	4.34E-02	1	178	0.15	6	0.2258	7
Benz(a)anthracene	N	NA	NA	NA	NA	3.34E-06	1	2.50E+01	1	1.60E+04	1	7.08E+02	1	1.00E+03	1	3.98E+05	1	9.40E-03	1	228.3	0.15	6	0.81	6
Chrysene	N	NA	NA	NA	NA	9.46E-05	1	2.50E+01	1	1.65E+04	1	7.14E+02	1	9.79E+02	1	3.98E+05	1	1.60E-03	1	228.3	0.15	6	0.81	6
Dibenzofuran	N	NA	NA	NA	NA	1.30E-05	2	NA	NA	NA	NA	NA	NA	NA	NA	7.76E+03	2	3.10E+00	2	170	0.1	6	0.1473	7
Fluoranthene	N	NA	NA	NA	NA	1.61E-05	1	2.50E+01	1	1.38E+04	1	6.56E+02	1	9.05E+02	1	1.07E+05	1	2.06E-01	1	202	0.15	6	0.36	6
Fluorene	N	NA	NA	NA	NA	6.37E-05	1	2.50E+01	1	1.27E+04	1	5.70E+02	1	8.70E+02	1	1.38E+04	1	1.98E+00	1	166.2	0.15	6	0.1714	7
Naphthalene	Y	5.90E-02	1	7.50E-06	1	4.83E-04	1	2.50E+01	1	1.04E+04	1	4.91E+02	1	7.48E+02	1	2.00E+03	1	3.10E+01	1	128.2	0.15	6	0.0694	7
Phenanthrene	N	NA	NA	NA	NA	4.23E-05	4	2.50E+01	4	NA	NA	6.13E+02	4	NA	NA	1.22E+04	4	1.15E+00	4	178.2	0.15	6	0.27	6
Pyrene	N	NA	NA	NA	NA	1.10E-05	1	2.50E+01	1	1.44E+04	1	6.68E+02	1	9.36E+02	1	1.05E+05	1	1.35E-01	1	200	0.15	6	0.3348	7
Petroleum Hydrocarbons																								
TPH-Diesel	Y	5.00E-02	3	1.00E-05	3	4.76E+02	3	NA	NA	NA	NA	NA	NA	NA	NA	1.86E+07	3	3.37E+00	3	182	0.1	6	NA	0
TPH-Gasoline	Y	1.00E-01	3	1.00E-05	3	1.20E+00	3	NA	NA	NA	NA	NA	NA	NA	NA	1.28E+05	3	4.72E+01	3	98	0.1	6	NA	0
Metals																								
Mercury (inorganic)	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200.5	0.1	6	0.001	6
Antimony	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	121.7	0.01	6	0.001	6
Arsenic	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	74.9	0.03	6	0.001	6
Barium	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	137.3	0.01	6	0.001	6

TABLE 5-1: PHYSICOCHEMICAL PROPERTIES OF THE CHEMICALS OF POTENTIAL CONCERN
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	VOC?	Diffusivity in air, Da (cm^2/s)	Source	Diffusivity in water, Dw (cm^2/s)	Source	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Source	Henry's law constant reference temperature, TR (oC)	Source	Enthalpy of vaporization at the normal boiling point, DHv,b (cal/mol)	Source	Normal boiling point, TB (oK)	Source	Critical temperature, TC (oK)	Source	Organic carbon partition coefficient, Koc (cm^3/g)	Source	Pure component water solubility, S (mg/L)	Source	MW	ABS	Source	Kp (cm/hr)	Source
Cadmium	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	112.4	0.001	6	0.001	6
Total Chromium	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	52.01	0.01	6	0.001	6
Cobalt	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58.9	0.01	6	0.0004	6
Copper	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63.54	0.01	6	0.001	6
Lead	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	207.2	0.01	6	0.0001	6
Molybdenum	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95.9	0.01	6	0.001	6
Nickel	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58.7	0.01	6	0.0002	6
Selenium	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78.9	0.01	6	0.001	6
Thallium	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	204.3	0.01	6	0.001	6
Vanadium	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.9	0.01	6	0.001	6
Zinc	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.38	0.01	6	0.0006	6

Notes:

NA = Not applicable or available.

[a] Kp listed for xylenes corresponds to Kp listed for m-xylene in USEPA 2001.

[b] Kp listed for cis-1,2-dichloroethylene corresponds to value listed for 1,2-dichloroethylene (no isomer specified).

References:

1. USEPA. 1997. *User's Guide for the Johnson and Ettinger (1991) Model For Subsurface Vapor Intrusion Into Buildings*. Office of Emergency and Remedial Response. Washington, D.C., September.
2. United States Environmental Protection Agency (USEPA). 1999.*Region IX Preliminary Remediation Goals. October.*
3. Gustafson, John B., Tell, Joan Griffith, Orem, Doug. 1997. *Selection of Representative TPH Fractions Based on Fate and Transport Considerations.* Total Petroleum Hydrocarbon Criteria Working Group Series. Amherst Scientific Publishers.
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5. Regional Water Quality Control Board (RWQCB). 2000. *Risked Based Screening Levels.*
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6. California Environmental Protection Agency (Cal/EPA). 1994. Preliminary Endangerment Assessment Guidance Manual. Department of Toxic Substances Control, January.
7. Calculated value. Water-octanol partition coefficient obtained from SRC PhysProp Database. 2002.
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   Equation for K_p obtained from U.S. Environmental Protection Agency (USEPA). 1992. Interim Report, Dermal Exposure Assessment: Principles and Applications. EPA/600/8-9011. January.
8. Predicted value listed in: United States Environmental Protection Agency (USEPA). 2001. Risk Assessment for Superfund: Volume I - Human Health Evaluation Manual, Part E, Supplement Guidance for Dermal Risk Assessment, Interim. Review Draft. EPA/540/R/99/005. OSWER 9285.7-02EP. September.

TABLE 5-2: SITE-SPECIFIC PROPERTIES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Parameter	Symbol	Commercial	Outdoors	Units	Source
Soil Parameters					
Average soil/groundwater temperature	T_S	16	16	^oC	1
Depth below grade to top of contamination	L_t	46	15	cm	Conservative Estimate
Thickness of soil stratum A	h_A	15	15	cm	Conservative Estimate
Depth below grade to bottom of contamination	L_b	213	259	cm	Conservative Estimate
Depth to groundwater	L_{gw}	213	259	cm	Conservative Estimate
Soil stratum A SCS soil type		S	SL		Conservative Estimate
Stratum A soil dry bulk density	r_b^A	1.50	1.50	g/cm^3	Default from 1
Stratum A soil total porosity	n^A	0.43	0.43	cm^3/cm^3	Default from 1
Stratum A soil water-filled porosity	q_w^A	0.34	0.34	cm^3/cm^3	Default from 1
Stratum A soil organic carbon fraction	f_{oc}^A	0.002	0.002	g/g	Default from 1
Groundwater Parameters					
Depth below grade to water table	L_{WT}	213	259	cm	Conservative Estimate
Thickness of soil stratum A	h_A	213	259	cm	Conservative Estimate
SCS soil type directly above water table		SL	SL		Conservative Estimate
Building Parameters					
Depth below grade to bottom of enclosed space floor	L_F	15	15	cm	Default from 1
Enclosed space floor thickness	L_{crack}	15	15	cm	Default from 1
Soil-bldg. pressure differential	DP	40	40	$g/cm\text{-}s^2$	Default from 1
Baseline methane pressure differential	BM_{dp}	15000	15000	$g/cm\text{-}s^2$	Default from 3
Methane pressure differential with engineering controls	$M_{dp,ec}$	0	0	$g/cm\text{-}s^2$	Engineering judgement
Enclosed space floor length	L_B	22860	22860	cm	Site-specific
Enclosed space floor width	W_B	2134	2134	cm	Site-specific
Enclosed space height	H_B	488	488	cm	Default from 1
Floor-wall seam crack width	w	0.10	0.10	cm	Default from 1
Indoor air exchange rate	ER	0.80	0.80	1/hr	Default from 1
Area of Building Over Plume		100%	100%		Default from 1
Trench Parameters					
Depth of Trench	D	NA	100	cm	Engineering judgement
Width of Trench	W	NA	150	cm	Engineering judgement
Length of Trench	L	NA	400	cm	Engineering judgement
Default Surface Wind Speed		NA	2.25	m/s	Engineering judgement
Trench factor		NA	0.1		Engineering judgement

Notes:
S = Sand.
SL = Sandy loam.
NA = Not applicable.

1. USEPA. 1997. *User's Guide for the Johnson and Ettinger (1991) Model For Subsurface Vapor Intrusion Into Buildings*. Office of Emergency and Remedial Response. Washington, D.C., September.
2. Site-Specific Value.
3. Little et al. 1992. *Transport of Subsurface Contaminants into Buildings.* Environ. Sci. Technol., Vol. 26, No. 11.

TABLE 5-3: BASELINE AMBIENT AIR CONCENTRATIONS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Resulting from Soil Gas (mg/m^3)			Resulting from Soil (mg/m^3)			Resulting from Groundwater (mg/m^3)		
	Development	Future Land Use		Development	Future Land Use		Development	Future Land Use	
	On-Site Construction Workers	On-Site Commercial Workers	On-Site Intrusive Workers	On-Site Construction Workers	On-Site Commercial Workers	On-Site Intrusive Workers	On-Site Construction Workers	On-Site Commercial Workers	On-Site Intrusive Workers
Volatile Organic Compounds									
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	4.66E-05	7.31E-06	4.66E-05
1,1-Dichloroethylene	NA	NA	NA	2.14E-06	6.38E-06	8.55E-08	1.29E-04	2.03E-05	1.29E-04
1,2,4-Trimethylbenzene	1.26E-05	1.08E-05	5.03E-07	3.23E-06	2.77E-06	1.29E-07	3.10E-04	4.87E-05	3.10E-04
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	8.59E-06	1.35E-06	8.59E-06
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	2.15E-04	3.38E-05	2.15E-04
1,3,5-Trimethylbenzene	NA	NA	NA	2.77E-06	8.26E-06	1.11E-07	1.12E-04	1.76E-05	1.12E-04
Acetone	NA	NA	NA	2.59E-05	3.37E-06	1.04E-06	NA	NA	NA
Benzene	4.84E-05	1.44E-04	1.94E-06	2.35E-06	7.03E-06	9.41E-08	2.32E-04	3.64E-05	2.32E-04
Chlorobenzene	NA	NA	NA	2.13E-06	6.35E-06	8.51E-08	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	2.27E-04	3.56E-05	2.27E-04
cis-1,2-Dichloroethylene	1.21E-06	3.61E-06	4.84E-08	NA	NA	NA	1.21E-03	1.90E-04	1.21E-03
Di-isopropyl ether	NA	NA	NA	NA	NA	NA	2.05E-05	3.22E-06	2.05E-05
Ethylbenzene	7.57E-06	2.26E-05	3.03E-07	2.23E-06	6.64E-06	8.90E-08	1.85E-04	2.90E-05	1.85E-04
Freon 113	7.05E-08	2.11E-07	2.82E-09	NA	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	3.88E-08	1.16E-07	1.55E-09	6.32E-06	1.89E-05	2.53E-07	5.30E-02	8.31E-03	5.30E-02
Methane	1.47E-02	4.39E-02	5.88E-04	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	7.85E-05	1.42E-04	3.14E-06	2.82E-06	5.11E-06	1.13E-07	4.98E-05	7.81E-06	4.98E-05
Naphthalene	NA	NA	NA	1.48E-04	9.60E-06	5.91E-06	2.02E-04	3.17E-05	2.02E-04
n-Butylbenzene	NA	NA	NA	9.18E-06	2.35E-05	3.67E-07	6.20E-04	9.73E-05	6.20E-04
N-propylbenzene	8.10E-06	2.28E-05	3.24E-07	9.13E-06	2.57E-05	3.65E-07	7.21E-04	1.13E-04	7.21E-04
sec-Butylbenzene	4.41E-06	1.32E-05	1.76E-07	7.43E-06	2.22E-05	2.97E-07	8.50E-04	1.33E-04	8.50E-04
Tetrachloroethylene	NA	NA	NA	2.32E-06	6.94E-06	9.30E-08	1.51E-04	2.37E-05	1.51E-04
Toluene	1.34E-06	3.99E-06	5.35E-08	2.59E-06	7.73E-06	1.04E-07	3.50E-05	5.48E-06	3.50E-05
trans-1,2-Dichloroethylene	NA	NA	NA	NA	NA	NA	4.98E-04	7.81E-05	4.98E-04
Trichloroethylene	9.88E-07	2.95E-06	3.95E-08	2.13E-06	6.35E-06	8.51E-08	1.60E-04	2.52E-05	1.60E-04
Trichlorofluoromethane	1.50E-07	4.48E-07	6.00E-09	NA	NA	NA	NA	NA	NA
Vinyl chloride (chloroethene)	4.90E-07	1.46E-06	1.96E-08	NA	NA	NA	2.28E-03	3.57E-04	2.28E-03
Xylenes	4.35E-06	1.30E-05	1.74E-07	2.91E-06	8.70E-06	1.17E-07	1.58E-04	2.47E-05	1.58E-04
Semi-Volatile Compounds									
2-methylnaphthalene	NA	NA	NA	1.37E-03	1.31E-04	5.48E-05	1.26E-03	1.98E-04	1.26E-03
Acenaphthene	NA	NA	NA	1.07E-03	5.51E-06	4.29E-05	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	6.23E-04	4.05E-05	2.49E-05	2.88E-04	4.52E-05	2.88E-04
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Hydrocarbons									
TPH-Diesel	NA	NA	NA	1.83E-01	5.47E-01	7.33E-03	1.16E+04	1.83E+03	1.16E+04
TPH-Gasoline	7.23E-02	2.16E-01	2.89E-03	7.77E-03	2.32E-02	3.11E-04	5.37E+00	8.43E-01	5.37E+00
Metals									
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
NA = Not applicable

TABLE 5-4: SITE DEVELOPMENT AMBIENT AIR CONCENTRATIONS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Resulting from Soil Gas (mg/m^3)	Resulting from Soil (mg/m^3)	Resulting from Groundwater (mg/m^3)
	On-Site Commercial Workers	On-Site Commercial Workers	On-Site Commercial Workers
Volatile Organic Compounds			
1,1-Dichloroethane	NA	NA	1.49E-06
1,1-Dichloroethylene	NA	6.38E-06	4.58E-06
1,2,4-Trimethylbenzene	5.43E-06	1.40E-06	9.68E-06
1,2-Dichloroethane	NA	NA	4.02E-07
1,2-Dichloropropane	NA	NA	7.40E-06
1,3,5-Trimethylbenzene	NA	4.74E-06	3.47E-06
Acetone	NA	2.97E-06	NA
Benzene	1.44E-04	7.03E-06	8.34E-06
Chlorobenzene	NA	3.13E-06	NA
Chloroethane	NA	NA	8.99E-06
cis-1,2-Dichloroethylene	3.61E-06	NA	3.94E-05
Di-isopropyl ether	NA	NA	6.15E-07
Ethylbenzene	1.44E-05	4.24E-06	5.83E-06
Freon 113	2.11E-07	NA	NA
Isopropylbenzene (Cumene)	1.16E-07	1.89E-05	1.61E-03
Methane	4.39E-02	NA	NA
Methyl tert-butyl ether	1.11E-04	3.97E-06	4.73E-06
Naphthalene	NA	6.36E-06	8.63E-06
n-Butylbenzene	NA	9.83E-06	1.91E-05
N-propylbenzene	8.89E-06	1.00E-05	2.03E-05
sec-Butylbenzene	7.51E-06	1.27E-05	2.61E-05
Tetrachloroethylene	NA	6.94E-06	4.52E-06
Toluene	3.50E-06	6.77E-06	1.24E-06
trans-1,2-Dichloroethylene	NA	NA	1.50E-05
Trichloroethylene	2.95E-06	6.35E-06	5.22E-06
Trichlorofluoromethane	4.48E-07	NA	NA
Vinyl chloride (chloroethene)	1.46E-06	NA	9.09E-05
Xylenes	1.30E-05	8.70E-06	4.65E-06
Semi-Volatile Compounds			
2-methylnaphthalene	NA	6.94E-05	3.44E-05
Acenaphthene	NA	4.38E-06	NA
Anthracene	NA	NA	NA
Benz(a)anthracene	NA	NA	NA
Chrysene	NA	NA	NA
Dibenzofuran	NA	NA	NA
Fluoranthene	NA	NA	NA
Fluorene	NA	NA	NA
Naphthalene	NA	2.68E-05	1.23E-05
Phenanthrene	NA	NA	NA
Pyrene	NA	NA	NA
Petroleum Hydrocarbons			
TPH-Diesel	NA	5.45E-01	**2.54E+02**
TPH-Gasoline	1.51E-01	1.63E-02	2.04E-01
Metals			
Arsenic	NA	NA	NA
Barium	NA	NA	NA
Cadmium	NA	NA	NA
Cobalt	NA	NA	NA
Lead	NA	NA	NA
Molybdenum	NA	NA	NA
Vanadium	NA	NA	NA

Notes:
NA = Not applicable

TABLE 6-1: TOXICITY VALUES OF THE CHEMICALS OF POTENTIAL CONCERN
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Cancer Slope Factor (CSF) $(mg/kg\text{-}day)^{-1}$				Chronic Noncancer Reference Dose (RfD) (mg/kg-day)			
	Inhalation	Source	Oral	Source	Inhalation	Source	Oral	Source
Volatile Organic Compounds								
1,1-Dichloroethane	5.70E-03	1	5.70E-03	1	1.43E-01	2	1.00E-01	2
1,1-Dichloroethylene	1.75E-01	3	6.00E-01	3	2.00E-02	1	9.00E-03	3
1,2,4-Trimethylbenzene	NC	1	NC	1	1.70E-03	4	5.00E-02	4
1,2-Dichloroethane	7.20E-02	1	4.70E-02	1	1.40E-03	4	3.00E-02	4
1,2-Dichloropropane	3.60E-02	1	3.60E-02	1	1.14E-03	3	1.14E-03	3a
1,3,5-Trimethylbenzene	NC	1	NC	1	1.70E-03	4	5.00E-02	4
Acetone	NC	1	NC	1	1.00E-01	3a	1.00E-01	3
Benzene	1.00E-01	1	1.00E-01	1	1.71E-02	1b	3.00E-03	4
Chlorobenzene	NC	1	NC	1	2.86E-01	1b	2.00E-02	3
Chloroethane	NC	1	NC	1	8.57E+00	1b	4.00E-01	4
cis-1,2-Dichloroethylene	NC	1	NC	1	1.0E-02	2a	1.0E-02	2
Di-isopropyl ether	NC	3	NC	3	2.00E-01	3c	2.00E-01	3c
Ethylbenzene	NC	1	NC	1	5.71E-01	1b	1.00E-01	3
Freon 113	NC	1	NC	1	3.00E+01	3a	3.00E+01	3
Isopropylbenzene (Cumene)	NC	1	NC	1	1.14E-01	3b	1.00E-01	3
Methane	NC	1	NC	1	NA	1	NA	1
Methyl tert-butyl ether	1.80E-03	1	1.80E-03	1	2.29E+00	1b	8.60E-01	3a
Naphthalene	NC	1	NC	1	2.57E-03	1b	2.00E-02	3
n-Butylbenzene	NC	1	NC	1	1.00E-02	4a	1.00E-02	4
N-propylbenzene	NC	1	NC	1	1.00E-02	4a	1.00E-02	4
sec-Butylbenzene	NC	1	NC	1	1.00E-02	4a	1.00E-02	4
Tetrachloroethylene	5.40E-01	1	1.50E-01	1	1.00E-02	1b	1.00E-02	3
Toluene	NC	1	NC	1	8.57E-02	1b	2.00E-01	3
trans-1,2-Dichloroethylene	NC	1	NC	1	2.00E-02	3	2.00E-02	3
Trichloroethylene	1.00E-02	1	1.53E-02	1	1.71E-01	1b	6.00E-03	5d
Trichlorofluoromethane	NC	1	NC	1	3.00E-01	3a	3.00E-01	3
Vinyl chloride (chloroethene)	2.70E-01	1	2.70E-01	1	2.86E-02	3b	3.00E-03	3
Xylenes	NC	1	NC	1	2.00E-01	1b	2.00E+00	3
Semi-Volatile Compounds								
2-methylnaphthalene	NC	1	NC	1	2.57E-03	1e	2.00E-02	3e
Acenaphthene	NC	1	NC	1	6.00E-02	3a	6.00E-02	3
Anthracene	NC	1	NC	1	3.00E-01	3a	3.00E-01	3
Benz(a)anthracene	3.90E-01	1	1.20E+00	1	3.00E-02	3f	3.00E-02	3f
Chrysene	3.90E-02	1	1.20E-01	1	3.00E-02	3f	3.00E-02	3f
Dibenzofuran	NC	1	NC	1	4.00E-03	4a	4.00E-03	4
Fluoranthene	NC	1	NC	1	4.00E-02	3a	4.00E-02	3
Fluorene	NC	1	NC	1	4.00E-02	3a	4.00E-02	3
Naphthalene	NC	1	NC	1	2.57E-03	1b	2.00E-02	3
Phenanthrene	NC	1	NC	1	3.00E-01	3g	3.00E-01	3g
Pyrene	NC	1	NC	1	3.00E-02	3a	3.00E-02	3
Metals								
Arsenic	1.20E+01	1	1.50E+00	1	8.57E-06	1b	3.00E-04	3
Barium	NC	1	NC	1	1.43E-04	2	7.00E-02	3
Cadmium	1.50E+01	1	3.80E-01	1	5.71E-06	1b	1.00E-03	3h
Cobalt	NC	1	NC	1	6.00E-02	4a	6.00E-02	4
Lead	NA	i	NA	i	NA	i	NA	i
Molybdenum	NC	1	NC	1	5.00E-03	3a	5.00E-03	3
Vanadium	NC	1	NC	1	7.00E-03	2a	7.00E-03	2

TABLE 6-1: TOXICITY VALUES OF THE CHEMICALS OF POTENTIAL CONCERN
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Notes:

NA - Not available. Route-specific toxicity value for this compound was not available.

NC - Not considered to be a carcinogen.

[a] Route-to-route extrapolation.

[b] This value has been converted from an RfC value (units: mg chemical/m^3 air), assuming a 20 m^3/day inhalation rate and a 70 kg body weight.

[c] Surrogate value - assumes toxicity for ethyl ether

[d] This value was withdrawn from the Integrated Risk Information System Database. Value obtained from USEPA 2000.

[e] Surrogate value - assumes toxicity for naphthalene

[f] Because the USEPA has not developed an RfD for this chemical, the noncancer RfD for pyrene is used as a surrogate value.

[g] Surrogate value - assumes toxicity for anthracene

[h] The RfD for cadmium is estimated for cadmium exposure in food.

[i] Lead exposure is evaluated using Cal/EPA's LEADSPREAD Model. See Section 6.3

Sources:

1. California Environmental Protection Agency (Cal/EPA). 2001. *Toxicity Criteria Database.* Maintained online at www.oehha.org. Office of Environmental Health Hazard Assessment (OEHHA).
2. United States Environmental Protection Agency (USEPA). 1997. *Health Effects Assessment Summary Tables.* FY 1997 Update. July. Office of Environmental Health Hazard Assessment (OEHHA).
3. United States Environmental Protection Agency (USEPA). 2001. *Integrated Risk Information System Database.* Maintained online by the USEPA.
4. NCEA. National Center for Environmental Assessment from Region IX PRG table. Found at www.epa.gov/region09/waste/sfund/prg/s4_06.htm.
5. United States Environmental Protection Agency (USEPA) 1999. *Region IX Preliminary Remediation Goals. October.*

TABLE 7-1: EQUATIONS USED TO CALCULATE CHRONIC DAILY INTAKES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chronic Daily Intake: Vapor Inhalation

Noncancer

$$CDI_{inh,v} = \frac{C_a \times BR \times EF \times ED}{BW \times At_{nc}}$$

Cancer

$$CDI_{inh,v} = \frac{C_a \times BR \times EF \times Ed}{BW \times AT_c}$$

Chronic Daily Intake: Soil Particulate Inhalation

Noncancer

$$CDI_{inh,p} = \frac{C_s \times TF_p \times BR \times EF \times ED}{BW \times At_{nc}}$$

Cancer

$$CDI_{inh,p} = \frac{C_s \times TF_p \times BR \times EF \times Ed}{BW \times AT_c}$$

Chronic Daily Intake: Soil Dermal Contact

Noncancer

$$CDI_{derm} = \frac{C_s \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times At_{nc}}$$

Cancer

$$CDI_{derm} = \frac{C_s \times SA \times AF \times ABS \times EF \times ED \times CF}{BW \times AT_c}$$

Chronic Daily Intake: Soil Ingestion

Noncancer

$$CDI_{ing} = \frac{C_s \times IR \times CF \times EF \times ED}{BW \times At_{nc}}$$

Cancer

$$CDI_{ing} = \frac{C_s \times IR \times CF \times EF \times ED}{BW \times AT_c}$$

TABLE 7-1: EQUATIONS USED TO CALCULATE CHRONIC DAILY INTAKES

Future Port of Oakland Field Support Services Complex

2225 and 2277 Seventh Street

Oakland, California

Chronic Daily Intake: Dermal Contact with Groundwater

Noncancer

$$CDI_{derm} = \frac{C_w \times SA \times K_p \times EF \times ED \times CF}{BW \times At_{nc}}$$

Cancer

$$CDI_{derm} = \frac{C_w \times SA \times K_p \times EF \times ED \times CF}{BW \times AT_c}$$

Where:

ABS =	Absorption Factor [Unitless]
AF =	Soil to Skin Adherence Factor [mg/cm^2]
AT_c =	Averaging Time for Carcinogenic Compounds [days]
AT_{nc} =	Averaging Time for Noncarcinogenic Compounds [days]
BR =	Breathing Rate [m^3/day]
BW =	Body Weight [kg]
CF =	Conversion Factor [kg/mg]
ED =	Exposure Duration [years]
EF =	Exposure Frequency [days/year]
CDI_{derm} =	Chronic Daily Intake: Dermal Contact [$mg_{chemical}/kg_{body\ weight}$-day]
CDI_{ing} =	Chronic Daily Intake: Ingestion [$mg_{chemical}/kg_{body\ weight}$-day]
$CDI_{inh,\ p}$ =	Chronic Daily Intake: Soil Particulate Inhalation [$mg_{chemical}/kg_{body\ weight}$-day]
$CDI_{inh,\ v}$ =	Chronic Daily Intake: Vapor Inhalation [$mg_{chemical}/kg_{body\ weight}$-day]
C_s =	Concentration of Chemical in Soil [mg/kg]
C_w =	Concentration of Chemical in Water [mg/L]
C_a =	Concentration of Chemical in Air [mg/m^3]
IRs =	Soil Ingestion Rate [mg/day]
IRw =	Water Ingestion Rate [liters/day]
SA =	Surface Area of Exposed Skin [cm^2/day]
K_p =	Dermal permeability coefficient (unitless)
TF_p =	Soil Particulate-to-Air Transfer Factor [(mg/m^3)/(mg/kg)]

TABLE 7-2: BASELINE CHRONIC DAILY INTAKES-CARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

	Development Phase						
	On-Site Construction Worker						
	Soil Gas Pathway (mg/kg-day)	Soil Pathway (mg/kg-day)				Groundwater Pathway (mg/kg-day)	
Chemical	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation
Volatile Organic Compounds							
1,1-Dichloroethane	ND	ND	ND	ND	ND	2.70E-08	6.25E-08
1,1-Dichloroethylene	ND	1.46E-12	9.61E-12	6.99E-11	2.87E-09	2.73E-08	1.74E-07
1,2,4-Trimethylbenzene	NC	NC	NC	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	ND	ND	ND	1.81E-08	1.15E-08
1,2-Dichloropropane	ND	ND	ND	ND	ND	3.01E-07	2.89E-07
1,3,5-Trimethylbenzene	ND	NC	NC	NC	NC	NC	NC
Acetone	ND	NC	NC	NC	NC	ND	ND
Benzene	6.49E-08	1.60E-12	1.06E-11	7.70E-11	3.16E-09	3.33E-07	3.11E-07
Chlorobenzene	ND	NC	NC	NC	NC	ND	ND
Chloroethane	ND	ND	ND	ND	ND	NC	NC
cis-1,2-Dichloroethylene	NC	ND	ND	ND	ND	NC	NC
Di-isopropyl ether	ND	ND	ND	ND	ND	NC	NC
Ethylbenzene	NC	NC	NC	NC	NC	NC	NC
Freon 113	NC	ND	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	NC	NC	NC	NC	NC	NC	NC
Methane	NC	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	1.05E-07	1.92E-12	1.27E-11	9.21E-11	3.78E-09	7.92E-08	6.68E-08
Naphthalene	ND	NC	NC	NC	NC	NC	NC
n-Butylbenzene	ND	NC	NC	NC	NC	NC	NC
N-propylbenzene	NC	NC	NC	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethylene	ND	1.58E-12	1.05E-11	7.60E-11	3.12E-09	1.62E-07	2.03E-07
Toluene	NC	NC	NC	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	NC	NC
Trichloroethylene	1.33E-09	1.45E-12	9.57E-12	6.96E-11	2.85E-09	9.72E-08	2.15E-07
Trichlorofluoromethane	NC	ND	ND	ND	ND	ND	ND
Vinyl chloride (chloroethene)	6.57E-10	ND	ND	ND	ND	1.97E-07	3.05E-06
Xylenes	NC	NC	NC	NC	NC	NC	NC
Semi-Volatile Compounds							
2-methylnaphthalene	ND	NC	NC	NC	NC	NC	NC
Acenaphthene	ND	NC	NC	NC	NC	ND	ND
Anthracene	ND	NC	NC	NC	Not VOC	ND	ND
Benz(a)anthracene	ND	3.45E-10	3.41E-09	1.66E-08	Not VOC	ND	ND
Chrysene	ND	3.06E-10	3.03E-09	1.47E-08	Not VOC	ND	ND
Dibenzofuran	ND	NC	NC	NC	Not VOC	NC	Not VOC
Fluoranthene	ND	NC	NC	NC	Not VOC	ND	ND
Fluorene	ND	NC	NC	NC	Not VOC	NC	Not VOC
Naphthalene	ND	NC	NC	NC	NC	NC	NC
Phenanthrene	ND	NC	NC	NC	Not VOC	NC	Not VOC
Pyrene	ND	NC	NC	NC	Not VOC	ND	ND
Metals							
Arsenic	ND	2.81E-08	5.57E-08	1.35E-06	Not VOC	ND	ND
Barium	ND	NC	NC	NC	Not VOC	ND	ND
Cadmium	ND	1.64E-09	1.08E-10	7.89E-08	Not VOC	ND	ND
Cobalt	ND	NC	NC	NC	Not VOC	ND	ND
Lead	ND	NA	NA	NA	Not VOC	ND	ND
Molybdenum	ND	NC	NC	NC	Not VOC	ND	ND
Vanadium	ND	NC	NC	NC	Not VOC	ND	ND

Notes:
ND = Chemical not detected in medium.
NC = Not considered a carcinogen.

TABLE 7-2: BASELINE CHRONIC DAILY INTAKES-CARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

	Future Land Use					
	On-Site Commercial Worker					
	Soil Gas Pathway (mg/kg-day)	Soil Pathway (mg/kg-day)				Groundwater Pathway (mg/kg-day)
Chemical	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Vapor Inhalation
Volatile Organic Compounds						
1,1-Dichloroethane	ND	ND	ND	ND	ND	5.11E-07
1,1-Dichloroethylene	ND	7.58E-12	3.03E-10	3.79E-10	4.46E-07	1.42E-06
1,2,4-Trimethylbenzene	NC	NC	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	ND	ND	ND	9.42E-08
1,2-Dichloropropane	ND	ND	ND	ND	ND	2.36E-06
1,3,5-Trimethylbenzene	ND	NC	NC	NC	NC	NC
Acetone	ND	NC	NC	NC	NC	ND
Benzene	1.00963E-05	8.35E-12	3.33E-10	4.18E-10	4.91E-07	2.54E-06
Chlorobenzene	ND	NC	NC	NC	NC	ND
Chloroethane	ND	ND	ND	ND	ND	NC
cis-1,2-Dichloroethylene	NC	ND	ND	ND	ND	NC
Di-isopropyl ether	ND	ND	ND	ND	ND	NC
Ethylbenzene	NC	NC	NC	NC	NC	NC
Freon 113	NC	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	NC	NC	NC	NC	NC	NC
Methane	NC	ND	ND	ND	ND	ND
Methyl tert-butyl ether	9.95819E-06	9.99E-12	3.99E-10	5.00E-10	3.57E-07	5.46E-07
Naphthalene	ND	NC	NC	NC	NC	NC
n-Butylbenzene	ND	NC	NC	NC	NC	NC
N-propylbenzene	NC	NC	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC	NC	NC
Tetrachloroethylene	ND	8.25E-12	3.29E-10	4.12E-10	4.85E-07	1.66E-06
Toluene	NC	NC	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	NC
Trichloroethylene	2.06243E-07	7.55E-12	3.01E-10	3.77E-10	4.44E-07	1.76E-06
Trichlorofluoromethane	NC	ND	ND	ND	ND	ND
Vinyl chloride (chloroethene)	1.02172E-07	ND	ND	ND	ND	2.50E-05
Xylenes	NC	NC	NC	NC	NC	NC
Semi-Volatile Compounds						
2-methylnaphthalene	ND	NC	NC	NC	NC	NC
Acenaphthene	ND	NC	NC	NC	NC	ND
Anthracene	ND	NC	NC	NC	Not VOC	ND
Benz(a)anthracene	ND	1.80E-09	1.08E-07	8.98E-08	Not VOC	ND
Chrysene	ND	1.59E-09	9.54E-08	7.97E-08	Not VOC	ND
Dibenzofuran	ND	NC	NC	NC	Not VOC	Not VOC
Fluoranthene	ND	NC	NC	NC	Not VOC	ND
Fluorene	ND	NC	NC	NC	Not VOC	Not VOC
Naphthalene	ND	NC	NC	NC	NC	NC
Phenanthrene	ND	NC	NC	NC	Not VOC	Not VOC
Pyrene	ND	NC	NC	NC	Not VOC	ND
Metals						
Arsenic	ND	1.46E-07	1.75E-06	7.32E-06	Not VOC	ND
Barium	ND	NC	NC	NC	Not VOC	ND
Cadmium	ND	8.56E-09	3.42E-09	4.28E-07	Not VOC	ND
Cobalt	ND	NC	NC	NC	Not VOC	ND
Lead	ND	NA	NA	NA	Not VOC	ND
Molybdenum	ND	NC	NC	NC	Not VOC	ND
Vanadium	ND	NC	NC	NC	Not VOC	ND

Notes:
ND = Chemical not detected in medium.
NC = Not considered a carcinogen.

TABLE 7-2: BASELINE CHRONIC DAILY INTAKES-CARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use						
	On-Site Intrusive Worker						
	Soil Gas Pathway (mg/kg-day)	Soil Pathway (mg/kg-day)				Groundwater Pathway (mg/kg-day)	
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation
Volatile Organic Compounds							
1,1-Dichloroethane	ND	ND	ND	ND	ND	1.12E-08	2.60E-08
1,1-Dichloroethylene	ND	6.07E-13	4.00E-12	2.91E-11	4.78E-11	1.14E-08	7.23E-08
1,2,4-Trimethylbenzene	NC	NC	NC	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	ND	ND	ND	7.55E-09	4.80E-09
1,2-Dichloropropane	ND	ND	ND	ND	ND	1.25E-07	1.20E-07
1,3,5-Trimethylbenzene	ND	NC	NC	NC	NC	NC	NC
Acetone	ND	NC	NC	NC	NC	ND	ND
Benzene	1.08223E-09	6.68E-13	4.41E-12	3.21E-11	5.26E-11	1.39E-07	1.30E-07
Chlorobenzene	ND	NC	NC	NC	NC	ND	ND
Chloroethane	ND	ND	ND	ND	ND	NC	NC
cis-1,2-Dichloroethylene	NC	ND	ND	ND	ND	NC	NC
Di-isopropyl ether	ND	ND	ND	ND	ND	NC	NC
Ethylbenzene	NC	NC	NC	NC	NC	NC	NC
Freon 113	NC	ND	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	NC	NC	NC	NC	NC	NC	NC
Methane	NC	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	1.75532E-09	8.00E-13	5.28E-12	3.84E-11	6.30E-11	3.30E-08	2.78E-08
Naphthalene	ND	NC	NC	NC	NC	NC	NC
n-Butylbenzene	ND	NC	NC	NC	NC	NC	NC
N-propylbenzene	NC	NC	NC	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethylene	ND	6.60E-13	4.35E-12	3.17E-11	5.20E-11	6.77E-08	8.44E-08
Toluene	NC	NC	NC	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	NC	NC
Trichloroethylene	2.21072E-11	6.04E-13	3.99E-12	2.90E-11	4.76E-11	4.05E-08	8.97E-08
Trichlorofluoromethane	NC	ND	ND	ND	ND	ND	ND
Vinyl chloride (chloroethene)	1.09518E-11	ND	ND	ND	ND	8.19E-08	1.27E-06
Xylenes	NC	NC	NC	NC	NC	NC	NC
Semi-Volatile Compounds							
2-methylnaphthalene	ND	NC	NC	NC	NC	NC	NC
Acenaphthene	ND	NC	NC	NC	NC	ND	ND
Anthracene	ND	NC	NC	NC	Not VOC	ND	ND
Benz(a)anthracene	ND	1.44E-10	1.42E-09	6.90E-09	Not VOC	ND	ND
Chrysene	ND	1.27E-10	1.26E-09	6.12E-09	Not VOC	ND	ND
Dibenzofuran	ND	NC	NC	NC	Not VOC	NC	Not VOC
Fluoranthene	ND	NC	NC	NC	Not VOC	ND	ND
Fluorene	ND	NC	NC	NC	Not VOC	NC	Not VOC
Naphthalene	ND	NC	NC	NC	NC	NC	NC
Phenanthrene	ND	NC	NC	NC	Not VOC	NC	Not VOC
Pyrene	ND	NC	NC	NC	Not VOC	ND	ND
Metals							
Arsenic	ND	1.17E-08	2.32E-08	5.62E-07	Not VOC	ND	ND
Barium	ND	NC	NC	NC	Not VOC	ND	ND
Cadmium	ND	6.85E-10	4.52E-11	3.29E-08	Not VOC	ND	ND
Cobalt	ND	NC	NC	NC	Not VOC	ND	ND
Lead	ND	NA	NA	NA	Not VOC	ND	ND
Molybdenum	ND	NC	NC	NC	Not VOC	ND	ND
Vanadium	ND	NC	NC	NC	Not VOC	ND	ND

Notes:
ND = Chemical not detected in medium.
NC = Not considered a carcinogen.

TABLE 7-3: SITE DEVELOPMENT CHRONIC DAILY INTAKES-CARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use - On-Site Commercial Worker: Soil Gas Pathway (mg/kg-day) Vapor Inhalation	Soil Pathway (mg/kg-day) Vapor Inhalation	Groundwater Pathway (mg/kg-day) Vapor Inhalation
Volatile Organic Compounds			
1,1-Dichloroethane	ND	ND	1.04E-07
1,1-Dichloroethylene	ND	4.46E-07	3.20E-07
1,2,4-Trimethylbenzene	NC	NC	NC
1,2-Dichloroethane	ND	ND	2.81E-08
1,2-Dichloropropane	ND	ND	5.17E-07
1,3,5-Trimethylbenzene	ND	NC	NC
Acetone	ND	NC	ND
Benzene	1.00963E-05	4.91E-07	5.83E-07
Chlorobenzene	ND	NC	ND
Chloroethane	ND	ND	NC
cis-1,2-Dichloroethylene	NC	ND	NC
Di-isopropyl ether	ND	ND	NC
Ethylbenzene	NC	NC	NC
Freon 113	NC	ND	ND
Isopropylbenzene (Cumene)	NC	NC	NC
Methane	NC	ND	ND
Methyl tert-butyl ether	7.73819E-06	2.78E-07	3.30E-07
Naphthalene	ND	NC	NC
n-Butylbenzene	ND	NC	NC
N-propylbenzene	NC	NC	NC
sec-Butylbenzene	NC	NC	NC
Tetrachloroethylene	ND	4.85E-07	3.16E-07
Toluene	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	NC
Trichloroethylene	2.06243E-07	4.44E-07	3.65E-07
Trichlorofluoromethane	NC	ND	ND
Vinyl chloride (chloroethene)	1.02172E-07	ND	6.35E-06
Xylenes	NC	NC	NC
Semi-Volatile Compounds			
2-methylnaphthalene	ND	NC	NC
Acenaphthene	ND	NC	ND
Anthracene	ND	Not VOC	ND
Benz(a)anthracene	ND	Not VOC	ND
Chrysene	ND	Not VOC	ND
Dibenzofuran	ND	Not VOC	Not VOC
Fluoranthene	ND	Not VOC	ND
Fluorene	ND	Not VOC	Not VOC
Naphthalene	ND	NC	NC
Phenanthrene	ND	Not VOC	Not VOC
Pyrene	ND	Not VOC	ND
Metals			
Arsenic	ND	Not VOC	ND
Barium	ND	Not VOC	ND
Cadmium	ND	Not VOC	ND
Cobalt	ND	Not VOC	ND
Lead	ND	Not VOC	ND
Molybdenum	ND	Not VOC	ND
Vanadium	ND	Not VOC	ND

Notes:
ND = Chemical not detected in medium.
NC = Not considered a carcinogen.

TABLE 7-4: BASELINE CHRONIC DAILY INTAKES-NONCARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Development Phase						
	On-Site Construction Worker						
	Soil Gas Pathway (mg/kg-day)	Soil Pathway (mg/kg-day)				Groundwater Pathway (mg/kg-day)	
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation
Volatile Organic Compounds							
1,1-Dichloroethane	ND	ND	ND	ND	ND	1.89E-06	4.38E-06
1,1-Dichloroethylene	ND	1.02E-10	6.73E-10	4.89E-09	2.01E-07	1.91E-06	1.22E-05
1,2,4-Trimethylbenzene	1.18E-06	1.54E-10	1.02E-09	7.39E-09	3.03E-07	1.24E-04	2.91E-05
1,2-Dichloroethane	ND	ND	ND	ND	ND	1.27E-06	8.07E-07
1,2-Dichloropropane	ND	ND	ND	ND	ND	2.11E-05	2.02E-05
1,3,5-Trimethylbenzene	ND	1.32E-10	8.71E-10	6.33E-09	2.60E-07	2.34E-05	1.05E-05
Acetone	ND	1.24E-09	8.15E-09	5.93E-08	2.43E-06	ND	ND
Benzene	4.55E-06	1.12E-10	7.41E-10	5.39E-09	2.21E-07	2.33E-05	2.18E-05
Chlorobenzene	ND	1.01E-10	6.70E-10	4.87E-09	2.00E-07	ND	ND
Chloroethane	ND	ND	ND	ND	ND	2.82E-06	2.13E-05
cis-1,2-Dichloroethylene	1.14E-07	ND	ND	ND	ND	7.76E-05	1.14E-04
Di-isopropyl ether	ND	ND	ND	ND	ND	8.37E-07	1.93E-06
Ethylbenzene	7.11E-07	1.06E-10	7.01E-10	5.09E-09	2.09E-07	5.18E-05	1.74E-05
Freon 113	6.62E-09	ND	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	3.64E-09	3.02E-10	1.99E-09	1.45E-08	5.94E-07	1.06E-04	4.97E-03
Methane	NA	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	7.37E-06	1.34E-10	8.87E-10	6.45E-09	2.65E-07	5.54E-06	4.67E-06
Naphthalene	ND	7.05E-09	6.97E-08	3.38E-07	1.39E-05	1.01E-03	1.89E-05
n-Butylbenzene	ND	4.38E-10	2.89E-09	2.10E-08	8.62E-07	3.01E-04	5.82E-05
N-propylbenzene	7.60E-07	4.35E-10	2.87E-09	2.09E-08	8.57E-07	1.72E-04	6.77E-05
sec-Butylbenzene	4.14E-07	3.55E-10	2.34E-09	1.70E-08	6.98E-07	3.94E-04	7.98E-05
Tetrachloroethylene	ND	1.11E-10	7.32E-10	5.32E-09	2.18E-07	1.14E-05	1.42E-05
Toluene	1.26E-07	1.24E-10	8.15E-10	5.93E-09	2.43E-07	6.70E-06	3.28E-06
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	1.03E-05	4.68E-05
Trichloroethylene	9.29E-08	1.01E-10	6.70E-10	4.87E-09	2.00E-07	6.80E-06	1.51E-05
Trichlorofluoromethane	1.41E-08	ND	ND	ND	ND	ND	ND
Vinyl chloride (chloroethene)	4.60E-08	ND	ND	ND	ND	1.38E-05	2.14E-04
Xylenes	4.09E-07	1.39E-10	9.18E-10	6.67E-09	2.74E-07	2.94E-05	1.48E-05
Semi-Volatile Compounds							
2-methylnaphthalene	ND	6.53E-08	4.31E-07	3.13E-06	1.29E-04	5.91E-03	1.18E-04
Acenaphthene	ND	5.12E-08	5.07E-07	2.46E-06	1.01E-04	ND	ND
Anthracene	ND	4.58E-08	4.53E-07	2.20E-06	Not VOC	ND	ND
Benz(a)anthracene	ND	2.41E-08	2.39E-07	1.16E-06	Not VOC	ND	ND
Chrysene	ND	2.14E-08	2.12E-07	1.03E-06	Not VOC	ND	ND
Dibenzofuran	ND	3.62E-08	2.39E-07	1.74E-06	Not VOC	8.40E-05	Not VOC
Fluoranthene	ND	5.40E-08	5.35E-07	2.59E-06	Not VOC	ND	ND
Fluorene	ND	4.65E-08	4.61E-07	2.23E-06	Not VOC	8.37E-04	Not VOC
Naphthalene	ND	2.97E-08	2.94E-07	1.43E-06	5.86E-05	1.44E-03	2.70E-05
Phenanthrene	ND	1.15E-07	1.13E-06	5.50E-06	Not VOC	2.87E-03	Not VOC
Pyrene	ND	5.40E-08	5.35E-07	2.59E-06	Not VOC	ND	ND
Metals							
Arsenic	ND	1.97E-06	3.90E-06	9.45E-05	Not VOC	ND	ND
Barium	ND	2.85E-06	1.88E-06	1.37E-04	Not VOC	ND	ND
Cadmium	ND	1.15E-07	7.59E-09	5.52E-06	Not VOC	ND	ND
Cobalt	ND	3.09E-07	2.04E-07	1.48E-05	Not VOC	ND	ND
Lead	ND	NA	NA	NA	Not VOC	ND	ND
Molybdenum	ND	2.67E-08	1.76E-08	1.28E-06	Not VOC	ND	ND
Vanadium	ND	1.29E-06	8.49E-07	6.18E-05	Not VOC	ND	ND

Notes:
ND = Chemical not detected or not sampled.
NA = Not applicable. See Appendix D.

TABLE 7-4: BASELINE CHRONIC DAILY INTAKES-NONCARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use — On-Site Commercial Worker — Soil Gas Pathway (mg/kg-day) — Vapor Inhalation	Soil Pathway (mg/kg-day) — Particulate Inhalation	Soil Pathway (mg/kg-day) — Dermal Contact	Soil Pathway (mg/kg-day) — Ingestion	Soil Pathway (mg/kg-day) — Vapor Inhalation	Groundwater Pathway (mg/kg-day) — Vapor Inhalation
Volatile Organic Compounds						
1,1-Dichloroethane	ND	ND	ND	ND	ND	1.43E-06
1,1-Dichloroethylene	ND	2.12E-11	8.47E-10	1.06E-09	1.25E-06	3.97E-06
1,2,4-Trimethylbenzene	2.11E-06	3.21E-11	1.28E-09	1.60E-09	5.43E-07	9.53E-06
1,2-Dichloroethane	ND	ND	ND	ND	ND	2.64E-07
1,2-Dichloropropane	ND	ND	ND	ND	ND	6.61E-06
1,3,5-Trimethylbenzene	ND	2.75E-11	1.10E-09	1.37E-09	1.62E-06	3.44E-06
Acetone	ND	2.57E-10	1.03E-08	1.29E-08	6.60E-07	ND
Benzene	2.83E-05	2.34E-11	9.33E-10	1.17E-09	1.37E-06	7.11E-06
Chlorobenzene	ND	2.11E-11	8.43E-10	1.06E-09	1.24E-06	ND
Chloroethane	ND	ND	ND	ND	ND	6.96E-06
cis-1,2-Dichloroethylene	7.07E-07	ND	ND	ND	ND	3.72E-05
Di-isopropyl ether	ND	ND	ND	ND	ND	6.30E-07
Ethylbenzene	4.42E-06	2.21E-11	8.82E-10	1.11E-09	1.30E-06	5.68E-06
Freon 113	4.12E-08	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	2.26E-08	6.28E-11	2.51E-09	3.14E-09	3.69E-06	1.63E-03
Methane	NA	ND	ND	ND	ND	ND
Methyl tert-butyl ether	2.79E-05	2.80E-11	1.12E-09	1.40E-09	1.00E-06	1.53E-06
Naphthalene	ND	1.47E-09	8.78E-08	7.34E-08	1.88E-06	6.19E-06
n-Butylbenzene	ND	9.12E-11	3.64E-09	4.56E-09	4.60E-06	1.90E-05
N-propylbenzene	4.46E-06	9.07E-11	3.62E-09	4.54E-09	5.03E-06	2.21E-05
sec-Butylbenzene	2.58E-06	7.39E-11	2.95E-09	3.69E-09	4.34E-06	2.61E-05
Tetrachloroethylene	ND	2.31E-11	9.21E-10	1.15E-09	1.36E-06	4.64E-06
Toluene	7.82E-07	2.57E-11	1.03E-09	1.29E-09	1.51E-06	1.07E-06
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	1.53E-05
Trichloroethylene	5.77E-07	2.11E-11	8.43E-10	1.06E-09	1.24E-06	4.93E-06
Trichlorofluoromethane	8.76E-08	ND	ND	ND	ND	ND
Vinyl chloride (chloroethene)	2.86E-07	ND	ND	ND	ND	6.99E-05
Xylenes	2.54E-06	2.90E-11	1.16E-09	1.45E-09	1.70E-06	4.84E-06
Semi-Volatile Compounds						
2-methylnaphthalene	ND	1.36E-08	5.43E-07	6.80E-07	2.56E-05	3.87E-05
Acenaphthene	ND	1.07E-08	6.38E-07	5.33E-07	1.08E-06	ND
Anthracene	ND	9.54E-09	5.71E-07	4.77E-07	Not VOC	ND
Benz(a)anthracene	ND	5.03E-09	3.01E-07	2.51E-07	Not VOC	ND
Chrysene	ND	4.46E-09	2.67E-07	2.23E-07	Not VOC	ND
Dibenzofuran	ND	7.53E-09	3.01E-07	3.77E-07	Not VOC	Not VOC
Fluoranthene	ND	1.13E-08	6.73E-07	5.63E-07	Not VOC	ND
Fluorene	ND	9.70E-09	5.80E-07	4.85E-07	Not VOC	Not VOC
Naphthalene	ND	6.19E-09	3.71E-07	3.10E-07	7.93E-06	8.84E-06
Phenanthrene	ND	2.39E-08	1.43E-06	1.19E-06	Not VOC	Not VOC
Pyrene	ND	1.13E-08	6.73E-07	5.63E-07	Not VOC	ND
Metals						
Arsenic	ND	4.10E-07	4.91E-06	2.05E-05	Not VOC	ND
Barium	ND	5.94E-07	2.37E-06	2.97E-05	Not VOC	ND
Cadmium	ND	2.40E-08	9.57E-09	1.20E-06	Not VOC	ND
Cobalt	ND	6.44E-08	2.57E-07	3.22E-06	Not VOC	ND
Lead	ND	NA	NA	NA	Not VOC	ND
Molybdenum	ND	5.56E-09	2.22E-08	2.78E-07	Not VOC	ND
Vanadium	ND	2.68E-07	1.07E-06	1.34E-05	Not VOC	ND

Notes:
ND = Chemical not detected or not sampled.
NA = Not applicable. See Appendix D.

TABLE 7-4: BASELINE CHRONIC DAILY INTAKES-NONCARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use						
	On-Site Intrusive Worker						
	Soil Gas Pathway (mg/kg-day)	Soil Pathway (mg/kg-day)				Groundwater Pathway (mg/kg-day)	
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation
Volatile Organic Compounds							
1,1-Dichloroethane	ND	ND	ND	ND	ND	3.15E-08	7.29E-08
1,1-Dichloroethylene	ND	1.70E-12	1.12E-11	8.15E-11	1.34E-10	3.18E-08	2.03E-07
1,2,4-Trimethylbenzene	7.87492E-10	2.57E-12	1.69E-11	1.23E-10	2.02E-10	2.06E-06	4.86E-07
1,2-Dichloroethane	ND	ND	ND	ND	ND	2.11E-08	1.34E-08
1,2-Dichloropropane	ND	ND	ND	ND	ND	3.51E-07	3.37E-07
1,3,5-Trimethylbenzene	ND	2.20E-12	1.45E-11	1.06E-10	1.73E-10	3.90E-07	1.75E-07
Acetone	ND	2.06E-11	1.36E-10	9.88E-10	1.62E-09	ND	ND
Benzene	3.03024E-09	1.87E-12	1.23E-11	8.98E-11	1.47E-10	3.89E-07	3.63E-07
Chlorobenzene	ND	1.69E-12	1.12E-11	8.12E-11	1.33E-10	ND	ND
Chloroethane	ND	ND	ND	ND	ND	4.70E-08	3.55E-07
cis-1,2-Dichloroethylene	7.58E-11	ND	ND	ND	ND	1.29E-06	1.89E-06
Di-isopropyl ether	ND	ND	ND	ND	ND	1.39E-08	3.21E-08
Ethylbenzene	4.74E-10	1.77E-12	1.17E-11	8.49E-11	1.39E-10	8.64E-07	2.90E-07
Freon 113	4.42E-12	ND	ND	ND	ND	ND	ND
Isopropylbenzene (Cumene)	2.43E-12	5.03E-12	3.32E-11	2.41E-10	3.96E-10	1.76E-06	8.29E-05
Methane	NA	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	4.91E-09	2.24E-12	1.48E-11	1.07E-10	1.76E-10	9.24E-08	7.79E-08
Naphthalene	ND	1.17E-10	1.16E-09	5.64E-09	9.25E-09	1.68E-05	3.16E-07
n-Butylbenzene	ND	7.30E-12	4.82E-11	3.50E-10	5.75E-10	5.02E-06	9.71E-07
N-propylbenzene	5.07E-10	7.26E-12	4.79E-11	3.48E-10	5.72E-10	2.87E-06	1.13E-06
sec-Butylbenzene	2.76E-10	5.91E-12	3.90E-11	2.84E-10	4.66E-10	6.57E-06	1.33E-06
Tetrachloroethylene	ND	1.85E-12	1.22E-11	8.87E-11	1.46E-10	1.89E-07	2.36E-07
Toluene	8.38E-11	2.06E-12	1.36E-11	9.88E-11	1.62E-10	1.12E-07	5.47E-08
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	1.72E-07	7.80E-07
Trichloroethylene	6.19E-11	1.69E-12	1.12E-11	8.12E-11	1.33E-10	1.13E-07	2.51E-07
Trichlorofluoromethane	9.39E-12	ND	ND	ND	ND	ND	ND
Vinyl chloride (chloroethene)	3.07E-11	ND	ND	ND	ND	2.29E-07	3.56E-06
Xylenes	2.73E-10	2.32E-12	1.53E-11	1.11E-10	1.83E-10	4.89E-07	2.47E-07
Semi-Volatile Compounds							
2-methylnaphthalene	ND	1.09E-09	7.18E-09	5.22E-08	8.57E-08	9.85E-05	1.97E-06
Acenaphthene	ND	8.53E-10	8.45E-09	4.10E-08	6.72E-08	ND	ND
Anthracene	ND	7.63E-10	7.56E-09	3.66E-08	Not VOC	ND	ND
Benz(a)anthracene	ND	4.02E-10	3.98E-09	1.93E-08	Not VOC	ND	ND
Chrysene	ND	3.57E-10	3.53E-09	1.71E-08	Not VOC	ND	ND
Dibenzofuran	ND	6.03E-10	3.98E-09	2.89E-08	Not VOC	1.40E-06	Not VOC
Fluoranthene	ND	9.00E-10	8.91E-09	4.32E-08	Not VOC	ND	ND
Fluorene	ND	7.76E-10	7.68E-09	3.72E-08	Not VOC	1.40E-05	Not VOC
Naphthalene	ND	4.95E-10	4.91E-09	2.38E-08	3.90E-08	2.39E-05	4.51E-07
Phenanthrene	ND	1.91E-09	1.89E-08	9.17E-08	Not VOC	4.78E-05	Not VOC
Pyrene	ND	9.00E-10	8.91E-09	4.32E-08	Not VOC	ND	ND
Metals							
Arsenic	ND	3.28E-08	6.49E-08	1.57E-06	Not VOC	ND	ND
Barium	ND	4.75E-08	3.14E-08	2.28E-06	Not VOC	ND	ND
Cadmium	ND	1.92E-09	1.27E-10	9.21E-08	Not VOC	ND	ND
Cobalt	ND	5.15E-09	3.40E-09	2.47E-07	Not VOC	ND	ND
Lead	ND	NA	NA	NA	Not VOC	ND	ND
Molybdenum	ND	4.45E-10	2.93E-10	2.13E-08	Not VOC	ND	ND
Vanadium	ND	2.14E-08	1.42E-08	1.03E-06	Not VOC	ND	ND

Notes:
ND = Chemical not detected or not sampled.
NA = Not applicable. See Appendix D.

TABLE 7-5: SITE DEVELOPMENT CHRONIC DAILY INTAKES-NONCARCINOGENS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

	Future Land Use		
	On-Site Commercial Worker		
	Soil Gas Pathway (mg/kg-day)	Soil Pathway (mg/kg-day)	Groundwater Pathway (mg/kg-day)
Chemical	Vapor Inhalation	Vapor Inhalation	Vapor Inhalation
Volatile Organic Compounds			
1,1-Dichloroethane	ND	ND	2.91E-07
1,1-Dichloroethylene	ND	1.25E-06	8.96E-07
1,2,4-Trimethylbenzene	1.06E-06	2.73E-07	1.89E-06
1,2-Dichloroethane	ND	ND	7.87E-08
1,2-Dichloropropane	ND	ND	1.45E-06
1,3,5-Trimethylbenzene	ND	9.27E-07	6.79E-07
Acetone	ND	5.82E-07	ND
Benzene	2.83E-05	1.37E-06	1.63E-06
Chlorobenzene	ND	6.13E-07	ND
Chloroethane	ND	ND	1.76E-06
cis-1,2-Dichloroethylene	7.07E-07	ND	7.71E-06
Di-isopropyl ether	ND	ND	1.20E-07
Ethylbenzene	2.82E-06	8.30E-07	1.14E-06
Freon 113	4.12E-08	ND	ND
Isopropylbenzene (Cumene)	2.26E-08	3.69E-06	3.16E-04
Methane	NA	ND	ND
Methyl tert-butyl ether	2.17E-05	7.78E-07	9.25E-07
Naphthalene	ND	1.24E-06	1.69E-06
n-Butylbenzene	ND	1.92E-06	3.74E-06
N-propylbenzene	1.74E-06	1.96E-06	3.98E-06
sec-Butylbenzene	1.47E-06	2.48E-06	5.10E-06
Tetrachloroethylene	ND	1.36E-06	8.85E-07
Toluene	6.85E-07	1.33E-06	2.42E-07
trans-1,2-Dichloroethylene	ND	ND	2.94E-06
Trichloroethylene	5.77E-07	1.24E-06	1.02E-06
Trichlorofluoromethane	8.76E-08	ND	ND
Vinyl chloride (chloroethene)	2.86E-07	ND	1.78E-05
Xylenes	2.54E-06	1.70E-06	9.10E-07
Semi-Volatile Compounds			
2-methylnaphthalene	ND	1.36E-05	6.72E-06
Acenaphthene	ND	8.57E-07	ND
Anthracene	ND	Not VOC	ND
Benz(a)anthracene	ND	Not VOC	ND
Chrysene	ND	Not VOC	ND
Dibenzofuran	ND	Not VOC	Not VOC
Fluoranthene	ND	Not VOC	ND
Fluorene	ND	Not VOC	Not VOC
Naphthalene	ND	5.25E-06	2.41E-06
Phenanthrene	ND	Not VOC	Not VOC
Pyrene	ND	Not VOC	ND
Metals			
Arsenic	ND	Not VOC	ND
Barium	ND	Not VOC	ND
Cadmium	ND	Not VOC	ND
Cobalt	ND	Not VOC	ND
Lead	ND	Not VOC	ND
Molybdenum	ND	Not VOC	ND
Vanadium	ND	Not VOC	ND

Notes:
ND = Chemical not detected or not sampled.

TABLE 7-6: BASELINE CANCER RISK ESTIMATES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Development Phase							
	On-Site Construction Worker							
	Soil Gas Pathway	Soil Pathway				Groundwater Pathway		Total Risk
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation	
Volatile Organic Compounds								
1,1-Dichloroethane	ND	ND	ND	ND	ND	1.54E-10	3.56E-10	5.10E-10
1,1-Dichloroethylene	ND	2.55E-13	5.77E-12	4.19E-11	5.02E-10	1.64E-08	3.04E-08	4.73E-08
1,2,4-Trimethylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	ND	ND	ND	8.52E-10	8.30E-10	1.68E-09
1,2-Dichloropropane	ND	ND	ND	ND	ND	1.08E-08	1.04E-08	2.12E-08
1,3,5-Trimethylbenzene	ND	NC	NC	NC	NC	NC	NC	NC
Acetone	ND	NC	NC	NC	NC	ND	ND	NC
Benzene	6.49E-09	1.60E-13	1.06E-12	7.70E-12	3.16E-10	3.33E-08	3.11E-08	7.12E-08
Chlorobenzene	ND	NC	NC	NC	NC	ND	ND	NC
Chloroethane	ND	ND	ND	ND	ND	NC	NC	NA
cis-1,2-Dichloroethylene	NC	ND	ND	ND	ND	NC	NC	NA
Di-isopropyl ether	ND	ND	ND	ND	ND	NC	NC	NA
Ethylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
Freon 113	NC	ND	ND	ND	ND	ND	ND	NA
Isopropylbenzene (Cumene)	NC	NC	NC	NC	NC	NC	NC	NC
Methane	NC	ND	ND	ND	ND	ND	ND	NA
Methyl tert-butyl ether	1.90E-10	3.45E-15	2.28E-14	1.66E-13	6.80E-12	1.42E-10	1.20E-10	4.59E-10
Naphthalene	ND	NC	NC	NC	NC	NC	NC	NC
n-Butylbenzene	ND	NC	NC	NC	NC	NC	NC	NC
N-propylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethylene	ND	8.55E-13	1.57E-12	1.14E-11	1.68E-09	2.44E-08	1.09E-07	1.35E-07
Toluene	NC	NC	NC	NC	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	NC	NC	NA
Trichloroethylene	1.33E-11	1.45E-14	1.46E-13	1.06E-12	2.85E-11	1.49E-09	2.15E-09	3.68E-09
Trichlorofluoromethane	NC	ND	ND	ND	ND	ND	ND	NA
Vinyl chloride (chloroethene)	1.77E-10	ND	ND	ND	ND	5.31E-08	8.25E-07	8.78E-07
Xylenes	NC	NC	NC	NC	NC	NC	NC	NC
Semi-Volatile Compounds								
2-methylnaphthalene	ND	NC	NC	NC	NC	NC	NC	NC
Acenaphthene	ND	NC	NC	NC	NC	ND	ND	NC
Anthracene	ND	NC	NC	NC	Not VOC	ND	ND	NC
Benz(a)anthracene	ND	1.34E-10	4.10E-09	1.99E-08	Not VOC	ND	ND	2.41E-08
Chrysene	ND	1.19E-11	3.63E-10	1.76E-09	Not VOC	ND	ND	2.14E-09
Dibenzofuran	ND	NC	NC	NC	Not VOC	NC	Not VOC	NC
Fluoranthene	ND	NC	NC	NC	Not VOC	ND	ND	NC
Fluorene	ND	NC	NC	NC	Not VOC	NC	Not VOC	NC
Naphthalene	ND	NC	NC	NC	NC	NC	NC	NC
Phenanthrene	ND	NC	NC	NC	Not VOC	NC	Not VOC	NC
Pyrene	ND	NC	NC	NC	Not VOC	ND	ND	NC
Metals								
Arsenic	ND	3.37E-07	8.35E-08	2.02E-06	Not VOC	ND	ND	2.44E-06
Barium	ND	NC	NC	NC	Not VOC	ND	ND	NC
Cadmium	ND	2.47E-08	4.12E-11	3.00E-08	Not VOC	ND	ND	5.47E-08
Cobalt	ND	NC	NC	NC	Not VOC	ND	ND	NC
Lead	ND	NA	NA	NA	Not VOC	ND	ND	NA
Molybdenum	ND	NC	NC	NC	Not VOC	ND	ND	NC
Vanadium	ND	NC	NC	NC	Not VOC	ND	ND	NC
Cumulative Cancer Risk	6.87E-09	3.62E-07	8.80E-08	2.08E-06	2.54E-09	1.41E-07	1.01E-06	3.69E-06

Notes:
ND = Chemical not detected in medium.
NC = Chemical not considered a carcinogen.
NA = Not applicable.
Not VOC = Not volatile.

TABLE 7-6: BASELINE CANCER RISK ESTIMATES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use						
	On-Site Commercial Worker						
	Soil Gas Pathway	Soil Pathway				Groundwater Pathway	Total Risk
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Vapor Inhalation	
Volatile Organic Compounds							
1,1-Dichloroethane	ND	ND	ND	ND	ND	2.91E-09	2.91E-09
1,1-Dichloroethylene	ND	1.33E-12	1.82E-10	2.27E-10	7.80E-08	2.48E-07	3.27E-07
1,2,4-Trimethylbenzene	NC	NC	NC	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	ND	ND	ND	6.78E-09	6.78E-09
1,2-Dichloropropane	ND	ND	ND	ND	ND	8.50E-08	8.50E-08
1,3,5-Trimethylbenzene	ND	NC	NC	NC	NC	NC	NA
Acetone	ND	NC	NC	NC	NC	ND	NA
Benzene	1.01E-06	8.35E-13	3.33E-11	4.18E-11	4.91E-08	2.54E-07	1.31E-06
Chlorobenzene	ND	NC	NC	NC	NC	ND	NA
Chloroethane	ND	ND	ND	ND	ND	NC	NA
cis-1,2-Dichloroethylene	NC	ND	ND	ND	ND	NC	NC
Di-isopropyl ether	ND	ND	ND	ND	ND	NC	NA
Ethylbenzene	NC	NC	NC	NC	NC	NC	NC
Freon 113	NC	ND	ND	ND	ND	ND	NC
Isopropylbenzene (Cumene)	NC	NC	NC	NC	NC	NC	NC
Methane	NC	ND	ND	ND	ND	ND	NC
Methyl tert-butyl ether	1.79E-08	1.80E-14	7.18E-13	8.99E-13	6.43E-10	9.82E-10	1.96E-08
Naphthalene	ND	NC	NC	NC	NC	NC	NA
n-Butylbenzene	ND	NC	NC	NC	NC	NC	NA
N-propylbenzene	NC	NC	NC	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethylene	ND	4.45E-12	4.94E-11	6.19E-11	2.62E-07	8.94E-07	1.16E-06
Toluene	NC	NC	NC	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	NC	NA
Trichloroethylene	2.06E-09	7.55E-14	4.61E-12	5.77E-12	4.44E-09	1.76E-08	2.41E-08
Trichlorofluoromethane	NC	ND	ND	ND	ND	ND	NC
Vinyl chloride (chloroethene)	2.76E-08	ND	ND	ND	ND	6.74E-06	6.77E-06
Xylenes	NC	NC	NC	NC	NC	NC	NC
Semi-Volatile Compounds							
2-methylnaphthalene	ND	NC	NC	NC	NC	NC	NA
Acenaphthene	ND	NC	NC	NC	NC	ND	NA
Anthracene	ND	NC	NC	NC	Not VOC	ND	NA
Benz(a)anthracene	ND	7.01E-10	1.29E-07	1.08E-07	Not VOC	ND	2.37E-07
Chrysene	ND	6.21E-11	1.14E-08	9.56E-09	Not VOC	ND	2.11E-08
Dibenzofuran	ND	NC	NC	NC	Not VOC	Not VOC	NA
Fluoranthene	ND	NC	NC	NC	Not VOC	ND	NA
Fluorene	ND	NC	NC	NC	Not VOC	Not VOC	NA
Naphthalene	ND	NC	NC	NC	NC	NC	NA
Phenanthrene	ND	NC	NC	NC	Not VOC	Not VOC	NA
Pyrene	ND	NC	NC	NC	Not VOC	ND	NA
Metals							
Arsenic	ND	1.76E-06	2.63E-06	1.10E-05	Not VOC	ND	1.54E-05
Barium	ND	NC	NC	NC	Not VOC	ND	NA
Cadmium	ND	1.28E-07	1.30E-09	1.63E-07	Not VOC	ND	2.92E-07
Cobalt	ND	NC	NC	NC	Not VOC	ND	NA
Lead	ND	NA	NA	NA	Not VOC	ND	NA
Molybdenum	ND	NC	NC	NC	Not VOC	ND	NA
Vanadium	ND	NC	NC	NC	Not VOC	ND	NA
Cumulative Cancer Risk	1.06E-06	1.89E-06	2.77E-06	1.13E-05	3.94E-07	8.25E-06	2.56E-05

Notes:
ND = Chemical not detected in medium.
NC = Chemical not considered a carcinogen.
NA = Not applicable.
Not VOC = Not volatile.

TABLE 7-6: BASELINE CANCER RISK ESTIMATES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use							
	On-Site Intrusive Worker							
	Soil Gas Pathway	Soil Pathway				Groundwater Pathway		Total Risk
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation	
Volatile Organic Compounds								
1,1-Dichloroethane	ND	ND	ND	ND	ND	6.40E-11	1.48E-10	2.12E-10
1,1-Dichloroethylene	ND	1.06E-13	2.40E-12	1.75E-11	8.36E-12	6.82E-09	1.27E-08	1.95E-08
1,2,4-Trimethylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	ND	ND	ND	3.55E-10	3.46E-10	7.01E-10
1,2-Dichloropropane	ND	ND	ND	ND	ND	4.52E-09	4.33E-09	8.85E-09
1,3,5-Trimethylbenzene	ND	NC	NC	NC	NC	NC	NC	NC
Acetone	ND	NC	NC	NC	NC	ND	ND	NC
Benzene	1.08E-10	6.68E-14	4.41E-13	3.21E-12	5.26E-12	1.39E-08	1.30E-08	2.70E-08
Chlorobenzene	ND	NC	NC	NC	NC	ND	ND	NC
Chloroethane	ND	ND	ND	ND	ND	NC	NC	NA
cis-1,2-Dichloroethylene	NC	ND	ND	ND	ND	NC	NC	NA
Di-isopropyl ether	ND	ND	ND	ND	ND	NC	NC	NA
Ethylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
Freon 113	NC	ND	ND	ND	ND	ND	ND	NA
Isopropylbenzene (Cumene)	NC	NC	NC	NC	NC	NC	NC	NC
Methane	NC	ND	ND	ND	ND	ND	ND	NA
Methyl tert-butyl ether	3.16E-12	1.44E-15	9.50E-15	6.91E-14	1.13E-13	5.94E-11	5.01E-11	1.13E-10
Naphthalene	ND	NC	NC	NC	NC	NC	NC	NC
n-Butylbenzene	ND	NC	NC	NC	NC	NC	NC	NC
N-propylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC	NC	NC	NC	NC
Tetrachloroethylene	ND	3.56E-13	6.53E-13	4.75E-12	2.81E-11	1.01E-08	4.56E-08	5.58E-08
Toluene	NC	NC	NC	NC	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	NC	NC	NA
Trichloroethylene	2.21E-13	6.04E-15	6.10E-14	4.43E-13	4.76E-13	6.20E-10	8.97E-10	1.52E-09
Trichlorofluoromethane	NC	ND	ND	ND	ND	ND	ND	NA
Vinyl chloride (chloroethene)	2.96E-12	ND	ND	ND	ND	2.21E-08	3.44E-07	3.66E-07
Xylenes	NC	NC	NC	NC	NC	NC	NC	NC
Semi-Volatile Compounds								
2-methylnaphthalene	ND	NC	NC	NC	NC	NC	NC	NC
Acenaphthene	ND	NC	NC	NC	NC	ND	ND	NC
Anthracene	ND	NC	NC	NC	Not VOC	ND	ND	NC
Benz(a)anthracene	ND	5.60E-11	1.71E-09	8.28E-09	Not VOC	ND	ND	1.00E-08
Chrysene	ND	4.97E-12	1.51E-10	7.34E-10	Not VOC	ND	ND	8.91E-10
Dibenzofuran	ND	NC	NC	NC	Not VOC	NC	Not VOC	NC
Fluoranthene	ND	NC	NC	NC	Not VOC	ND	ND	NC
Fluorene	ND	NC	NC	NC	Not VOC	NC	Not VOC	NC
Naphthalene	ND	NC	NC	NC	NC	NC	NC	NC
Phenanthrene	ND	NC	NC	NC	Not VOC	NC	Not VOC	NC
Pyrene	ND	NC	NC	NC	Not VOC	ND	ND	NC
Metals								
Arsenic	ND	1.41E-07	3.48E-08	8.43E-07	Not VOC	ND	ND	1.02E-06
Barium	ND	NC	NC	NC	Not VOC	ND	ND	NC
Cadmium	ND	1.03E-08	1.72E-11	1.25E-08	Not VOC	ND	ND	2.28E-08
Cobalt	ND	NC	NC	NC	Not VOC	ND	ND	NC
Lead	ND	NA	NA	NA	Not VOC	ND	ND	NA
Molybdenum	ND	NC	NC	NC	Not VOC	ND	ND	NC
Vanadium	ND	NC	NC	NC	Not VOC	ND	ND	NC
Cumulative Cancer Risk	1.15E-10	1.51E-07	3.67E-08	8.65E-07	4.23E-11	5.86E-08	4.21E-07	1.53E-06

Notes:
ND = Chemical not detected in medium.
NC = Chemical not considered a carcinogen.
NA = Not applicable.
Not VOC = Not volatile.

TABLE 7-7: BASELINE NONCANCER HAZARD INDICES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

	Development Phase							
	On-Site Construction Worker							
	Soil Gas Pathway	Soil Pathway				Groundwater Pathway		Total Noncancer HI
Chemical	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Dermal Contact	Vapor Inhalation	
Volatile Organic Compounds								
1,1-Dichloroethane	ND	ND	ND	ND	ND	1.89E-07	3.06E-05	3.08E-05
1,1-Dichloroethylene	ND	5.10E-09	7.47E-08	5.44E-07	1.00E-05	1.72E-08	6.08E-04	6.18E-04
1,2,4-Trimethylbenzene	1.18E-06	9.06E-08	2.03E-08	1.48E-07	1.78E-04	6.19E-06	1.71E-02	1.73E-02
1,2-Dichloroethane	ND	ND	ND	ND	ND	3.80E-08	5.76E-04	5.76E-04
1,2-Dichloropropane	ND	ND	ND	ND	ND	2.40E-08	1.77E-02	1.77E-02
1,3,5-Trimethylbenzene	ND	7.76E-08	1.74E-08	1.27E-07	1.53E-04	1.17E-06	6.18E-03	6.34E-03
Acetone	ND	1.24E-08	8.15E-08	5.93E-07	2.43E-05	ND	ND	2.50E-05
Benzene	4.55E-06	6.55E-09	2.47E-07	1.80E-06	1.29E-05	7.00E-08	1.27E-03	1.29E-03
Chlorobenzene	ND	3.55E-10	3.35E-08	2.43E-07	6.99E-07	ND	ND	9.77E-07
Chloroethane	ND	ND	ND	ND	ND	1.13E-06	2.49E-06	3.61E-06
cis-1,2-Dichloroethylene	1.14E-07	ND	ND	ND	ND	7.76E-07	1.14E-02	1.14E-02
Di-isopropyl ether	ND	ND	ND	ND	ND	1.67E-07	9.64E-06	9.81E-06
Ethylbenzene	7.11E-07	1.86E-10	7.01E-09	5.09E-08	3.66E-07	5.18E-06	3.04E-05	3.67E-05
Freon 113	6.62E-09	ND	ND	ND	ND	ND	ND	6.62E-09
Isopropylbenzene (Cumene)	3.64E-09	2.64E-09	1.99E-08	1.45E-07	5.20E-06	1.06E-05	4.35E-02	4.35E-02
Methane	NA	ND	ND	ND	ND	ND	ND	NA
Methyl tert-butyl ether	7.37E-06	5.88E-11	1.03E-09	7.50E-09	1.16E-07	4.77E-06	2.05E-06	1.43E-05
Naphthalene	ND	2.74E-06	3.49E-06	1.69E-05	5.40E-03	2.01E-05	7.37E-03	1.28E-02
n-Butylbenzene	ND	4.38E-08	2.89E-07	2.10E-06	8.62E-05	3.01E-06	5.82E-03	5.92E-03
N-propylbenzene	7.60E-07	4.35E-08	2.87E-07	2.09E-06	8.57E-05	1.72E-06	6.77E-03	6.86E-03
sec-Butylbenzene	4.14E-07	3.55E-08	2.34E-07	1.70E-06	6.98E-05	3.94E-06	7.98E-03	8.06E-03
Tetrachloroethylene	ND	1.11E-08	7.32E-08	5.32E-07	2.18E-05	1.14E-07	1.42E-03	1.44E-03
Toluene	1.26E-07	1.44E-09	4.08E-09	2.96E-08	2.84E-06	1.34E-06	3.83E-05	4.26E-05
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	2.06E-07	2.34E-03	2.34E-03
Trichloroethylene	9.29E-08	5.92E-10	1.12E-07	8.12E-07	1.17E-06	4.08E-08	8.79E-05	9.02E-05
Trichlorofluoromethane	1.41E-08	ND	ND	ND	ND	ND	ND	1.41E-08
Vinyl chloride (chloroethene)	4.60E-08	ND	ND	ND	ND	4.13E-08	7.48E-03	7.48E-03
Xylenes	4.09E-07	6.95E-10	4.59E-10	3.34E-09	1.37E-06	5.87E-05	7.41E-05	1.35E-04
Semi-Volatile Compounds								
2-methylnaphthalene	ND	2.54E-05	2.15E-05	1.57E-04	5.00E-02	1.18E-04	4.60E-02	9.63E-02
Acenaphthene	ND	8.53E-07	8.45E-06	4.10E-05	1.68E-03	ND	ND	1.73E-03
Anthracene	ND	1.53E-07	1.51E-06	7.33E-06	Not VOC	ND	ND	8.99E-06
Benz(a)anthracene	ND	8.05E-07	7.97E-06	3.86E-05	Not VOC	ND	ND	4.74E-05
Chrysene	ND	7.14E-07	7.07E-06	3.43E-05	Not VOC	ND	ND	4.20E-05
Dibenzofuran	ND	9.04E-06	5.97E-05	4.34E-04	Not VOC	3.36E-07	Not VOC	5.03E-04
Fluoranthene	ND	1.35E-06	1.34E-05	6.48E-05	Not VOC	ND	ND	7.95E-05
Fluorene	ND	1.16E-06	1.15E-05	5.59E-05	Not VOC	3.35E-05	Not VOC	1.02E-04
Naphthalene	ND	1.16E-05	1.47E-05	7.14E-05	2.28E-02	2.87E-05	1.05E-02	3.34E-02
Phenanthrene	ND	3.82E-07	3.78E-06	1.83E-05	Not VOC	8.60E-04	Not VOC	8.82E-04
Pyrene	ND	1.80E-06	1.78E-05	8.64E-05	Not VOC	ND	ND	1.06E-04
Metals								
Arsenic	ND	2.30E-01	1.30E-02	3.15E-01	Not VOC	ND	ND	5.57E-01
Barium	ND	1.99E-02	2.69E-05	1.95E-03	Not VOC	ND	ND	2.19E-02
Cadmium	ND	2.01E-02	7.59E-06	5.52E-03	Not VOC	ND	ND	2.57E-02
Cobalt	ND	5.15E-06	3.40E-06	2.47E-04	Not VOC	ND	ND	2.56E-04
Lead	ND	NA	NA	NA	Not VOC	ND	ND	NA
Molybdenum	ND	5.34E-06	3.52E-06	2.56E-04	Not VOC	ND	ND	2.65E-04
Vanadium	ND	1.84E-04	1.21E-04	8.82E-03	Not VOC	ND	ND	9.13E-03
Cumulative Non-cancer Hazard Index	1.58E-05	2.70E-01	1.33E-02	3.33E-01	8.05E-02	1.16E-03	1.94E-01	8.92E-01

ND = Chemical not detected or not sampled in medium.
Not VOC = Chemical is not volatile.

TABLE 7-7: BASELINE NONCANCER HAZARD INDICES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use						
	On-Site Commercial Worker						
	Soil Gas Pathway	Soil Pathway				Groundwater Pathway	Total Noncancer HI
	Vapor Inhalation	Particulate Inhalation	Dermal Contact	Ingestion	Vapor Inhalation	Vapor Inhalation	
Volatile Organic Compounds							
1,1-Dichloroethane	ND	ND	ND	ND	ND	1.00E-05	1.00E-05
1,1-Dichloroethylene	ND	1.06E-09	9.41E-08	1.18E-07	6.24E-05	1.99E-04	2.61E-04
1,2,4-Trimethylbenzene	2.11E-06	1.89E-08	2.56E-08	3.21E-08	3.19E-04	5.61E-03	5.93E-03
1,2-Dichloroethane	ND	ND	ND	ND	ND	1.88E-04	1.88E-04
1,2-Dichloropropane	ND	ND	ND	ND	ND	5.80E-03	5.80E-03
1,3,5-Trimethylbenzene	ND	1.62E-08	2.19E-08	2.75E-08	9.51E-04	2.02E-03	2.97E-03
Acetone	ND	2.57E-09	1.03E-07	1.29E-07	6.60E-06	ND	6.83E-06
Benzene	2.83E-05	1.36E-09	3.11E-07	3.90E-07	8.02E-05	4.15E-04	5.24E-04
Chlorobenzene	ND	7.40E-11	4.22E-08	5.28E-08	4.35E-06	ND	4.44E-06
Chloroethane	ND	ND	ND	ND	ND	8.13E-07	8.13E-07
cis-1,2-Dichloroethylene	7.07E-07	ND	ND	ND	ND	3.72E-03	3.72E-03
Di-isopropyl ether	ND	ND	ND	ND	ND	3.15E-06	3.15E-06
Ethylbenzene	4.42E-06	3.87E-11	8.82E-09	1.11E-08	2.28E-06	9.95E-06	1.67E-05
Freon 113	4.12E-08	ND	ND	ND	ND	ND	4.12E-08
Isopropylbenzene (Cumene)	2.26E-08	5.50E-10	2.51E-08	3.14E-08	3.23E-05	1.42E-02	1.43E-02
Methane	NA	ND	ND	ND	ND	ND	NA
Methyl tert-butyl ether	2.79E-05	1.22E-11	1.30E-09	1.63E-09	4.38E-07	6.69E-07	2.90E-05
Naphthalene	ND	5.71E-07	4.39E-06	3.67E-06	7.31E-04	2.41E-03	3.15E-03
n-Butylbenzene	ND	9.12E-09	3.64E-07	4.56E-07	4.60E-04	1.90E-03	2.36E-03
N-propylbenzene	4.46E-06	9.07E-09	3.62E-07	4.54E-07	5.03E-04	2.21E-03	2.72E-03
sec-Butylbenzene	2.58E-06	7.39E-09	2.95E-07	3.69E-07	4.34E-04	2.61E-03	3.05E-03
Tetrachloroethylene	ND	2.31E-09	9.21E-08	1.15E-07	1.36E-04	4.64E-04	6.00E-04
Toluene	7.82E-07	3.00E-10	5.13E-09	6.43E-09	1.77E-05	1.25E-05	3.10E-05
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	7.65E-04	7.65E-04
Trichloroethylene	5.77E-07	1.23E-10	1.41E-07	1.76E-07	7.25E-06	2.87E-05	3.69E-05
Trichlorofluoromethane	8.76E-08	ND	ND	ND	ND	ND	8.76E-08
Vinyl chloride (chloroethene)	2.86E-07	ND	ND	ND	ND	2.44E-03	2.44E-03
Xylenes	2.54E-06	1.45E-10	5.78E-10	7.24E-10	8.51E-06	2.42E-05	3.53E-05
Semi-Volatile Compounds							
2-methylnaphthalene	ND	5.29E-06	2.71E-05	3.40E-05	9.97E-03	1.50E-02	2.51E-02
Acenaphthene	ND	1.78E-07	1.06E-05	8.89E-06	1.80E-05	ND	3.77E-05
Anthracene	ND	3.18E-08	1.90E-06	1.59E-06	Not VOC	ND	3.53E-06
Benz(a)anthracene	ND	1.68E-07	1.00E-05	8.38E-06	Not VOC	ND	1.86E-05
Chrysene	ND	1.49E-07	8.90E-06	7.44E-06	Not VOC	ND	1.65E-05
Dibenzofuran	ND	1.88E-06	7.52E-05	9.42E-05	Not VOC	Not VOC	1.71E-04
Fluoranthene	ND	2.81E-07	1.68E-05	1.41E-05	Not VOC	ND	3.12E-05
Fluorene	ND	2.42E-07	1.45E-05	1.21E-05	Not VOC	Not VOC	2.69E-05
Naphthalene	ND	2.41E-06	1.85E-05	1.55E-05	3.08E-03	3.44E-03	6.56E-03
Phenanthrene	ND	7.96E-08	4.76E-06	3.98E-06	Not VOC	Not VOC	8.82E-06
Pyrene	ND	3.75E-07	2.24E-05	1.88E-05	Not VOC	ND	4.16E-05
Metals							
Arsenic	ND	4.78E-02	1.64E-02	6.83E-02	Not VOC	ND	1.33E-01
Barium	ND	4.15E-03	3.39E-05	4.24E-04	Not VOC	ND	4.61E-03
Cadmium	ND	4.20E-03	9.57E-06	1.20E-03	Not VOC	ND	5.40E-03
Cobalt	ND	1.07E-06	4.28E-06	5.37E-05	Not VOC	ND	5.90E-05
Lead	ND	NA	NA	NA	Not VOC	ND	NA
Molybdenum	ND	1.11E-06	4.44E-06	5.56E-05	Not VOC	ND	6.11E-05
Vanadium	ND	3.83E-05	1.53E-04	1.92E-03	Not VOC	ND	2.11E-03
Cumulative Non-cancer Hazard Index	7.48E-05	5.62E-02	1.68E-02	7.22E-02	1.68E-02	6.36E-02	2.26E-01

ND = Chemical not detected or not sampled in medium.
Not VOC = Chemical is not volatile.

TABLE 7-7: BASELINE NONCANCER HAZARD INDICES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use – On-Site Intrusive Worker – Soil Gas Pathway: Vapor Inhalation	Soil Pathway: Particulate Inhalation	Soil Pathway: Dermal Contact	Soil Pathway: Ingestion	Soil Pathway: Vapor Inhalation	Groundwater Pathway: Dermal Contact	Groundwater Pathway: Vapor Inhalation	Total Noncancer HI
Volatile Organic Compounds								
1,1-Dichloroethane	ND	ND	ND	ND	ND	3.15E-09	5.10E-07	5.13E-07
1,1-Dichloroethylene	ND	8.49E-11	1.25E-09	9.06E-09	6.69E-09	2.86E-10	1.01E-05	1.01E-05
1,2,4-Trimethylbenzene	7.87E-10	1.51E-09	3.39E-10	2.46E-09	1.19E-07	1.03E-07	2.86E-04	2.86E-04
1,2-Dichloroethane	ND	ND	ND	ND	ND	6.34E-10	9.60E-06	9.60E-06
1,2-Dichloropropane	ND	ND	ND	ND	ND	4.00E-10	2.96E-04	2.96E-04
1,3,5-Trimethylbenzene	ND	1.29E-09	2.90E-10	2.11E-09	1.02E-07	1.95E-08	1.03E-04	1.03E-04
Acetone	ND	2.06E-10	1.36E-09	9.88E-09	1.62E-08	ND	ND	2.77E-08
Benzene	3.03E-09	1.09E-10	4.12E-09	2.99E-08	8.60E-09	1.17E-09	2.12E-05	2.12E-05
Chlorobenzene	ND	5.92E-12	5.58E-10	4.06E-09	4.66E-10	ND	ND	5.09E-09
Chloroethane	ND	ND	ND	ND	ND	1.88E-08	4.14E-08	6.02E-08
cis-1,2-Dichloroethylene	7.58E-11	ND	ND	ND	ND	1.29E-08	1.89E-04	1.89E-04
Di-isopropyl ether	ND	ND	ND	ND	ND	2.79E-09	1.61E-07	1.63E-07
Ethylbenzene	4.74E-10	3.10E-12	1.17E-10	8.49E-10	2.44E-10	8.64E-08	5.07E-07	5.95E-07
Freon 113	4.42E-12	ND	ND	ND	ND	ND	ND	4.42E-12
Isopropylbenzene (Cumene)	2.43E-12	4.40E-11	3.32E-10	2.41E-09	3.46E-09	1.76E-07	7.25E-04	7.26E-04
Methane	NA	ND	ND	ND	ND	ND	ND	NA
Methyl tert-butyl ether	4.91E-09	9.79E-13	1.72E-11	1.25E-10	7.72E-11	7.94E-08	3.41E-08	1.19E-07
Naphthalene	ND	4.57E-08	5.81E-08	2.82E-07	3.60E-06	3.35E-07	1.23E-04	1.27E-04
n-Butylbenzene	ND	7.30E-10	4.82E-09	3.50E-08	5.75E-08	5.02E-08	9.71E-05	9.72E-05
N-propylbenzene	5.07E-10	7.26E-10	4.79E-09	3.48E-08	5.72E-08	2.87E-08	1.13E-04	1.13E-04
sec-Butylbenzene	2.76E-10	5.91E-10	3.90E-09	2.84E-08	4.66E-08	6.57E-08	1.33E-04	1.33E-04
Tetrachloroethylene	ND	1.85E-10	1.22E-09	8.87E-09	1.46E-08	1.89E-09	2.36E-05	2.37E-05
Toluene	8.38E-11	2.40E-11	6.79E-11	4.94E-10	1.89E-09	2.23E-08	6.38E-07	6.63E-07
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	3.44E-09	3.90E-05	3.90E-05
Trichloroethylene	6.19E-11	9.86E-12	1.86E-09	1.35E-08	7.77E-10	6.80E-10	1.47E-06	1.48E-06
Trichlorofluoromethane	9.39E-12	ND	ND	ND	ND	ND	ND	9.39E-12
Vinyl chloride (chloroethene)	3.07E-11	ND	ND	ND	ND	6.88E-10	1.25E-04	1.25E-04
Xylenes	2.73E-10	1.16E-11	7.65E-12	5.56E-11	9.13E-10	9.79E-07	1.23E-06	2.21E-06
Semi-Volatile Compounds								
2-methylnaphthalene	ND	4.23E-07	3.59E-07	2.61E-06	3.33E-05	1.97E-06	7.67E-04	8.06E-04
Acenaphthene	ND	1.42E-08	1.41E-07	6.83E-07	1.12E-06	ND	ND	1.96E-06
Anthracene	ND	2.54E-09	2.52E-08	1.22E-07	Not VOC	ND	ND	1.50E-07
Benz(a)anthracene	ND	1.34E-08	1.33E-07	6.44E-07	Not VOC	ND	ND	7.90E-07
Chrysene	ND	1.19E-08	1.18E-07	5.71E-07	Not VOC	ND	ND	7.01E-07
Dibenzofuran	ND	1.51E-07	9.95E-07	7.23E-06	Not VOC	5.60E-09	Not VOC	8.38E-06
Fluoranthene	ND	2.25E-08	2.23E-07	1.08E-06	Not VOC	ND	ND	1.33E-06
Fluorene	ND	1.94E-08	1.92E-07	9.31E-07	Not VOC	5.58E-07	Not VOC	1.70E-06
Naphthalene	ND	1.93E-07	2.45E-07	1.19E-06	1.52E-05	4.79E-07	1.75E-04	1.93E-04
Phenanthrene	ND	6.37E-09	6.30E-08	3.06E-07	Not VOC	1.43E-05	Not VOC	1.47E-05
Pyrene	ND	3.00E-08	2.97E-07	1.44E-06	Not VOC	ND	ND	1.77E-06
Metals								
Arsenic	ND	3.83E-03	2.16E-04	5.25E-03	Not VOC	ND	ND	9.29E-03
Barium	ND	3.32E-04	4.48E-07	3.26E-05	Not VOC	ND	ND	3.65E-04
Cadmium	ND	3.36E-04	1.27E-07	9.21E-05	Not VOC	ND	ND	4.28E-04
Cobalt	ND	8.58E-08	5.67E-08	4.12E-06	Not VOC	ND	ND	4.26E-06
Lead	ND	NA	NA	NA	Not VOC	ND	ND	NA
Molybdenum	ND	8.89E-08	5.87E-08	4.27E-06	Not VOC	ND	ND	4.42E-06
Vanadium	ND	3.06E-06	2.02E-06	1.47E-04	Not VOC	ND	ND	1.52E-04
Cumulative Non-cancer Hazard Index	1.05E-08	4.50E-03	2.22E-04	5.55E-03	5.37E-05	1.93E-05	3.24E-03	1.36E-02

ND = Chemical not detected or not sampled in medium.
Not VOC = Chemical is not volatile.

TABLE 7-8: SITE DEVELOPMENT CANCER RISK ESTIMATES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use			
	On-Site Commercial Worker			
	Soil Gas Pathway	Soil Pathway	Groundwater Pathway	Total Risk
	Vapor Inhalation	Vapor Inhalation	Vapor Inhalation	
Volatile Organic Compounds				
1,1-Dichloroethane	ND	ND	5.92E-10	5.92E-10
1,1-Dichloroethylene	ND	7.80E-08	5.60E-08	1.34E-07
1,2,4-Trimethylbenzene	NC	NC	NC	NC
1,2-Dichloroethane	ND	ND	2.02E-09	2.02E-09
1,2-Dichloropropane	ND	ND	1.86E-08	1.86E-08
1,3,5-Trimethylbenzene	ND	NC	NC	NA
Acetone	ND	NC	ND	NA
Benzene	1.01E-06	4.91E-08	5.83E-08	1.12E-06
Chlorobenzene	ND	NC	ND	NA
Chloroethane	ND	ND	NC	NA
cis-1,2-Dichloroethylene	NC	ND	NC	NC
Di-isopropyl ether	ND	ND	NC	NA
Ethylbenzene	NC	NC	NC	NC
Freon 113	NC	ND	ND	NC
Isopropylbenzene (Cumene)	NC	NC	NC	NC
Methane	NC	ND	ND	NC
Methyl tert-butyl ether	1.39E-08	5.00E-10	5.95E-10	1.50E-08
Naphthalene	ND	NC	NC	NA
n-Butylbenzene	ND	NC	NC	NA
N-propylbenzene	NC	NC	NC	NC
sec-Butylbenzene	NC	NC	NC	NC
Tetrachloroethylene	ND	2.62E-07	1.71E-07	4.32E-07
Toluene	NC	NC	NC	NC
trans-1,2-Dichloroethylene	ND	ND	NC	NA
Trichloroethylene	2.06E-09	4.44E-09	3.65E-09	1.02E-08
Trichlorofluoromethane	NC	ND	ND	NC
Vinyl chloride (chloroethene)	2.76E-08	ND	1.71E-06	1.74E-06
Xylenes	NC	NC	NC	NC
Semi-Volatile Compounds				
2-methylnaphthalene	ND	NC	NC	NA
Acenaphthene	ND	NC	ND	NA
Anthracene	ND	Not VOC	ND	NA
Benz(a)anthracene	ND	Not VOC	ND	NA
Chrysene	ND	Not VOC	ND	NA
Dibenzofuran	ND	Not VOC	Not VOC	NA
Fluoranthene	ND	Not VOC	ND	NA
Fluorene	ND	Not VOC	Not VOC	NA
Naphthalene	ND	NC	NC	NA
Phenanthrene	ND	Not VOC	Not VOC	NA
Pyrene	ND	Not VOC	ND	NA
Metals				
Arsenic	ND	Not VOC	ND	NA
Barium	ND	Not VOC	ND	NA
Cadmium	ND	Not VOC	ND	NA
Cobalt	ND	Not VOC	ND	NA
Lead	ND	Not VOC	ND	NA
Molybdenum	ND	Not VOC	ND	NA
Vanadium	ND	Not VOC	ND	NA
Cumulative Cancer Risk	1.05E-06	3.94E-07	2.02E-06	3.47E-06

Notes:
ND = Chemical not detected in medium.
NC = Chemical not considered a carcinogen.
NA = Not applicable.
Not VOC = Not volatile.

TABLE 7-9: SITE DEVELOPMENT NONCANCER HAZARD INDICES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Future Land Use			
	On-Site Commercial Worker			
	Soil Gas Pathway	Soil Pathway	Groundwater Pathway	Total Noncancer HI
	Vapor Inhalation	Vapor Inhalation	Vapor Inhalation	
Volatile Organic Compounds				
1,1-Dichloroethane	ND	ND	2.03E-06	2.03E-06
1,1-Dichloroethylene	ND	6.24E-05	4.48E-05	1.07E-04
1,2,4-Trimethylbenzene	1.06E-06	1.61E-04	1.11E-03	1.28E-03
1,2-Dichloroethane	ND	ND	5.62E-05	5.62E-05
1,2-Dichloropropane	ND	ND	1.27E-03	1.27E-03
1,3,5-Trimethylbenzene	ND	5.46E-04	3.99E-04	9.45E-04
Acetone	ND	5.82E-06	ND	5.82E-06
Benzene	2.83E-05	8.02E-05	9.52E-05	2.04E-04
Chlorobenzene	ND	2.14E-06	ND	2.14E-06
Chloroethane	ND	ND	2.05E-07	2.05E-07
cis-1,2-Dichloroethylene	7.07E-07	ND	7.71E-04	7.71E-04
Di-isopropyl ether	ND	ND	6.02E-07	6.02E-07
Ethylbenzene	2.82E-06	1.45E-06	2.00E-06	6.27E-06
Freon 113	4.12E-08	ND	ND	4.12E-08
Isopropylbenzene (Cumene)	2.26E-08	3.23E-05	2.76E-03	2.79E-03
Methane	NA	ND	ND	NA
Methyl tert-butyl ether	2.17E-05	3.40E-07	4.05E-07	2.24E-05
Naphthalene	ND	4.84E-04	6.57E-04	1.14E-03
n-Butylbenzene	ND	1.92E-04	3.74E-04	5.66E-04
N-propylbenzene	1.74E-06	1.96E-04	3.98E-04	5.95E-04
sec-Butylbenzene	1.47E-06	2.48E-04	5.10E-04	7.59E-04
Tetrachloroethylene	ND	1.36E-04	8.85E-05	2.24E-04
Toluene	6.85E-07	1.55E-05	2.82E-06	1.90E-05
trans-1,2-Dichloroethylene	ND	ND	1.47E-04	1.47E-04
Trichloroethylene	5.77E-07	7.25E-06	5.96E-06	1.38E-05
Trichlorofluoromethane	8.76E-08	ND	ND	8.76E-08
Vinyl chloride (chloroethene)	2.86E-07	ND	6.22E-04	6.22E-04
Xylenes	2.54E-06	8.51E-06	4.55E-06	1.56E-05
Semi-Volatile Compounds				
2-methylnaphthalene	ND	5.28E-03	2.61E-03	7.90E-03
Acenaphthene	ND	1.43E-05	ND	1.43E-05
Anthracene	ND	Not VOC	ND	NA
Benz(a)anthracene	ND	Not VOC	ND	NA
Chrysene	ND	Not VOC	ND	NA
Dibenzofuran	ND	Not VOC	Not VOC	NA
Fluoranthene	ND	Not VOC	ND	NA
Fluorene	ND	Not VOC	Not VOC	NA
Naphthalene	ND	2.04E-03	9.37E-04	2.98E-03
Phenanthrene	ND	Not VOC	Not VOC	NA
Pyrene	ND	Not VOC	ND	NA
Metals				
Arsenic	ND	Not VOC	ND	NA
Barium	ND	Not VOC	ND	NA
Cadmium	ND	Not VOC	ND	NA
Cobalt	ND	Not VOC	ND	NA
Lead	ND	Not VOC	ND	NA
Molybdenum	ND	Not VOC	ND	NA
Vanadium	ND	Not VOC	ND	NA
Cumulative Non-cancer Hazard Index	6.20E-05	9.52E-03	1.29E-02	2.25E-02

ND = Chemical not detected or not sampled in medium.
Not VOC = Chemical is not volatile.

TABLE 7-10: BASELINE EXPLOSIVE HAZARD ESTIMATES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Explosive Threshold		On-Site Construction Worker		On-Site Commercial Worker		On-Site Intrusive Worker	
			Ambient Air	Ratio to Explosive Threshold	Indoor Air	Ratio to Explosive Threshold	Ambient Air	Ratio to Explosive Threshold
	(mg/m^3)	Source	Vapor Concentration (mg/m^3)		Vapor Concentration (mg/m^3)		Vapor Concentration (mg/m^3)	
Volatile Organic Compounds								
Methane	8.20E+03	1	1.47E-02	1.79E-06	4.39E-02	5.35E-06	5.88E-04	7.17E-08
Petroleum Hydrocarbons								
TPH-Diesel	6.51E+04	2	1.16E+04	1.79E-01	1.83E+03	2.81E-02	1.16E+04	1.79E-01
TPH-Gasoline	1.40E+04	3	5.45E+00	3.89E-04	1.08E+00	7.71E-05	5.38E+00	3.83E-04

Note: The explosive thresholds incorporate a safety factor of 4 (i.e. 25% of the Lower Explosive Limit)

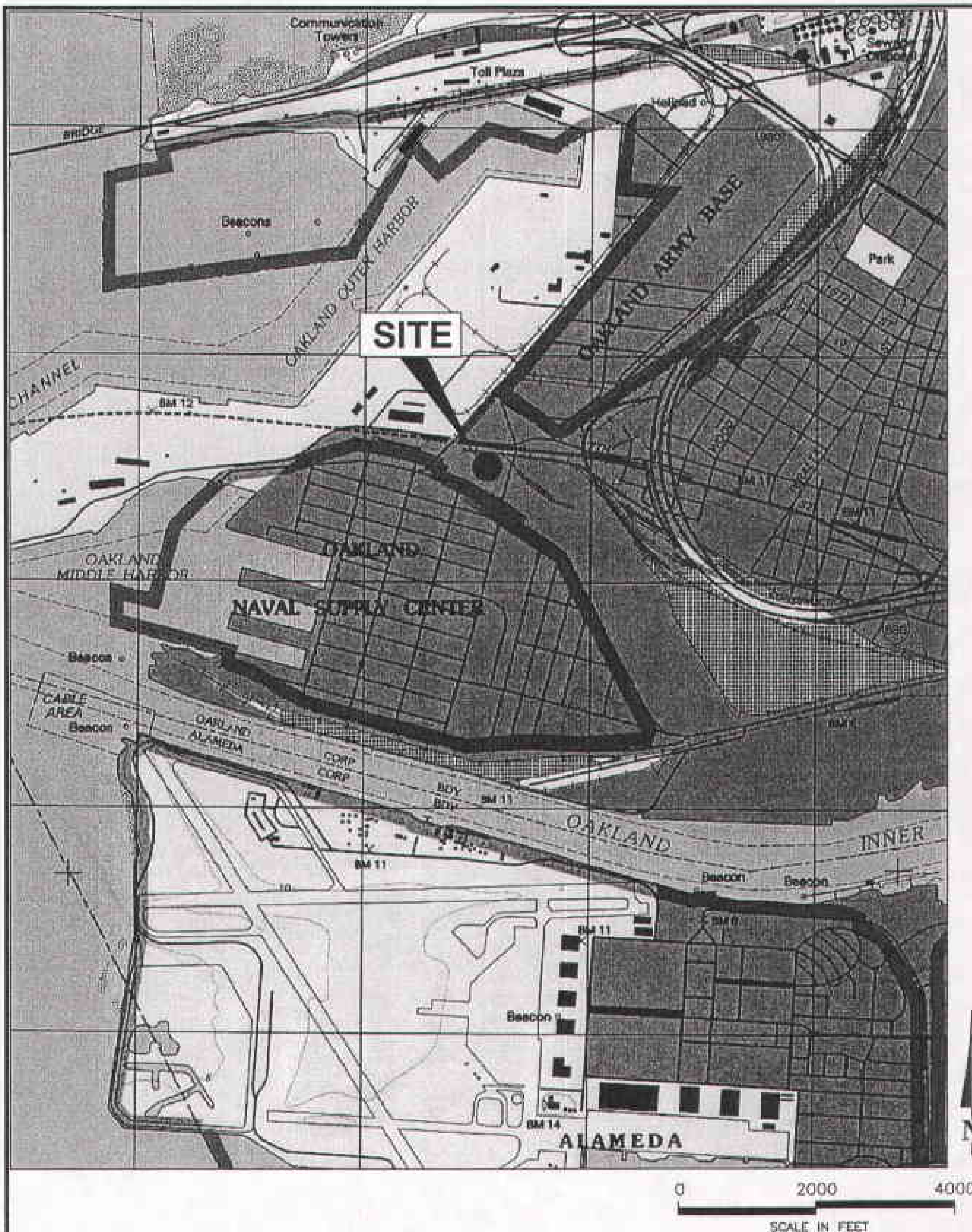
Sources:
1. National Institute of Health (NIOSH). 2002. International Chemical Safety Card (ICSC: 0206). http://www.cdc.gov/niosh/ipcsneng/neng0291.html.
2. Walters Forensic Engineering. 2002. http://www.cdc.gov/niosh/ipcsneng/neng0291.html.
3. National Institute of Health (NIOSH) Online Pocket Guide to Chemical Hazards. 2002. http://www.cdc.gov/niosh/npg/npgd0299.html

TABLE 7-11: BASELINE EXPLOSIVE HAZARD ESTIMATES
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Chemical	Explosive Threshold		On-Site Commercial Worker	
			Indoor Air	Ratio to Explosive Threshold
	(mg/m^3)	Source	Vapor Concentration (mg/m^3)	
Volatile Organic Compounds				
Methane	8.20E+03	1	4.39E-02	5.35E-06
Petroleum Hydrocarbons				
TPH-Diesel	6.51E+04	2	2.55E+02	3.91E-03
TPH-Gasoline	1.40E+04	3	3.72E-01	2.65E-05

Note: The explosive thresholds incorporate a safety factor of 4 (i.e. 25% of the Lower Explosive Limit)

Sources:
1. National Institute of Health (NIOSH). 2002. International Chemical Safety Card (ICSC: 0206). http://www.cdc.gov/niosh/ipcsneng/neng0291.html.
2. Walters Forensic Engineering. 2002. http://www.cdc.gov/niosh/ipcsneng/neng0291.html.
3. National Institute of Health (NIOSH) Online Pocket Guide to Chemical Hazards. 2002. http://www.cdc.gov/niosh/npg/npgd0299.html



SOURCE MAP: USGS 7.5 Minute OAKLAND Quad, California.

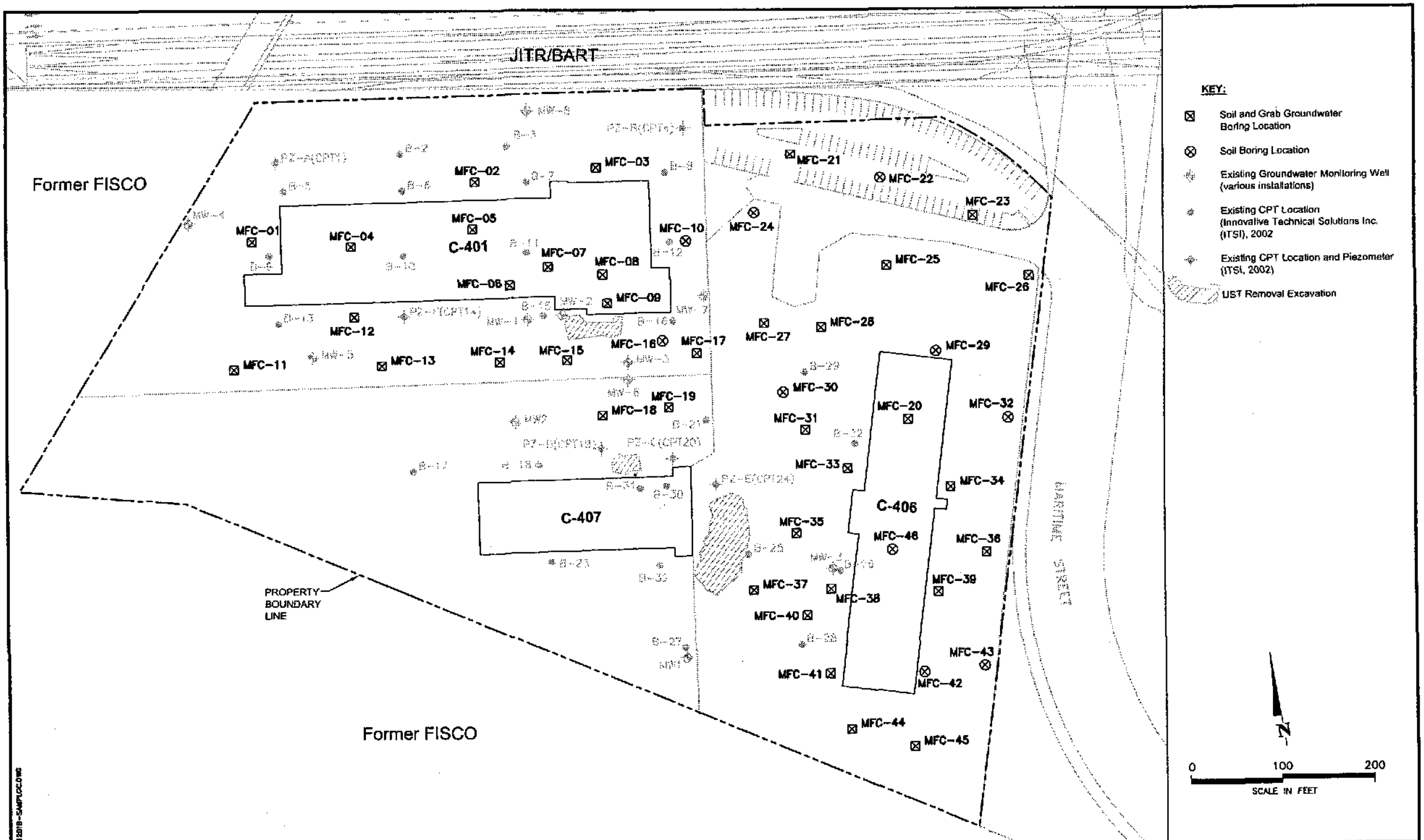
01201A—VICMAP.DWG

IRIS ENVIRONMENTAL
1615 Broadway, Suite 1003, Oakland, California 94612

Site Location Map
Future Port Field Support Services Complex
Oakland, California

Figure
1

Drafter: MS | Date: 1/13/02 | Contract Number: 01-201A | Approved: | Revised:

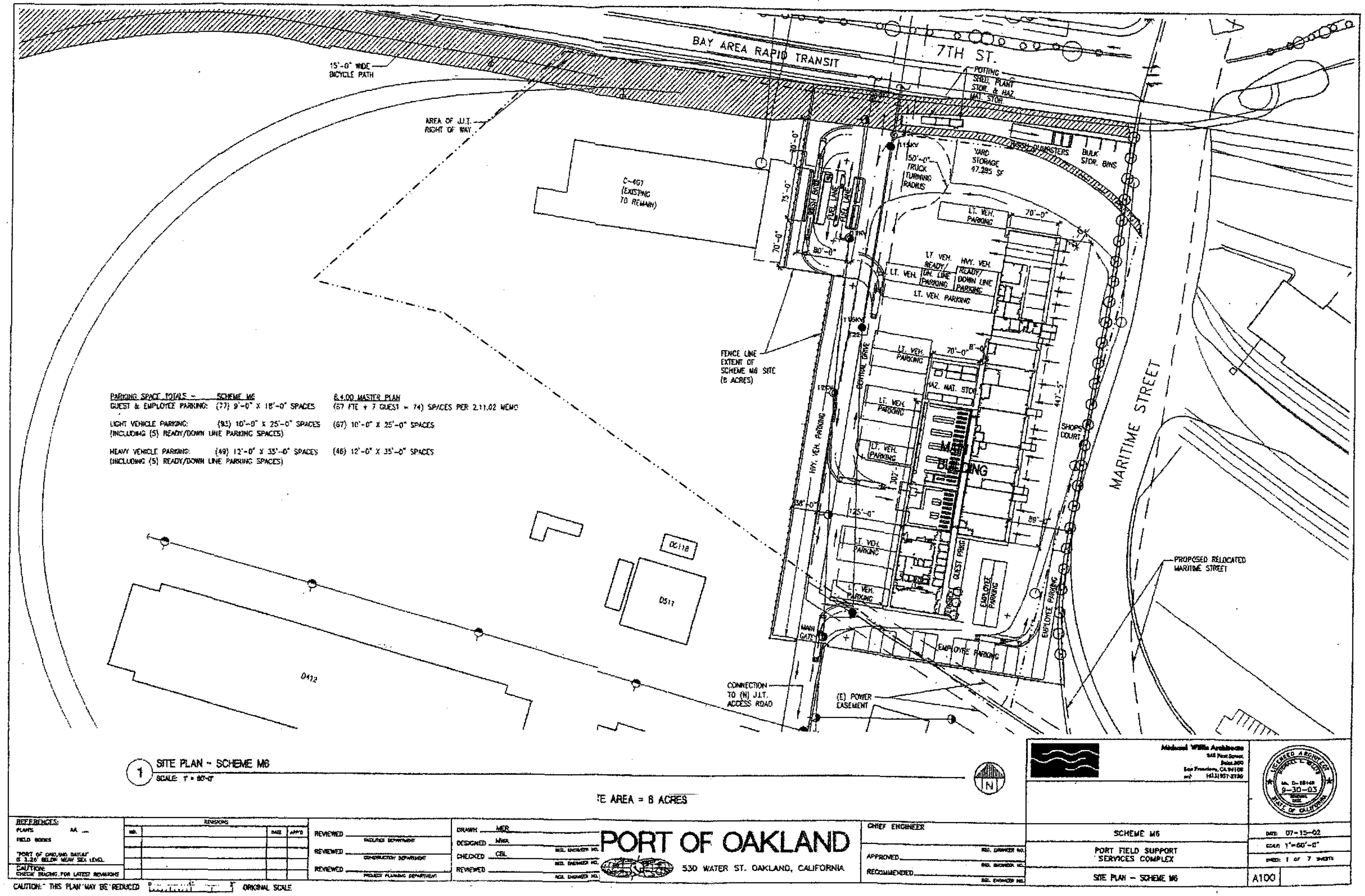


IRIS ENVIRONMENTAL
1615 Broadway, Suite 1003, Oakland, California 94612

Site Layout and Sampling Locations
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Figure
2

Drafter: MAS	Date: 4/3/02	Contract Number: 01-2018	Approved:	Revised:



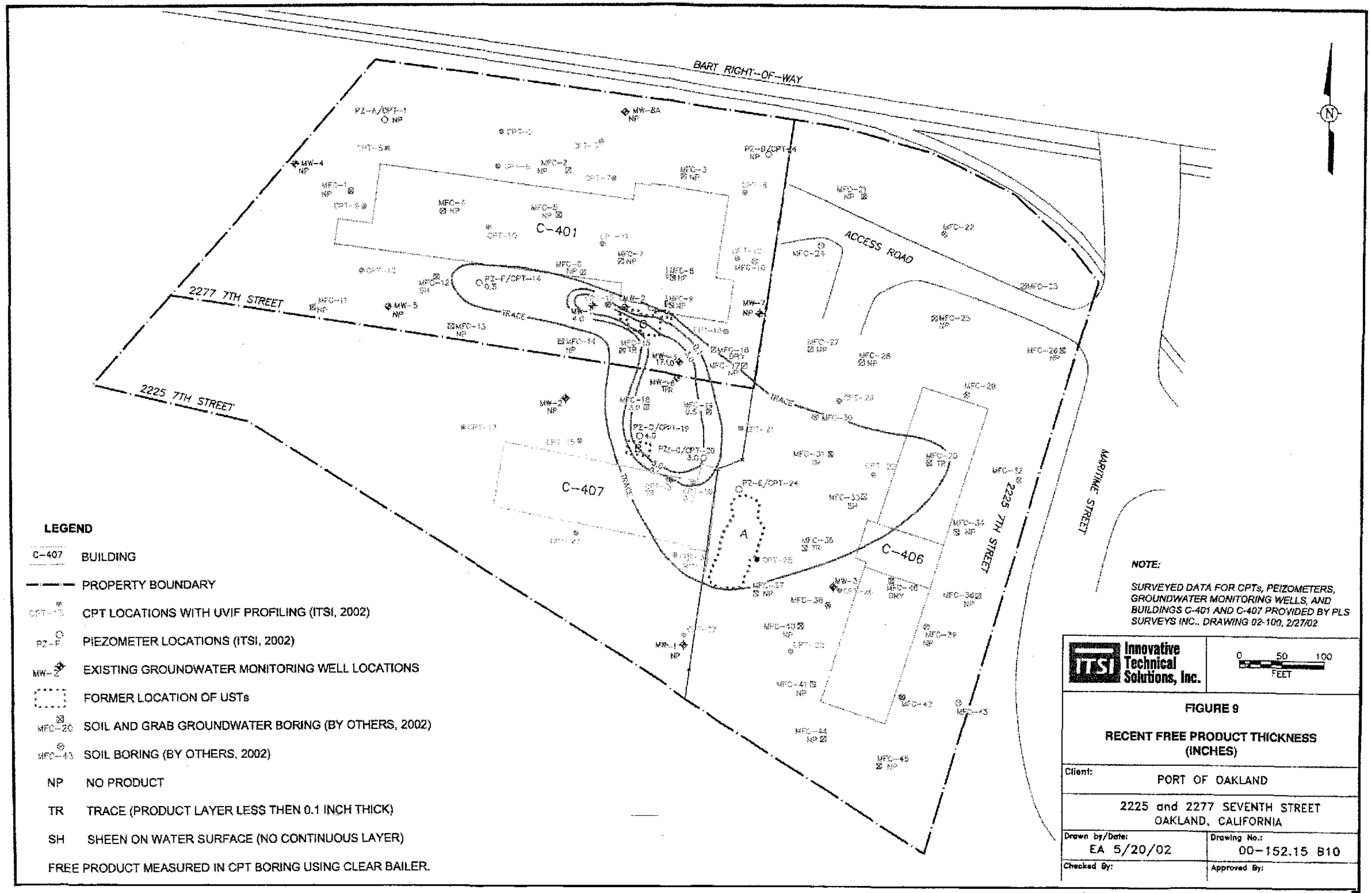
Approximate Property Boundary

IRIS ENVIRONMENTAL
1615 Broadway, Suite 1003, Oakland, California 94612

Development Plan
Port of Oakland Future Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Figure
3

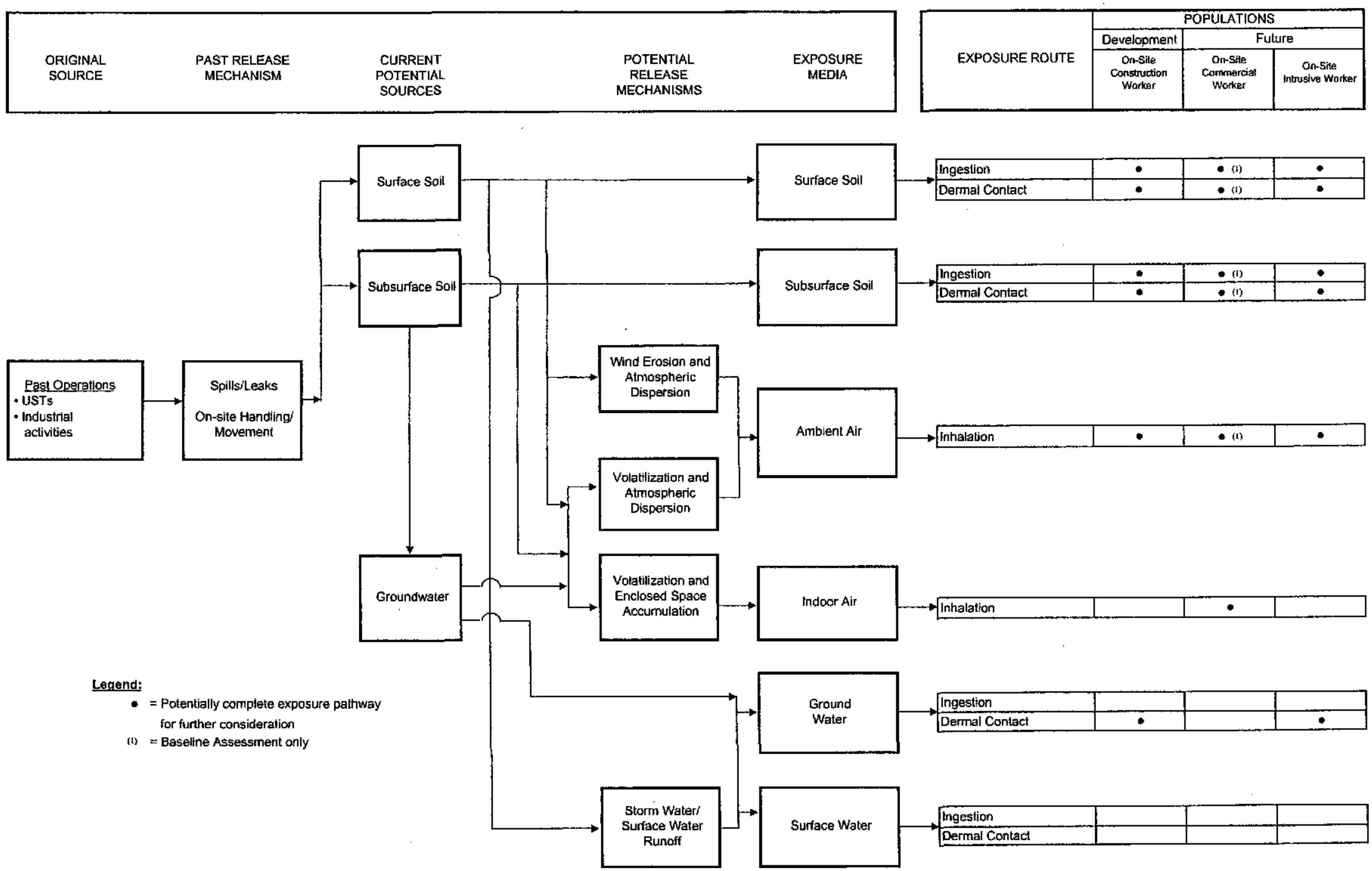
Drafter: CC | Date: 8/28/02 | Contract Number: 01-201-B | Approved:



Note: Reference HHRA Sections 2.4.1.1, 2.4.1.2, and 2.4.1.3 for clarification of lease borders for Buildings C-401 and C-407.

IRIS ENVIRONMENTAL 1615 Broadway, Suite 1003, Oakland, California 94612	**Free Product Hydrocarbon Distribution (from ITSI, Inc., 2002)** Future Port of Oakland Field Support Services Complex 2225 and 2277 Seventh Street Oakland, California	Figure **4**

Drafter: CC | Date: 8/28/02 | Contract Number: 01-201-B | Approved:



Exposure Media	Exposure Route	Development: On-Site Construction Worker	Future: On-Site Commercial Worker	Future: On-Site Intrusive Worker
Surface Soil	Ingestion	•	• (1)	•
	Dermal Contact	•	• (1)	•
Subsurface Soil	Ingestion	•	• (1)	•
	Dermal Contact	•	• (1)	•
Ambient Air	Inhalation	•	• (1)	•
Indoor Air	Inhalation		•	
Ground Water	Ingestion			
	Dermal Contact	•		•
Surface Water	Ingestion			
	Dermal Contact			

File Name: I:\Port of Oakland\TSO#19 2225 & 2277 7th Phase II Site Investigation\Risk Assessment\SiteModelPathwayDiagram_PortOfOakland.xls

IRIS ENVIRONMENTAL
1615 Broadway, Suite 1003, Oakland, California 94612

Conceptual Site Model for Human Health Risk Evaluation
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

Figure
5

Drafter: SS | Date: 8/14/02 | Contract Number: 01-201-B

APPENDIX A

PHASE II ESA SAMPLE DATA TABLES

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-01	MFC-01	MFC-02	MFC-02	MFC-02	MFC-03	MFC-03
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	1.0	2.0	4.0	1.5	4.5	5.5	1.5	4.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Kerosene	< 20	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Diesel	**110 ndp**	**31 ndp**	< 1.0	**5.8 ndp**	< 1.0	< 1.0	**19 ndp**	**4.5 ndp**
Motor Oil	**1300**	**130**	< 50	< 50	< 50	< 50	**310**	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-03	MFC-04	MFC-04	MFC-04	MFC-05	MFC-05	MFC-05	MFC-06
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	7.5	5.0	8.5	11.0	5.0	8.0	11.0	5.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	**1.7 g**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Kerosene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Diesel	< 1.0	**320 ndp**	< 1.0	< 1.0	**290 ndp**	**9.0 ndp**	< 1.0	**220 ndp**
Motor Oil	< 50	**210**	< 50	< 50	**840**	< 50	< 50	**470**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-06	MFC-07	MFC-07	MFC-07	MFC-07	MFC-07	MFC-08
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	8.5	9.0	3.0	5.0	5.5	8.5	9.0	2.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 200.0	< 1.0	< 1.0	< 200.0	< 1.0	< 200.0	< 1.0
Jet Fuel - A	< 1.0	--	< 1.0	< 5.0	--	< 1.0	--	< 5.0
Kerosene	< 1.0	--	< 1.0	< 5.0	--	< 1.0	--	< 5.0
Diesel	< 1.0	< 5.0	**92 ndp**	**240 ndp**	**13**	< 1.0	< 5.0	**160 ndp**
Motor Oil	< 50	--	**390**	**510**	--	< 50	--	**490**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-08	MFC-08	MFC-08	MFC-09	MFC-09	MFC-09	MFC-10	MFC-10
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/27/2002	3/27/2002
ANALYTICAL METHOD	8015M	8015M	3550M	8015M	8015M	3550M	8015M	8015M
DEPTH (1)	5.0	5.5	8.0	2.0	5.0	5.5	1.5	5.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 200.0	< 200.0	< 1.0	< 1.0	< 200.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	--	--	< 1.0	< 1.0	--	< 1.0	< 1.0
Kerosene	< 1.0	--	--	< 1.0	< 1.0	--	< 1.0	< 1.0
Diesel	**14 ndp**	< 5.0	< 5.0	**15 ndp**	< 1.0	< 5.0	**5.4 ndp**	< 1.0
Motor Oil	**51**	--	--	**95**	< 50	--	< 50	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-11	MFC-11	MFC-12	MFC-12	MFC-13	MFC-13	MFC-14	MFC-14
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/26/2002	3/26/2002	3/26/2002	3/27/2002	3/25/2002	3/25/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	1.5	4.0	1.5	4.0	1.5	3.0	1.5	3.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	**1.9 g**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Kerosene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Diesel	**12 ndp**	**15 ndp**	**21 ndp**	**1.0 ndp**	**110 ndp**	< 1.0	**13 ndp**	< 1.0
Motor Oil	**190**	**160**	**77**	< 50	**500**	< 50	**71**	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-15	MFC-15	MFC-15-DUP	MFC-16	MFC-16	MFC-17
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/26/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	4.0	1.5	3.0	4.5	4.5	1.5	4.0	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Kerosene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Diesel	< 1.0	**6.9 ndp**	**6.1 ndp**	< 1.0	**1.6 ndp**	**8.0 ndp**	**16 ndp**	**55 ndp**
Motor Oil	< 50	**120**	< 50	< 50	< 50	**50**	< 50	**170**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-17	MFC-18	MFC-18	MFC-18	MFC-19	MFC-19	MFC-19	MFC-20
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/27/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH [(1)]	4.5	1.5	3.0	4.5	1.0	2.0	4.0	4.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	**4.6 g**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	< 1.0	< 10	< 1.0	< 10	< 1.0	< 1.0	< 1.0
Kerosene	< 1.0	< 1.0	< 10	< 1.0	< 10	< 1.0	< 1.0	< 1.0
Diesel	**2.8 ndp**	**11 ndp**	**310 ndp**	**5.9 ndp**	**370 ndp**	**3.8 ndp**	**1.0 ndp**	**21 ndp**
Motor Oil	< 50	**88**	**1100**	< 50	**1100**	< 50	< 50	**130**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-20	MFC-20	MFC-21	MFC-21-DUP	MFC-21	MFC-21	MFC-22	MFC-22
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002
ANALYTICAL METHOD	8015M	3550M	8015M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	7.0	13.0	1.5	1.5	4.5	8.0	1.5	4.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 2,000.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 20	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Kerosene	< 20	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Diesel	**230 ndp**	**1600**	**7.9 ndp**	**4.2 ndp**	< 1.0	< 1.0	< 1.0	< 1.0
Motor Oil	**1200**	--	**58**	< 50	< 50	< 50	< 50	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-22	MFC-23	MFC-23	MFC-23	MFC-24	MFC-24	MFC-24	MFC-25
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002	3/27/2002	3/28/2002
ANALYTICAL METHOD	8015M	8015M	8015M	8015M	8015M	8015M	3550M	3550M
DEPTH (1)	7.5	1.5	5.5	8.0	1.5	4.0	4.5	1.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200.0	<200.0
Jet Fuel - A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	--	--
Kerosene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	--	--
Diesel	**1.1 ndp**	**17 ndp**	**4.2 ndp**	< 1.0	**9.4 ndp**	**150 ndp**	< 5.0	<5.0
Motor Oil	< 50	**89**	< 50	< 50	< 50	**600**	--	--

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-25-DUP	MFC-25	MFC-25	MFC-26	MFC-26	MFC-26	MFC-27	MFC-27
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
ANALYTICAL METHOD	8015M	8015M	3550M	8015M	8015M	8015M	8015M	8015M
DEPTH (1)	1.0	4.5	7.5	1.5	5.0	7.5	1.5	4.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	< 200.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0	< 50	< 1.0
Kerosene	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0	< 50	< 1.0
Diesel	**69 ndp**	**9.9 ndp**	**1600**	< 1.0	**2.4 ndp**	< 1.0	**420 ndp**	< 1.0
Motor Oil	**290**	**59**	--	< 50	< 50	< 50	**2900**	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-27	MFC-28	MFC-28	MFC-29	MFC-29	MFC-29-DUP	MFC-29	MFC-30
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/27/2002
ANALYTICAL METHOD	3550M	8015M	8015M	8015M	8015M	8015M	3550M	8015M
DEPTH [(1)]	5.5	1.0	5.0	1.0	4.5	4.5	5.5	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 200.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200.0	< 1.0
Jet Fuel - A	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	< 5.0
Kerosene	--	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	< 5.0
Diesel	< 5.0	**18 ndp**	< 1.0	**7.4 ndp**	< 1.0	< 1.0	< 5.0	**45 ndp**
Motor Oil	--	**170**	< 50	< 50	< 50	< 50	--	**520**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-30	MFC-31	MFC-31	MFC-31	MFC-31	MFC-32	MFC-33	MFC-33
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/26/2002	3/25/2002	3/25/2002
ANALYTICAL METHOD	3550M	8015M	8015M	8015M	3550M	8015M	8015M	8015M
DEPTH (1)	4.5	1.5	3.0	4.5	5.0	1.5	1.5	3.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 200.0	< 1.0	**5.4 g**	< 1.0	< 200.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	--	< 1.0	< 1.0	< 1.0	--	< 1.0	< 50	< 1.0
Kerosene	--	< 1.0	< 1.0	< 1.0	--	< 1.0	< 50	< 1.0
Diesel	< 5.0	**16 ndp**	**28 ndp**	**2.7 ndp**	< 5.0	**3.4 ndp**	**1,300 ndp**	**14 ndp**
Motor Oil	--	**81**	**75**	< 50	--	< 50	**3800**	**85**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-33	MFC-33	MFC-34	MFC-34	MFC-34	MFC-34	MFC-35	MFC-35
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/25/2002	3/25/2002
ANALYTICAL METHOD	8015M	3550M	8015M	8015M	8015M	3550M	8015M	8015M
DEPTH (1)	5.0	5.5	1.5	3.0	5.5	6.0	1.0	2.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 200.0	< 1.0	< 1.0	< 1.0	< 200.0	< 1.0	**2.0 g**
Jet Fuel - A	< 1.0	--	< 1.0	< 1.0	< 1.0	--	< 1.0	< 10
Kerosene	< 1.0	--	< 1.0	< 1.0	< 1.0	--	< 1.0	< 10
Diesel	**2.1 ndp**	< 5.0	**13 ndp**	**36 ndp**	< 1.0	< 5.0	**45 ndp**	**200 ndp**
Motor Oil	< 50	--	**150**	**85**	< 50	--	**420**	**1200**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-35	MFC-36	MFC-36- DUP	MFC-36	MFC-37	MFC-37	MFC-37
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/28/2002	3/28/2002	3/28/2002	3/25/2002	3/25/2002	3/25/2002
ANALYTICAL METHOD	8015M	3550M	8015M	8015M	8015M	8015M	8015M	3550M
DEPTH [(1)]	5.0	5.5	1.5	1.5	4.5	1.5	4.5	5.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 2,000.0	< 1.0	< 1.0	< 1.0	< 1.0	**310 g**	< 2,000.0
Jet Fuel - A	< 1.0	--	< 1.0	< 1.0	< 10	< 1.0	< 50	--
Kerosene	< 1.0	--	< 1.0	< 1.0	< 10	< 1.0	< 50	--
Diesel	**57 ndp**	**1300**	**7.6 ndp**	**1.6 ndp**	**120 ndp**	**5.6 ndp**	**5,700 ndp**	**3800**
Motor Oil	< 50	--	< 50	< 50	**900**	< 50	< 2,500	--

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-38	MFC-38	MFC-38	MFC-38	MFC-39	MFC-40	MFC-40	MFC-40
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
ANALYTICAL METHOD	8015M	8015M	8015M	3550M	8015M	8015M	8015M	8015M
DEPTH [(1)]	1.0	2.5	5.0	5.5	1.5	1.5	3.0	4.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 1.0	< 1.0	< 200.0	< 1.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0	< 1.0
Kerosene	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0	< 1.0
Diesel	**14 ndp**	**7.8 ndp**	**18 ndp**	< 5.0	**4.7 ndp**	**7.3 ndp**	**5.3 ndp**	< 1.0
Motor Oil	**150**	**72**	< 50	--	**87**	**71**	< 50	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-40	MFC-41	MFC-41	MFC-41	MFC-41	MFC-43	MFC-43	MFC-44
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/28/2002	3/28/2002	3/26/2002
ANALYTICAL METHOD	3550M	8015M	8015M	8015M	3550M	8015M	8015M	8015M
DEPTH [(1)]	5.0	1.5	2.5	4.0	4.5	1.5	4.5	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 200.0	< 1.0	< 1.0	< 1.0	< 200.0	< 1.0	< 1.0	< 1.0
Jet Fuel - A	--	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0
Kerosene	--	< 1.0	< 1.0	< 1.0	--	< 1.0	< 1.0	< 1.0
Diesel	< 5.0	**18 ndp**	< 1.0	**1.9 ndp**	**12**	**110 ndp**	< 1.0	**2.0 ndp**
Motor Oil	--	**140**	< 50	< 50	--	**320**	< 50	< 50

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 2: SOIL CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-44	MFC-44	MFC-45	MFC-45	MFC-46	MFC-46	MFC-46
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002	3/27/2002
ANALYTICAL METHOD	8015M	3550M	8015M	8015M	8015M	8015M	3550M
DEPTH (1)	4.5	5.0	1.5	4.5	4.0	7.0	7.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Gasoline	< 1.0	< 200.0	< 1.0	< 1.0	< 1.0	< 1.0	< 200.0
Jet Fuel - A	< 10	--	< 1.0	< 1.0	< 1.0	< 1.0	--
Kerosene	< 10	--	< 1.0	< 1.0	< 1.0	< 1.0	--
Diesel	**54 ndp**	< 5.0	**6.2 ndp**	< 1.0	**46 ndp**	**34 ndp**	< 5.0
Motor Oil	**650**	--	< 50	< 50	**170**	**370**	--

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

g = Hydrocarbon does not match the pattern of laboratory gasoline standard

ndp = Hydrocarbon does not match the pattern of laboratory diesel standard.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

mg/kg = milligrams per kilogram

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-02	MFC-03	MFC-04	MFC-05	MFC-06
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	< 50	< 50	< 50	**180 g**	< 50	< 200.0
Jet A	< 50	< 50	< 70	< 170	< 50	< 50
Kerosene	< 50	< 50	< 70	< 170	< 50	< 50
Diesel	< 50	< 50	< 70	**380 ndp**	< 50	< 50
Motor Oil	< 500	< 500	< 700	< 1,700	< 500	< 500

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-07	MFC-07	MFC-08	MFC-08	MFC-09
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/2002	3/28/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
UNITS	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
Gasoline	< 200.0	--	< 200.0	< 200.0	< 200.0	< 200.0
Jet A	--	< 240	--	< 50	--	< 66
Kerosene	--	< 240	--	< 50	--	< 66
Diesel	<100.0	**260 ndp**	<100.0	< 50	<100.0	< 66
Motor Oil	--	< 2,400	--	< 500	--	< 660

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

μg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-09	MFC-11	MFC-11	MFC-12	MFC-13	MFC-14
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/25/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	< 200.0	< 200.0	< 200.0	**680**	< 50	**130 g**
Jet A	--	< 61	--	< 72	< 50	< 62
Kerosene	--	< 61	--	< 72	< 50	< 62
Diesel	<100.0	**120 ndp**	<100.0	**9,300 ndp**	**69 ndp**	< 62
Motor Oil	--	**1,600**	--	**990**	**510**	< 620

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-15	MFC-17	MFC-18	MFC-19	MFC-20	MFC-23
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/26/2002	3/27/2002	3/25/2002	3/25/2002	3/28/2002	3/28/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	**540 g**	**110**	**1,000**	**1,200 g**	< 2,000.0	< 50
Jet A	< 50	< 50	< 2,900	< 500	--	< 50
Kerosene	< 50	< 50	< 2,900	< 500	--	< 50
Diesel	**160 ndp**	**6,700 ndp**	**160,000 ndp**	**140,000 ndp**	--	< 50
Motor Oil	< 500	**530**	< 29,000	**7,100**	--	< 500

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-25	MFC-25	MFC-26	MFC-27	MFC-27	MFC-28	MFC-31
MATRIX	GW	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/25/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	--	< 200.0	< 50	--	< 200.0	< 50	**1,400 g**
Jet A	< 50	--	< 50	< 70	--	--	< 500
Kerosene	< 50	--	< 50	< 70	--	--	< 500
Diesel	**190 ndp**	<100.0	< 50	< 70	<100.0	--	**51,000 ndp**
Motor Oil	**1,800**	--	600	< 700	--	--	< 5,000

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-31	MFC-33	MFC-33	MFC-34	MFC-35
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/2002	3/28/2002	3/25/2002	3/25/2002	3/28/2002	3/25/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	--	< 2,000.0	**4,600 g**	< 200.0	< 50	**1,900 g**
Jet A	< 10,000	--	--	--	< 100	< 570
Kerosene	< 10,000	--	--	--	< 100	< 570
Diesel	**600,000 ndp**	**16,000**	**25,000**	--	< 100	**35,000 ndp**
Motor Oil	< 100,000	--	--	--	< 1,000	< 5,700

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-36	MFC-37	MFC-38	MFC-39	MFC-39
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/2002	3/28/2002	3/26/2002	3/26/2002	3/27/2002	3/27/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	< 200.0	**94 g**	< 200.0	< 200.0	--	< 200.0
Jet A	--	< 50	--	--	< 63	--
Kerosene	--	< 50	--	--	< 63	--
Diesel	**140,000**	**81 ndp**	**57,000**	<100.0	< 63	<100.0
Motor Oil	--	< 500	--	--	< 630	--

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-40	MFC-40	MFC-41	MFC-41	MFC-44	MFC-44
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Gasoline	< 200.0	< 200.0	< 200.0	< 200.0	< 200.0	< 200.0
Jet A	< 50	--	< 59	--	< 59	--
Kerosene	< 50	--	< 59	--	< 59	--
Diesel	< 50	<100.0	< 59	<100.0	**70 ndp**	<100.0
Motor Oil	< 500	--	< 590	--	< 590	--

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 3: GROUNDWATER CHEMICAL TEST RESULTS - Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-45	MFC-45
MATRIX	GW	GW
COLLECTION DATE	3/28/2002	3/28/2002
UNITS	µg/L	µg/L
Gasoline	--	< 200.0
Jet A	< 63	--
Kerosene	< 63	--
Diesel	< 63	<100.0
Motor Oil	< 630	--

Notes:

g = Hydrocarbon does not match the pattern of lab gasoline standard

ndp = Hydrocarbon does not match the pattern of lab diesel standard.

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Total Petroleum Hydrocarbons (TPHs) in the gasoline, jet fuel-A, kerosene, diesel, and motor oil by EPA Method 8015M.

µg/L = micrograms per liter

-- = Not Analyzed

TABLE 4: SOIL GAS CHEMICAL TEST RESULTS - Fixed Gases and Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION		MFC-01	MFC-03	MFC-05	MFC-07	MFC-10	MFC-13	MFC-14	MFC-15
MATRIX		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE		3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02
DEPTH [(1)]		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	UNITS								
Carbon Dioxide	% v	**8.2**	**8.4**	**11**	**7.3**	**6.4**	**10**	**10**	**6.0**
Oxygen	% v	**2.5**	**4.1**	**6.0**	**11**	**8.4**	**1.3**	**0.91**	**9.4**
Nitrogen	% v	**92**	**89**	**82**	**83**	**88**	**85**	**65**	**63**
Methane	% v	**0.21**	**0.065**	**0.00070**	**0.00096**	<0.00044	**6.1**	**24**	**22**
Carbon Monoxide	% v	<0.0027	<0.0022	<0.0020	<0.0019	<0.0022	<0.0024	<0.0021	<0.0017
Gasoline	ppmv	**45**	<2.2	<2.0	<1.9	<2.2	**330**	**1,000**	**630**

Notes:
(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

Samples collected in Summa Canisters.

% v = percent by volume (1% = 10,000 ppmv)

ppmv = parts per million by volume

Samples were analyzed for Petroleum Hydrocarbons in the gasoline range by EPA Method 19 TO-3 and for carbon dioxide, oxygen, nitrogen, methane, and carbon monoxide by ASTM D1946.

TABLE 4: SOIL GAS CHEMICAL TEST RESULTS - Fixed Gases and Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION		MFC-16	MFC-17	MFC-18	MFC-19	MFC-23	MFC-28	MFC-29	MFC-31
MATRIX		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE		3/26/02	3/26/02	3/26/02	3/26/02	3/28/02	3/28/02	3/28/02	3/25/02
DEPTH (1)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	UNITS								
Carbon Dioxide	% v	**6.3**	**7.7**	**17**	**13**	**0.039**	**1.6**	**0.87**	**2.1**
Oxygen	% v	**6.5**	**0.89**	**0.35**	**2.1**	**22**	**3.0**	**3.3**	**12**
Nitrogen	% v	**50**	**15**	**19**	**17**	**80**	**39**	**17**	**55**
Methane	% v	**37**	**76**	**64**	**68**	**0.0013**	**56**	**78**	**38**
Carbon Monoxide	% v	<0.0030	<0.0022	<0.0020	<0.0021	<0.0027	<0.0021	<0.0029	<0.0043
Gasoline	ppmv	**28,000**	**340**	**910**	**810**	<2.7	**13**	**78**	**290**

Notes:
(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

Samples collected in Summa Canisters.

% v = percent by volume (1% = 10,000 ppmv)

ppmv = parts per million by volume

Samples were analyzed for Petroleum Hydrocarbons in the gasoline range by EPA Method 19 TO-3 and for carbon dioxide, oxygen, nitrogen, methane, and carbon monoxide by ASTM D1946.

TABLE 4: SOIL GAS CHEMICAL TEST RESULTS - Fixed Gases and Total Petroleum Hydrocarbons
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION		MFC-33	MFC-35	MFC-36	MFC-37	MFC-38	MFC-41	MFC-45
MATRIX		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE		3/25/02	3/25/02	3/28/02	3/25/02	3/28/02	3/28/02	3/28/02
DEPTH (1)		4.0	4.0	4.0	4.0	4.0	4.0	4.0
	UNITS							
Carbon Dioxide	% v	**1.8**	**3.8**	**8.0**	**7.1**	**0.083**	**2.7**	**0.19**
Oxygen	% v	**18**	**16**	**1.5**	**10**	**22**	**19**	**20**
Nitrogen	% v	**69**	**65**	**91**	**70**	**80**	**81**	**84**
Methane	% v	**17**	**19**	**1.9**	**18**	**0.17**	<0.00042	**0.077**
Carbon Monoxide	% v	<0.0025	<0.0020	<0.0019	<0.0028	<0.0018	<0.0021	<0.0034
Gasoline	ppmv	**140**	**170**	**85**	**140**	<1.8	<2.1	**6.9**

Notes:
(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

Samples collected in Summa Canisters.

% v = percent by volume (1% = 10,000 ppmv)

ppmv = parts per million by volume

Samples were analyzed for Petroleum Hydrocarbons in the gasoline range by EPA Method 19 TO-3 and for carbon dioxide, oxygen, nitrogen, methane, and carbon monoxide by ASTM D1946.

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-01	MFC-01	MFC-02	MFC-02	MFC-02
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH (1)	1.0	2.0	4.0	1.5	4.5	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,1,1-Trichloroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,1,2-Trichloroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,1-Dichloroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,1-Dichloroethene	--	**8.1**	< 5.0	--	< 5.0	< 5.0
1,1-Dichloropropene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	< 50	--	< 50	< 50
1,2-Dibromoethane	--	< 10	< 10	--	< 10	< 10
1,2-Dichlorobenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,2-Dichloroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,2-Dichloropropane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,3-Dichlorobenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,3-Dichloropropane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
1,4-Dichlorobenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
2,2-Dichloropropane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
2-Butanone(MEK)	--	< 50	< 50	--	< 50	< 50
2-Chloroethylvinyl ether	--	< 50	< 50	--	< 50	< 50
2-Chlorotoluene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
2-Hexanone	--	< 50	< 50	--	< 50	< 50
4-Chlorotoluene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	--	< 50	< 50	--	< 50	< 50
Acetone	--	< 50	**210**	--	< 50	< 50
Benzene	< 0.0050	**7.6**	< 5.0	< 0.0050	< 5.0	< 5.0
Bromobenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Bromochloromethane	--	< 20	< 20	--	< 20	< 20
Bromodichloromethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Bromoform	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Bromomethane	--	< 10	< 10	--	< 10	< 10
Carbon disulfide	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Carbon tetrachloride	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Chlorobenzene	--	**7.8**	< 5.0	--	< 5.0	< 5.0
Chloroethane	--	< 10	< 10	--	< 10	< 10
Chloroform	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Chloromethane	--	< 10	< 10	--	< 10	< 10
cis-1,2-Dichloroethene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
cis-1,3-Dichloropropene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Dibromochloromethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Dibromomethane	--	< 10	< 10	--	< 10	< 10
Dichlorodifluoromethane	--	< 10	< 10	--	< 10	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--	--
Ethanol	--	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--	--
Ethylbenzene	< 0.0050	< 5.0	< 5.0	< 0.0050	< 5.0	< 5.0
Hexachlorobutadiene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Isopropylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Methylene chloride	--	< 5.0	< 5.0	--	< 5.0	< 5.0
MTBE	--	< 5.0	< 5.0	--	< 5.0	< 5.0
(Continued)						
Naphthalene	--	< 10	< 10	--	< 10	< 10
n-Butylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
n-Propylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
p-Isopropyltoluene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
sec-Butylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-01	MFC-01	MFC-02	MFC-02	MFC-02
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH[1]	1.0	2.0	4.0	1.5	4.5	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--	--
tert-Butylbenzene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--	--
Tetrachloroethene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Toluene	< 0.0050	**8.2**	< 5.0	< 0.0050	< 5.0	< 5.0
trans-1,2-Dichloroethene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
trans-1,3-Dichloropropene	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Trichloroethene	--	**7.9**	< 5.0	--	< 5.0	< 5.0
Trichlorofluoromethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Trichlorotrifluoroethane	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Vinyl acetate	--	< 50	< 50	--	< 50	< 50
Vinyl chloride	--	< 5.0	< 5.0	--	< 5.0	< 5.0
Xylenes (Total)	< 0.0050	< 5.0	< 5.0	< 0.0050	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-03	MFC-03	MFC-03	MFC-04	MFC-04	MFC-04
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH (1)	1.5	4.5	7.5	5.0	8.5	11.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	< 5.0	**19**	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	< 50	< 50	< 50	< 50
1,2-Dibromoethane	--	< 10	< 10	< 10	< 10	< 10
1,2-Dichlorobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	< 5.0	**5.7**	< 5.0	< 5.0
1,3-Dichlorobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Butanone(MEK)	--	< 50	< 50	< 50	< 50	< 50
2-Chloroethylvinyl ether	--	< 50	< 50	< 50	< 50	< 50
2-Chlorotoluene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Hexanone	--	< 50	< 50	< 50	< 50	< 50
4-Chlorotoluene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	--	< 50	< 50	< 50	< 50	< 50
Acetone	--	< 50	< 50	< 50	< 50	< 50
Benzene	< 0.0050	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromochloromethane	--	< 20	< 20	< 20	< 20	< 20
Bromodichloromethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	--	< 10	< 10	< 10	< 10	< 10
Carbon disulfide	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	--	< 10	< 10	< 10	< 10	< 10
Chloroform	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloromethane	--	< 10	< 10	< 10	< 10	< 10
cis-1,2-Dichloroethene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	--	< 10	< 10	< 10	< 10	< 10
Dichlorodifluoromethane	--	< 10	< 10	< 10	< 10	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--	--
Ethanol	--	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--	--
Ethylbenzene	< 0.0050	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methylene chloride	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
(Continued)						
Naphthalene	--	< 10	< 10	**3,500**	< 10	< 10
n-Butylbenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-03	MFC-03	MFC-03	MFC-04	MFC-04	MFC-04
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH (1)	1.5	4.5	7.5	5.0	8.5	11.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--	--
tert-Butylbenzene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--	--
Tetrachloroethene	--	< 5.0	< 5.0	**11**	< 5.0	< 5.0
Toluene	< 0.0050	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
trans-1,2-Dichloroethene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
trans-1,3-Dichloropropene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorotrifluoroethane	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl acetate	--	< 50	< 50	< 50	< 50	< 50
Vinyl chloride	--	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Xylenes (Total)	< 0.0050	< 5.0	< 5.0	**9.8**	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-05	MFC-05	MFC-05
MATRIX	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002
DEPTH [(1)]	5.0	8.0	11.0
UNITS	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	< 5.0
1,1,1-Trichloroethane	--	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	--	< 5.0	< 5.0
1,1,2-Trichloroethane	--	< 5.0	< 5.0
1,1-Dichloroethane	--	< 5.0	< 5.0
1,1-Dichloroethene	--	< 5.0	< 5.0
1,1-Dichloropropene	--	< 5.0	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	< 50
1,2-Dibromoethane	--	< 10	< 10
1,2-Dichlorobenzene	--	< 5.0	< 5.0
1,2-Dichloroethane	--	< 5.0	< 5.0
1,2-Dichloropropane	--	< 5.0	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	< 5.0
1,3-Dichlorobenzene	--	< 5.0	< 5.0
1,3-Dichloropropane	--	< 5.0	< 5.0
1,4-Dichlorobenzene	--	< 5.0	< 5.0
2,2-Dichloropropane	--	< 5.0	< 5.0
2-Butanone(MEK)	--	< 50	< 50
2-Chloroethylvinyl ether	--	< 50	< 50
2-Chlorotoluene	--	< 5.0	< 5.0
2-Hexanone	--	< 50	< 50
4-Chlorotoluene	--	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	--	< 50	< 50
Acetone	--	< 50	< 50
Benzene	< 0.0050	< 5.0	< 5.0
Bromobenzene	--	< 5.0	< 5.0
Bromochloromethane	--	< 20	< 20
Bromodichloromethane	--	< 5.0	< 5.0
Bromoform	--	< 5.0	< 5.0
Bromomethane	--	< 10	< 10
Carbon disulfide	--	< 5.0	< 5.0
Carbon tetrachloride	--	< 5.0	< 5.0
Chlorobenzene	--	< 5.0	< 5.0
Chloroethane	--	< 10	< 10
Chloroform	--	< 5.0	< 5.0
Chloromethane	--	< 10	< 10
cis-1,2-Dichloroethene	--	< 5.0	< 5.0
cis-1,3-Dichloropropene	--	< 5.0	< 5.0
Dibromochloromethane	--	< 5.0	< 5.0
Dibromomethane	--	< 10	< 10
Dichlorodifluoromethane	--	< 10	< 10
di-Isopropyl Ether (DIPE)	--	--	--
Ethanol	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--
Ethylbenzene	< 0.0050	< 5.0	< 5.0
Hexachlorobutadiene	--	< 5.0	< 5.0
Isopropylbenzene	--	< 5.0	< 5.0
Methylene chloride	--	< 5.0	< 5.0
MTBE	--	< 5.0	< 5.0
(Continued)			
Naphthalene	--	< 10	< 10
n-Butylbenzene	--	< 5.0	< 5.0
n-Propylbenzene	--	< 5.0	< 5.0
p-Isopropyltoluene	--	< 5.0	< 5.0
sec-Butylbenzene	--	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-05	MFC-05	MFC-05
MATRIX	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	5.0	8.0	11.0
UNITS	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--
tert-Butylbenzene	--	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	--	--
Tetrachloroethene	--	< 5.0	< 5.0
Toluene	< 0.0050	< 5.0	< 5.0
trans-1,2-Dichloroethene	--	< 5.0	< 5.0
trans-1,3-Dichloropropene	--	< 5.0	< 5.0
Trichloroethene	--	< 5.0	< 5.0
Trichlorofluoromethane	--	< 5.0	< 5.0
Trichlorotrifluoroethane	--	< 5.0	< 5.0
Vinyl acetate	--	< 50	< 50
Vinyl chloride	--	< 5.0	< 5.0
Xylenes (Total)	< 0.0050	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-06	MFC-06	MFC-07	MFC-07
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH [(1)]	5.0	8.5	9.0	3.0	5.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	--	--	< 5.0
1,1,1-Trichloroethane	--	< 5.0	< 1.0	--	< 5.0
1,1,2,2-Tetrachloroethane	--	< 5.0	< 1.0	--	< 5.0
1,1,2-Trichloroethane	--	< 5.0	< 1.0	--	< 5.0
1,1-Dichloroethane	--	< 5.0	< 1.0	--	< 5.0
1,1-Dichloroethene	--	< 5.0	< 1.0	--	< 5.0
1,1-Dichloropropene	--	< 5.0	--	--	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	--	--	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	--	--	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	--	--	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	--	--	< 50
1,2-Dibromoethane	--	< 10	--	--	< 10
1,2-Dichlorobenzene	--	< 5.0	--	--	< 5.0
1,2-Dichloroethane	--	< 5.0	< 2.0	--	< 5.0
1,2-Dichloropropane	--	< 5.0	< 2.0	--	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	--	--	< 5.0
1,3-Dichlorobenzene	--	< 5.0	--	--	< 5.0
1,3-Dichloropropane	--	< 5.0	--	--	< 5.0
1,4-Dichlorobenzene	--	< 5.0	--	--	< 5.0
2,2-Dichloropropane	--	< 5.0	--	--	< 5.0
2-Butanone(MEK)	--	< 50	< 10.0	--	< 50
2-Chloroethylvinyl ether	--	< 50	--	--	< 50
2-Chlorotoluene	--	< 5.0	--	--	< 5.0
2-Hexanone	--	< 50	< 2.0	--	< 50
4-Chlorotoluene	--	< 5.0	--	--	< 5.0
4-Methyl-2-pentanone (MIBK)	--	< 50	< 2.0	--	< 50
Acetone	--	< 50	< 5.0	--	< 50
Benzene	< 0.0050	< 5.0	< 1.0	< 0.0050	< 5.0
Bromobenzene	--	< 5.0	--	--	< 5.0
Bromochloromethane	--	< 20	--	--	< 20
Bromodichloromethane	--	< 5.0	< 1.0	--	< 5.0
Bromoform	--	< 5.0	< 1.0	--	< 5.0
Bromomethane	--	< 10	< 2.0	--	< 10
Carbon disulfide	--	< 5.0	< 1.0	--	< 5.0
Carbon tetrachloride	--	< 5.0	< 1.0	--	< 5.0
Chlorobenzene	--	< 5.0	< 1.0	--	< 5.0
Chloroethane	--	< 10	< 2.0	--	< 10
Chloroform	--	< 5.0	< 2.0	--	< 5.0
Chloromethane	--	< 10	< 2.0	--	< 10
cis-1,2-Dichloroethene	--	< 5.0	< 1.0	--	< 5.0
cis-1,3-Dichloropropene	--	< 5.0	< 1.0	--	< 5.0
Dibromochloromethane	--	< 5.0	< 1.0	--	< 5.0
Dibromomethane	--	< 10	--	--	< 10
Dichlorodifluoromethane	--	< 10	--	--	< 10
di-Isopropyl Ether (DIPE)	--	--	< 2.0	--	--
Ethanol	--	--	< 200.0	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	< 2.0	--	--
Ethylbenzene	< 0.0050	< 5.0	< 1.0	< 0.0050	< 5.0
Hexachlorobutadiene	--	< 5.0	--	--	< 5.0
Isopropylbenzene	--	< 5.0	--	--	< 5.0
Methylene chloride	--	< 5.0	--	--	< 5.0
MTBE	--	< 5.0	< 1.0	--	< 5.0
(Continued)					
Naphthalene	--	< 10	--	--	< 10
n-Butylbenzene	--	< 5.0	--	--	< 5.0
n-Propylbenzene	--	< 5.0	< 2.0	--	< 5.0
p-Isopropyltoluene	--	< 5.0	--	--	< 5.0
sec-Butylbenzene	--	< 5.0	--	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-06	MFC-06	MFC-07	MFC-07
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH[(1)]	5.0	8.5	9.0	3.0	5.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	< 1.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	< 2.0	--	--
tert-Butylbenzene	--	< 5.0	--	--	< 5.0
Tertiary Butanol (TBA)	--	--	< 50.0	--	--
Tetrachloroethene	--	< 5.0	< 1.0	--	< 5.0
Toluene	< 0.0050	< 5.0	< 1.0	< 0.0050	< 5.0
trans-1,2-Dichloroethene	--	< 5.0	< 1.0	--	< 5.0
trans-1,3-Dichloropropene	--	< 5.0	< 1.0	--	< 5.0
Trichloroethene	--	< 5.0	< 1.0	--	< 5.0
Trichlorofluoromethane	--	< 5.0	--	--	< 5.0
Trichlorotrifluoroethane	--	< 5.0	--	--	< 5.0
Vinyl acetate	--	< 50	< 5.0	--	< 50
Vinyl chloride	--	< 5.0	< 3.0	--	< 5.0
Xylenes (Total)	< 0.0050	< 5.0	< 2.0	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-07	MFC-07	MFC-07	MFC-08	MFC-08
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	5.5	8.5	9.0	2.0	5.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	--	--	< 5.0
1,1,1-Trichloroethane	< 1.0	< 5.0	< 1.0	--	< 5.0
1,1,2,2-Tetrachloroethane	< 1.0	< 5.0	< 1.0	--	< 5.0
1,1,2-Trichloroethane	< 1.0	< 5.0	< 1.0	--	< 5.0
1,1-Dichloroethane	< 1.0	< 5.0	< 1.0	--	< 5.0
1,1-Dichloroethene	< 1.0	< 5.0	< 1.0	--	< 5.0
1,1-Dichloropropene	--	< 5.0	--	--	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	--	--	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	--	--	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	--	--	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	--	--	< 50
1,2-Dibromoethane	--	< 10	--	--	< 10
1,2-Dichlorobenzene	--	< 5.0	--	--	< 5.0
1,2-Dichloroethane	< 2.0	< 5.0	< 2.0	--	< 5.0
1,2-Dichloropropane	< 2.0	< 5.0	< 2.0	--	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	--	--	< 5.0
1,3-Dichlorobenzene	--	< 5.0	--	--	< 5.0
1,3-Dichloropropane	--	< 5.0	--	--	< 5.0
1,4-Dichlorobenzene	--	< 5.0	--	--	< 5.0
2,2-Dichloropropane	--	< 5.0	--	--	< 5.0
2-Butanone(MEK)	< 10.0	< 50	< 10.0	--	< 50
2-Chloroethylvinyl ether	--	< 50	--	--	< 50
2-Chlorotoluene	--	< 5.0	--	--	< 5.0
2-Hexanone	< 2.0	< 50	< 2.0	--	< 50
4-Chlorotoluene	--	< 5.0	--	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 2.0	< 50	< 2.0	--	< 50
Acetone	< 5.0	< 50	< 5.0	--	< 50
Benzene	< 1.0	< 5.0	< 1.0	< 0.0050	< 5.0
Bromobenzene	--	< 5.0	--	--	< 5.0
Bromochloromethane	--	< 20	--	--	< 20
Bromodichloromethane	< 1.0	< 5.0	< 1.0	--	< 5.0
Bromoform	< 1.0	< 5.0	< 1.0	--	< 5.0
Bromomethane	< 2.0	< 10	< 2.0	--	< 10
Carbon disulfide	< 1.0	< 5.0	< 1.0	--	< 5.0
Carbon tetrachloride	< 1.0	< 5.0	< 1.0	--	< 5.0
Chlorobenzene	< 1.0	< 5.0	< 1.0	--	< 5.0
Chloroethane	< 2.0	< 10	< 2.0	--	< 10
Chloroform	< 2.0	< 5.0	< 2.0	--	< 5.0
Chloromethane	< 2.0	< 10	< 2.0	--	< 10
cis-1,2-Dichloroethene	< 1.0	< 5.0	< 1.0	--	< 5.0
cis-1,3-Dichloropropene	< 1.0	< 5.0	< 1.0	--	< 5.0
Dibromochloromethane	< 1.0	< 5.0	< 1.0	--	< 5.0
Dibromomethane	--	< 10	--	--	< 10
Dichlorodifluoromethane	--	< 10	--	--	< 10
di-Isopropyl Ether (DIPE)	< 2.0	--	< 2.0	--	--
Ethanol	< 200.0	--	< 200.0	--	--
Ethyl tert-Butyl Ether (ETBE)	< 2.0	--	< 2.0	--	--
Ethylbenzene	< 1.0	< 5.0	< 1.0	< 0.0050	< 5.0
Hexachlorobutadiene	--	< 5.0	--	--	< 5.0
Isopropylbenzene	--	< 5.0	--	--	< 5.0
Methylene chloride	--	< 5.0	--	--	< 5.0
MTBE	< 1.0	< 5.0	< 1.0	--	< 5.0
(Continued)					
Naphthalene	--	< 10	--	--	< 10
n-Butylbenzene	--	< 5.0	--	--	< 5.0
n-Propylbenzene	< 2.0	< 5.0	< 2.0	--	< 5.0
p-Isopropyltoluene	--	< 5.0	--	--	< 5.0
sec-Butylbenzene	--	< 5.0	--	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-07	MFC-07	MFC-07	MFC-08	MFC-08
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH[(1)]	5.5	8.5	9.0	2.0	5.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 1.0	< 5.0	< 1.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	--	< 2.0	--	--
tert-Butylbenzene	--	< 5.0	--	--	< 5.0
Tertiary Butanol (TBA)	< 50.0	--	< 50.0	--	--
Tetrachloroethene	< 1.0	< 5.0	< 1.0	--	< 5.0
Toluene	**1.2**	< 5.0	< 1.0	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 1.0	< 5.0	< 1.0	--	< 5.0
trans-1,3-Dichloropropene	< 1.0	< 5.0	< 1.0	--	< 5.0
Trichloroethene	< 1.0	< 5.0	< 1.0	--	< 5.0
Trichlorofluoromethane	--	< 5.0	--	--	< 5.0
Trichlorotrifluoroethane	--	< 5.0	--	--	< 5.0
Vinyl acetate	< 5.0	< 50	< 5.0	--	< 50
Vinyl chloride	< 3.0	< 5.0	< 3.0	--	< 5.0
Xylenes (Total)	< 2.0	< 5.0	< 2.0	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-08	MFC-08	MFC-09	MFC-09	MFC-09
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	5.5	8.0	2.0	5.0	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	--	--	< 5.0	--
1,1,1-Trichloroethane	< 1.0	< 1.0	--	< 5.0	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	--	< 5.0	< 1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	--	< 5.0	< 1.0
1,1-Dichloroethane	< 1.0	< 1.0	--	< 5.0	< 1.0
1,1-Dichloroethene	< 1.0	< 1.0	--	< 5.0	< 1.0
1,1-Dichloropropene	--	--	--	< 5.0	--
1,2,3-Trichlorobenzene	--	--	--	< 5.0	--
1,2,4-Trichlorobenzene	--	--	--	< 5.0	--
1,2,4-Trimethylbenzene	--	--	--	< 5.0	--
1,2-Dibromo-3-chloropropane	--	--	--	< 50	--
1,2-Dibromoethane	--	--	--	< 10	--
1,2-Dichlorobenzene	--	--	--	< 5.0	--
1,2-Dichloroethane	< 2.0	< 2.0	--	< 5.0	< 2.0
1,2-Dichloropropane	< 2.0	< 2.0	--	< 5.0	< 2.0
1,3,5-Trimethylbenzene	--	--	--	< 5.0	--
1,3-Dichlorobenzene	--	--	--	< 5.0	--
1,3-Dichloropropane	--	--	--	< 5.0	--
1,4-Dichlorobenzene	--	--	--	< 5.0	--
2,2-Dichloropropane	--	--	--	< 5.0	--
2-Butanone(MEK)	< 10.0	< 10.0	--	< 50	< 10.0
2-Chloroethylvinyl ether	--	--	--	< 50	--
2-Chlorotoluene	--	--	--	< 5.0	--
2-Hexanone	< 2.0	< 2.0	--	< 50	< 2.0
4-Chlorotoluene	--	--	--	< 5.0	--
4-Methyl-2-pentanone (MIBK)	< 2.0	< 2.0	--	< 50	< 2.0
Acetone	< 5.0	< 5.0	--	< 50	< 5.0
Benzene	< 1.0	< 1.0	< 0.0050	< 5.0	< 1.0
Bromobenzene	--	--	--	< 5.0	--
Bromochloromethane	--	--	--	< 20	--
Bromodichloromethane	< 1.0	< 1.0	--	< 5.0	< 1.0
Bromoform	< 1.0	< 1.0	--	< 5.0	< 1.0
Bromomethane	< 2.0	< 2.0	--	< 10	< 2.0
Carbon disulfide	< 1.0	< 1.0	--	< 5.0	< 1.0
Carbon tetrachloride	< 1.0	< 1.0	--	< 5.0	< 1.0
Chlorobenzene	< 1.0	< 1.0	--	< 5.0	< 1.0
Chloroethane	< 2.0	< 2.0	--	< 10	< 2.0
Chloroform	< 2.0	< 2.0	--	< 5.0	< 2.0
Chloromethane	< 2.0	< 2.0	--	< 10	< 2.0
cis-1,2-Dichloroethene	< 1.0	< 1.0	--	< 5.0	< 1.0
cis-1,3-Dichloropropene	< 1.0	< 1.0	--	< 5.0	< 1.0
Dibromochloromethane	< 1.0	< 1.0	--	< 5.0	< 1.0
Dibromomethane	--	--	--	< 10	--
Dichlorodifluoromethane	--	--	--	< 10	--
di-Isopropyl Ether (DIPE)	< 2.0	< 2.0	--	--	< 2.0
Ethanol	< 200.0	< 200.0	--	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	< 2.0	< 2.0	--	--	< 2.0
Ethylbenzene	< 1.0	< 1.0	< 0.0050	< 5.0	< 1.0
Hexachlorobutadiene	--	--	--	< 5.0	--
Isopropylbenzene	--	--	--	< 5.0	--
Methylene chloride	--	--	--	< 5.0	--
MTBE	< 1.0	< 1.0	--	< 5.0	< 1.0
(Continued)					
Naphthalene	--	--	--	< 10	--
n-Butylbenzene	--	--	--	< 5.0	--
n-Propylbenzene	< 2.0	< 2.0	--	< 5.0	< 2.0
p-Isopropyltoluene	--	--	--	< 5.0	--
sec-Butylbenzene	--	--	--	< 5.0	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-08	MFC-08	MFC-09	MFC-09	MFC-09
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	5.5	8.0	2.0	5.0	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 1.0	< 1.0	--	< 5.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	< 2.0	--	--	< 2.0
tert-Butylbenzene	--	--	--	< 5.0	--
Tertiary Butanol (TBA)	< 50.0	< 50.0	--	--	< 50.0
Tetrachloroethene	< 1.0	< 1.0	--	< 5.0	< 1.0
Toluene	< 1.0	< 1.0	< 0.0050	< 5.0	< 1.0
trans-1,2-Dichloroethene	< 1.0	< 1.0	--	< 5.0	< 1.0
trans-1,3-Dichloropropene	< 1.0	< 1.0	--	< 5.0	< 1.0
Trichloroethene	< 1.0	< 1.0	--	< 5.0	< 1.0
Trichlorofluoromethane	--	--	--	< 5.0	--
Trichlorotrifluoroethane	--	--	--	< 5.0	--
Vinyl acetate	< 5.0	< 5.0	--	< 50	< 5.0
Vinyl chloride	< 3.0	< 3.0	--	< 5.0	< 3.0
Xylenes (Total)	< 2.0	< 2.0	< 0.0050	< 5.0	< 2.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-10	MFC-10	MFC-11	MFC-11	MFC-12
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH [(1)]	1.5	5.0	1.5	4.0	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	--	< 5.0	--
1,1,1-Trichloroethane	--	< 5.0	--	< 5.0	--
1,1,2,2-Tetrachloroethane	--	< 5.0	--	< 5.0	--
1,1,2-Trichloroethane	--	< 5.0	--	< 5.0	--
1,1-Dichloroethane	--	< 5.0	--	< 5.0	--
1,1-Dichloroethene	--	< 5.0	--	< 5.0	--
1,1-Dichloropropene	--	< 5.0	--	< 5.0	--
1,2,3-Trichlorobenzene	--	< 5.0	--	< 5.0	--
1,2,4-Trichlorobenzene	--	< 5.0	--	< 5.0	--
1,2,4-Trimethylbenzene	--	< 5.0	--	< 5.0	--
1,2-Dibromo-3-chloropropane	--	< 50	--	< 50	--
1,2-Dibromoethane	--	< 10	--	< 10	--
1,2-Dichlorobenzene	--	< 5.0	--	< 5.0	--
1,2-Dichloroethane	--	< 5.0	--	< 5.0	--
1,2-Dichloropropane	--	< 5.0	--	< 5.0	--
1,3,5-Trimethylbenzene	--	< 5.0	--	< 5.0	--
1,3-Dichlorobenzene	--	< 5.0	--	< 5.0	--
1,3-Dichloropropane	--	< 5.0	--	< 5.0	--
1,4-Dichlorobenzene	--	< 5.0	--	< 5.0	--
2,2-Dichloropropane	--	< 5.0	--	< 5.0	--
2-Butanone(MEK)	--	< 50	--	< 50	--
2-Chloroethylvinyl ether	--	< 50	--	< 50	--
2-Chlorotoluene	--	< 5.0	--	< 5.0	--
2-Hexanone	--	< 50	--	< 50	--
4-Chlorotoluene	--	< 5.0	--	< 5.0	--
4-Methyl-2-pentanone (MIBK)	--	< 50	--	< 50	--
Acetone	--	< 50	--	< 50	--
Benzene	< 0.0050	< 5.0	< 0.0050	< 5.0	< 0.0050
Bromobenzene	--	< 5.0	--	< 5.0	--
Bromochloromethane	--	< 20	--	< 20	--
Bromodichloromethane	--	< 5.0	--	< 5.0	--
Bromoform	--	< 5.0	--	< 5.0	--
Bromomethane	--	< 10	--	< 10	--
Carbon disulfide	--	< 5.0	--	< 5.0	--
Carbon tetrachloride	--	< 5.0	--	< 5.0	--
Chlorobenzene	--	< 5.0	--	< 5.0	--
Chloroethane	--	< 10	--	< 10	--
Chloroform	--	< 5.0	--	< 5.0	--
Chloromethane	--	< 10	--	< 10	--
cis-1,2-Dichloroethene	--	< 5.0	--	< 5.0	--
cis-1,3-Dichloropropene	--	< 5.0	--	< 5.0	--
Dibromochloromethane	--	< 5.0	--	< 5.0	--
Dibromomethane	--	< 10	--	< 10	--
Dichlorodifluoromethane	--	< 10	--	< 10	--
di-Isopropyl Ether (DIPE)	--	--	--	--	--
Ethanol	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--
Ethylbenzene	< 0.0050	< 5.0	< 0.0050	< 5.0	< 0.0050
Hexachlorobutadiene	--	< 5.0	--	< 5.0	--
Isopropylbenzene	--	< 5.0	--	< 5.0	--
Methylene chloride	--	< 5.0	--	< 5.0	--
MTBE	--	< 5.0	--	< 5.0	--
(Continued)					
Naphthalene	--	< 10	--	< 10	--
n-Butylbenzene	--	< 5.0	--	< 5.0	--
n-Propylbenzene	--	< 5.0	--	< 5.0	--
p-Isopropyltoluene	--	< 5.0	--	< 5.0	--
sec-Butylbenzene	--	< 5.0	--	< 5.0	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-10	MFC-10	MFC-11	MFC-11	MFC-12
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH (1)	1.5	5.0	1.5	4.0	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	--	< 5.0	--
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--
tert-Butylbenzene	--	< 5.0	--	< 5.0	--
Tertiary Butanol (TBA)	--	--	--	--	--
Tetrachloroethene	--	< 5.0	--	< 5.0	--
Toluene	< 0.0050	< 5.0	< 0.0050	< 5.0	< 0.0050
trans-1,2-Dichloroethene	--	< 5.0	--	< 5.0	--
trans-1,3-Dichloropropene	--	< 5.0	--	< 5.0	--
Trichloroethene	--	< 5.0	--	< 5.0	--
Trichlorofluoromethane	--	< 5.0	--	< 5.0	--
Trichlorotrifluoroethane	--	< 5.0	--	< 5.0	--
Vinyl acetate	--	< 50	--	< 50	--
Vinyl chloride	--	< 5.0	--	< 5.0	--
Xylenes (Total)	< 0.0050	< 5.0	< 0.0050	< 5.0	< 0.0050

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-12	MFC-13	MFC-13	MFC-14	MFC-14
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/25/2002	3/25/2002
DEPTH(1)	4.0	1.5	3.0	1.5	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	< 5.0	--	< 5.0
1,1,1-Trichloroethane	< 5.0	--	< 5.0	--	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	--	< 5.0	--	< 5.0
1,1,2-Trichloroethane	< 5.0	--	< 5.0	--	< 5.0
1,1-Dichloroethane	< 5.0	--	< 5.0	--	< 5.0
1,1-Dichloroethene	< 5.0	--	< 5.0	--	< 5.0
1,1-Dichloropropene	< 5.0	--	< 5.0	--	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	< 5.0	--	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	< 5.0	--	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	< 5.0	--	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	< 50	--	< 50
1,2-Dibromoethane	< 10	--	< 10	--	< 10
1,2-Dichlorobenzene	< 5.0	--	< 5.0	--	< 5.0
1,2-Dichloroethane	< 5.0	--	< 5.0	--	< 5.0
1,2-Dichloropropane	< 5.0	--	< 5.0	--	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	< 5.0	--	< 5.0
1,3-Dichlorobenzene	< 5.0	--	< 5.0	--	< 5.0
1,3-Dichloropropane	< 5.0	--	< 5.0	--	< 5.0
1,4-Dichlorobenzene	< 5.0	--	< 5.0	--	< 5.0
2,2-Dichloropropane	< 5.0	--	< 5.0	--	< 5.0
2-Butanone(MEK)	< 50	--	< 50	--	< 50
2-Chloroethylvinyl ether	< 50	--	< 50	--	< 50
2-Chlorotoluene	< 5.0	--	< 5.0	--	< 5.0
2-Hexanone	< 50	--	< 50	--	< 50
4-Chlorotoluene	< 5.0	--	< 5.0	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	--	< 50	--	< 50
Acetone	< 50	--	< 50	--	< 50
Benzene	< 5.0	< 0.0050	< 5.0	< 0.0050	< 5.0
Bromobenzene	< 5.0	--	< 5.0	--	< 5.0
Bromochloromethane	< 20	--	< 20	--	< 20
Bromodichloromethane	< 5.0	--	< 5.0	--	< 5.0
Bromoform	< 5.0	--	< 5.0	--	< 5.0
Bromomethane	< 10	--	< 10	--	< 10
Carbon disulfide	< 5.0	--	< 5.0	--	< 5.0
Carbon tetrachloride	< 5.0	--	< 5.0	--	< 5.0
Chlorobenzene	< 5.0	--	< 5.0	--	< 5.0
Chloroethane	< 10	--	< 10	--	< 10
Chloroform	< 5.0	--	< 5.0	--	< 5.0
Chloromethane	< 10	--	< 10	--	< 10
cis-1,2-Dichloroethene	< 5.0	--	< 5.0	--	< 5.0
cis-1,3-Dichloropropene	< 5.0	--	< 5.0	--	< 5.0
Dibromochloromethane	< 5.0	--	< 5.0	--	< 5.0
Dibromomethane	< 10	--	< 10	--	< 10
Dichlorodifluoromethane	< 10	--	< 10	--	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--
Ethanol	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--
Ethylbenzene	< 5.0	< 0.0050	< 5.0	< 0.0050	< 5.0
Hexachlorobutadiene	< 5.0	--	< 5.0	--	< 5.0
Isopropylbenzene	< 5.0	--	< 5.0	--	< 5.0
Methylene chloride	< 5.0	--	< 5.0	--	< 5.0
MTBE	< 5.0	--	< 5.0	--	< 5.0
(Continued)					
Naphthalene	**15**	--	< 10	--	< 5.0
n-Butylbenzene	< 5.0	--	< 5.0	--	< 5.0
n-Propylbenzene	< 5.0	--	< 5.0	--	< 10
p-Isopropyltoluene	< 5.0	--	< 5.0	--	< 5.0
sec-Butylbenzene	< 5.0	--	< 5.0	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-12	MFC-13	MFC-13	MFC-14	MFC-14
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/25/2002	3/25/2002
DEPTH [1]	4.0	1.5	3.0	1.5	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	--	< 5.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--
tert-Butylbenzene	< 5.0	--	< 5.0	--	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--
Tetrachloroethene	< 5.0	--	< 5.0	--	< 5.0
Toluene	< 5.0	< 0.0050	< 5.0	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 5.0	--	< 5.0	--	< 5.0
trans-1,3-Dichloropropene	< 5.0	--	< 5.0	--	< 5.0
Trichloroethene	< 5.0	--	< 5.0	--	< 5.0
Trichlorofluoromethane	< 5.0	--	< 5.0	--	< 5.0
Trichlorotrifluoroethane	< 5.0	--	< 5.0	--	< 5.0
Vinyl acetate	< 50	--	< 50	--	< 50
Vinyl chloride	< 5.0	--	< 5.0	--	< 5.0
Xylenes (Total)	< 5.0	< 0.0050	< 5.0	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-15	MFC-15	MFC-15-DUP
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002
DEPTH (1)	4.0	1.5	3.0	4.5	4.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	< 50	< 50	< 50
1,2-Dibromoethane	< 10	--	< 10	< 10	< 10
1,2-Dichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	< 5.0	--	< 5.0	< 5.0	< 5.0
2-Butanone(MEK)	< 50	--	< 50	< 50	< 50
2-Chloroethylvinyl ether	< 50	--	< 50	< 50	< 50
2-Chlorotoluene	< 5.0	--	< 5.0	< 5.0	< 5.0
2-Hexanone	< 50	--	< 50	< 50	< 50
4-Chlorotoluene	< 5.0	--	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	--	< 50	< 50	< 50
Acetone	< 50	--	< 50	< 50	< 50
Benzene	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0
Bromobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Bromochloromethane	< 20	--	< 20	< 20	< 20
Bromodichloromethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Bromoform	< 5.0	--	< 5.0	< 5.0	< 5.0
Bromomethane	< 10	--	< 10	< 10	< 10
Carbon disulfide	< 5.0	--	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 5.0	--	< 5.0	< 5.0	< 5.0
Chlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Chloroethane	< 10	--	< 10	< 10	< 10
Chloroform	< 5.0	--	< 5.0	< 5.0	< 5.0
Chloromethane	< 10	--	< 10	< 10	< 10
cis-1,2-Dichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	< 5.0	--	< 5.0	< 5.0	< 5.0
Dibromochloromethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Dibromomethane	< 10	--	< 10	< 10	< 10
Dichlorodifluoromethane	< 10	--	< 10	< 10	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--
Ethanol	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--
Ethylbenzene	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	< 5.0	--	< 5.0	< 5.0	< 5.0
Isopropylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Methylene chloride	< 5.0	--	< 5.0	< 5.0	< 5.0
MTBE	< 5.0	--	< 5.0	< 5.0	< 5.0
(Continued)					
Naphthalene	< 10	--	< 10	< 10	< 10
n-Butylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
n-Propylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	< 5.0	--	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-15	MFC-15	MFC-15-DUP
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/25/2002
DEPTH (1)	4.0	1.5	3.0	4.5	4.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	--	< 5.0	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--
tert-Butylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--
Tetrachloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
Toluene	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0
trans-1,2-Dichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
trans-1,3-Dichloropropene	< 5.0	--	< 5.0	< 5.0	< 5.0
Trichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Trichlorotrifluoroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Vinyl acetate	< 50	--	< 50	< 50	< 50
Vinyl chloride	< 5.0	--	< 5.0	< 5.0	< 5.0
Xylenes (Total)	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-16	MFC-16	MFC-17	MFC-17	MFC-18
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/26/2002	3/25/2002
DEPTH (1)	1.5	4.0	1.5	4.5	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	--	< 5.0	< 5.0
1,1,1-Trichloroethane	--	< 5.0	--	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	--	< 5.0	--	< 5.0	< 5.0
1,1,2-Trichloroethane	--	< 5.0	--	< 5.0	< 5.0
1,1-Dichloroethane	--	< 5.0	--	< 5.0	< 5.0
1,1-Dichloroethene	--	< 5.0	--	< 5.0	< 5.0
1,1-Dichloropropene	--	< 5.0	--	< 5.0	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	--	< 5.0	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	--	< 5.0	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	--	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	--	< 50	< 50
1,2-Dibromoethane	--	< 10	--	< 10	< 10
1,2-Dichlorobenzene	--	< 5.0	--	< 5.0	< 5.0
1,2-Dichloroethane	--	< 5.0	--	< 5.0	< 5.0
1,2-Dichloropropane	--	< 5.0	--	< 5.0	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	--	< 5.0	< 5.0
1,3-Dichlorobenzene	--	< 5.0	--	< 5.0	< 5.0
1,3-Dichloropropane	--	< 5.0	--	< 5.0	< 5.0
1,4-Dichlorobenzene	--	< 5.0	--	< 5.0	< 5.0
2,2-Dichloropropane	--	< 5.0	--	< 5.0	< 5.0
2-Butanone(MEK)	--	< 50	--	< 50	< 50
2-Chloroethylvinyl ether	--	< 50	--	< 50	< 50
2-Chlorotoluene	--	< 5.0	--	< 5.0	< 5.0
2-Hexanone	--	< 50	--	< 50	< 50
4-Chlorotoluene	--	< 5.0	--	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	--	< 50	--	< 50	< 50
Acetone	--	< 50	--	< 50	< 50
Benzene	< 0.0050	**10**	< 0.0050	< 5.0	< 5.0
Bromobenzene	--	< 5.0	--	< 5.0	< 5.0
Bromochloromethane	--	< 20	--	< 20	< 20
Bromodichloromethane	--	< 5.0	--	< 5.0	< 5.0
Bromoform	--	< 5.0	--	< 5.0	< 5.0
Bromomethane	--	< 10	--	< 10	< 10
Carbon disulfide	--	< 5.0	--	< 5.0	< 5.0
Carbon tetrachloride	--	< 5.0	--	< 5.0	< 5.0
Chlorobenzene	--	< 5.0	--	< 5.0	< 5.0
Chloroethane	--	< 10	--	< 10	< 10
Chloroform	--	< 5.0	--	< 5.0	< 5.0
Chloromethane	--	< 10	--	< 10	< 10
cis-1,2-Dichloroethene	--	< 5.0	--	< 5.0	< 5.0
cis-1,3-Dichloropropene	--	< 5.0	--	< 5.0	< 5.0
Dibromochloromethane	--	< 5.0	--	< 5.0	< 5.0
Dibromomethane	--	< 10	--	< 10	< 10
Dichlorodifluoromethane	--	< 10	--	< 10	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--
Ethanol	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--
Ethylbenzene	< 0.0050	< 5.0	< 0.0050	< 5.0	< 5.0
Hexachlorobutadiene	--	< 5.0	--	< 5.0	< 5.0
Isopropylbenzene	--	< 5.0	--	< 5.0	< 5.0
Methylene chloride	--	< 5.0	--	< 5.0	< 5.0
MTBE	--	< 5.0	--	< 5.0	< 5.0
(Continued)					
Naphthalene	--	< 10	--	< 10	< 10
n-Butylbenzene	--	< 5.0	--	< 5.0	< 5.0
n-Propylbenzene	--	< 5.0	--	< 5.0	< 5.0
p-Isopropyltoluene	--	< 5.0	--	< 5.0	< 5.0
sec-Butylbenzene	--	< 5.0	--	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-16	MFC-16	MFC-17	MFC-17	MFC-18
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/26/2002	3/25/2002
DEPTH[1]	1.5	4.0	1.5	4.5	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	--	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--
tert-Butylbenzene	--	< 5.0	--	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--
Tetrachloroethene	--	< 5.0	--	< 5.0	< 5.0
Toluene	< 0.0050	< 5.0	< 0.0050	< 5.0	< 5.0
trans-1,2-Dichloroethene	--	< 5.0	--	< 5.0	< 5.0
trans-1,3-Dichloropropene	--	< 5.0	--	< 5.0	< 5.0
Trichloroethene	--	< 5.0	--	< 5.0	< 5.0
Trichlorofluoromethane	--	< 5.0	--	< 5.0	< 5.0
Trichlorotrifluoroethane	--	< 5.0	--	< 5.0	< 5.0
Vinyl acetate	--	< 50	--	< 50	< 50
Vinyl chloride	--	< 5.0	--	< 5.0	< 5.0
Xylenes (Total)	< 0.0050	< 5.0	< 0.0050	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-18	MFC-19	MFC-19	MFC-19	MFC-20
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/27/2002
DEPTH[(1)]	4.5	1.0	2.0	4.0	4.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	< 50	< 50	< 50
1,2-Dibromoethane	< 10	--	< 10	< 10	< 10
1,2-Dichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	< 5.0	--	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	< 5.0	--	< 5.0	< 5.0	< 5.0
2-Butanone(MEK)	< 50	--	< 50	< 50	< 50
2-Chloroethylvinyl ether	< 50	--	< 50	< 50	< 50
2-Chlorotoluene	< 5.0	--	< 5.0	< 5.0	< 5.0
2-Hexanone	< 50	--	< 50	< 50	< 50
4-Chlorotoluene	< 5.0	--	< 5.0	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	--	< 50	< 50	< 50
Acetone	< 50	--	< 50	< 50	< 50
Benzene	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0
Bromobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Bromochloromethane	< 20	--	< 20	< 20	< 20
Bromodichloromethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Bromoform	< 5.0	--	< 5.0	< 5.0	< 5.0
Bromomethane	< 10	--	< 10	< 10	< 10
Carbon disulfide	< 5.0	--	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 5.0	--	< 5.0	< 5.0	< 5.0
Chlorobenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Chloroethane	< 10	--	< 10	< 10	< 10
Chloroform	< 5.0	--	< 5.0	< 5.0	< 5.0
Chloromethane	< 10	--	< 10	< 10	< 10
cis-1,2-Dichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
cis-1,3-Dichloropropene	< 5.0	--	< 5.0	< 5.0	< 5.0
Dibromochloromethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Dibromomethane	< 10	--	< 10	< 10	< 10
Dichlorodifluoromethane	< 10	--	< 10	< 10	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--
Ethanol	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--
Ethylbenzene	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	< 5.0	--	< 5.0	< 5.0	< 5.0
Isopropylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Methylene chloride	< 5.0	--	< 5.0	< 5.0	< 5.0
MTBE	< 5.0	--	< 5.0	< 5.0	< 5.0
(Continued)					
Naphthalene	< 10	--	< 10	< 10	< 10
n-Butylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
n-Propylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	< 5.0	--	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-18	MFC-19	MFC-19	MFC-19	MFC-20
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/25/2002	3/25/2002	3/27/2002
DEPTH [(1)]	4.5	1.0	2.0	4.0	4.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	--	< 5.0	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--
tert-Butylbenzene	< 5.0	--	< 5.0	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--
Tetrachloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
Toluene	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0
trans-1,2-Dichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
trans-1,3-Dichloropropene	< 5.0	--	< 5.0	< 5.0	< 5.0
Trichloroethene	< 5.0	--	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Trichlorotrifluoroethane	< 5.0	--	< 5.0	< 5.0	< 5.0
Vinyl acetate	< 50	--	< 50	< 50	< 50
Vinyl chloride	< 5.0	--	< 5.0	< 5.0	< 5.0
Xylenes (Total)	< 5.0	< 0.0050	< 5.0	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-20	MFC-20	MFC-21	MFC-21	MFC-21	MFC-22
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002
DEPTH[(1)]	7.0	13.0	1.5	4.5	8.0	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	--	< 5.0	< 5.0	--
1,1,1-Trichloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0	--
1,1,2,2-Tetrachloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0	--
1,1,2-Trichloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0	--
1,1-Dichloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0	--
1,1-Dichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
1,1-Dichloropropene	< 5.0	--	--	< 5.0	< 5.0	--
1,2,3-Trichlorobenzene	< 5.0	--	--	< 5.0	< 5.0	--
1,2,4-Trichlorobenzene	< 5.0	--	--	< 5.0	< 5.0	--
1,2,4-Trimethylbenzene	< 5.0	--	--	< 5.0	< 5.0	--
1,2-Dibromo-3-chloropropane	< 50	--	--	< 50	< 50	--
1,2-Dibromoethane	< 10	--	--	< 10	< 10	--
1,2-Dichlorobenzene	< 5.0	--	--	< 5.0	< 5.0	--
1,2-Dichloroethane	< 5.0	< 2.0	--	< 5.0	< 5.0	--
1,2-Dichloropropane	< 5.0	< 2.0	--	< 5.0	< 5.0	--
1,3,5-Trimethylbenzene	< 5.0	--	--	< 5.0	< 5.0	--
1,3-Dichlorobenzene	< 5.0	--	--	< 5.0	< 5.0	--
1,3-Dichloropropane	< 5.0	--	--	< 5.0	< 5.0	--
1,4-Dichlorobenzene	< 5.0	--	--	< 5.0	< 5.0	--
2,2-Dichloropropane	< 5.0	--	--	< 5.0	< 5.0	--
2-Butanone(MEK)	< 50	< 10.0	--	< 50	< 50	--
2-Chloroethylvinyl ether	< 50	--	--	< 50	< 50	--
2-Chlorotoluene	< 5.0	--	--	< 5.0	< 5.0	--
2-Hexanone	< 50	< 2.0	--	< 50	< 50	--
4-Chlorotoluene	< 5.0	--	--	< 5.0	< 5.0	--
4-Methyl-2-pentanone (MIBK)	< 50	< 2.0	--	< 50	< 50	--
Acetone	< 50	< 5.0	< 5.0	< 50	< 50	< 5.0
Benzene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Bromobenzene	< 5.0	--	--	< 5.0	< 5.0	--
Bromochloromethane	< 20	--	--	< 20	< 20	--
Bromodichloromethane	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Bromoform	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Bromomethane	< 10	< 2.0	--	< 10	< 10	--
Carbon disulfide	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Carbon tetrachloride	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Chlorobenzene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Chloroethane	< 10	< 2.0	--	< 10	< 10	--
Chloroform	< 5.0	< 2.0	--	< 5.0	< 5.0	--
Chloromethane	< 10	< 2.0	--	< 10	< 10	--
cis-1,2-Dichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
cis-1,3-Dichloropropene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Dibromochloromethane	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Dibromomethane	< 10	--	--	< 10	< 10	--
Dichlorodifluoromethane	< 10	--	--	< 10	< 10	--
di-Isopropyl Ether (DIPE)	--	< 2.0	--	--	--	--
Ethanol	--	< 200.0	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	< 2.0	--	--	--	--
Ethylbenzene	< 5.0	< 1.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	< 5.0	--	--	< 5.0	< 5.0	--
Isopropylbenzene	< 5.0	--	--	< 5.0	< 5.0	--
Methylene chloride	< 5.0	--	--	< 5.0	< 5.0	--
MTBE	< 5.0	< 1.0	--	< 5.0	< 5.0	--
(Continued)						
Naphthalene	< 10	--	--	< 10	< 10	--
n-Butylbenzene	< 5.0	--	--	< 5.0	< 5.0	--
n-Propylbenzene	< 5.0	< 2.0	--	< 5.0	< 5.0	--
p-Isopropyltoluene	< 5.0	--	--	< 5.0	< 5.0	--
sec-Butylbenzene	< 5.0	--	--	< 5.0	< 5.0	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-20	MFC-20	MFC-21	MFC-21	MFC-21	MFC-22
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002
DEPTH (1)	7.0	13.0	1.5	4.5	8.0	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
tert-Amyl Ethyl Ether (TAME)	--	< 2.0	--	--	--	--
tert-Butylbenzene	< 5.0	--	--	< 5.0	< 5.0	--
Tertiary Butanol (TBA)	--	< 50.0	--	--	--	--
Tetrachloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Toluene	< 5.0	< 1.0	< 5.0	< 5.0	< 5.0	< 5.0
trans-1,2-Dichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
trans-1,3-Dichloropropene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Trichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0	--
Trichlorofluoromethane	< 5.0	--	--	< 5.0	< 5.0	--
Trichlorotrifluoroethane	< 5.0	--	--	< 5.0	< 5.0	--
Vinyl acetate	< 50	< 5.0	--	< 50	< 50	--
Vinyl chloride	< 5.0	< 3.0	--	< 5.0	< 5.0	--
Xylenes (Total)	< 5.0	< 2.0	< 5.0	< 5.0	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-22	MFC-22	MFC-23	MFC-23	MFC-23	MFC-24	MFC-24
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002
DEPTH (1)	4.5	7.5	1.5	5.5	8.0	1.5	4.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,1,1-Trichloroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,1,2-Trichloroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,1-Dichloroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,1-Dichloroethene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,1-Dichloropropene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,2,3-Trichlorobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,2,4-Trichlorobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,2,4-Trimethylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,2-Dibromo-3-chloropropane	< 50	< 50	--	< 50	< 50	--	< 50
1,2-Dibromoethane	< 10	< 10	--	< 10	< 10	--	< 10
1,2-Dichlorobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,2-Dichloroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,2-Dichloropropane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,3,5-Trimethylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,3-Dichlorobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,3-Dichloropropane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
1,4-Dichlorobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
2,2-Dichloropropane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
2-Butanone(MEK)	< 50	< 50	--	< 50	< 50	--	< 50
2-Chloroethylvinyl ether	< 50	< 50	--	< 50	< 50	--	< 50
2-Chlorotoluene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
2-Hexanone	< 50	< 50	--	< 50	< 50	--	< 50
4-Chlorotoluene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	< 50	--	< 50	< 50	--	< 50
Acetone	< 50	< 50	< 5.0	< 50	< 50	--	< 50
Benzene	< 5.0	< 5.0	--	< 5.0	< 5.0	< 0.0050	< 5.0
Bromobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Bromochloromethane	< 20	< 20	--	< 20	< 20	--	< 20
Bromodichloromethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Bromoform	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Bromomethane	< 10	< 10	--	< 10	< 10	--	< 10
Carbon disulfide	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Carbon tetrachloride	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Chlorobenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Chloroethane	< 10	< 10	--	< 10	< 10	--	< 10
Chloroform	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Chloromethane	< 10	< 10	--	< 10	< 10	--	< 10
cis-1,2-Dichloroethene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
cis-1,3-Dichloropropene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Dibromochloromethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Dibromomethane	< 10	< 10	--	< 10	< 10	--	< 10
Dichlorodifluoromethane	< 10	< 10	--	< 10	< 10	--	< 10
di-Isopropyl Ether (DIPE)	--	--	--	--	--	--	--
Ethanol	--	--	--	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--	--	--
Ethylbenzene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 0.0050	< 5.0
Hexachlorobutadiene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Isopropylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Methylene chloride	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
MTBE	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
(Continued)							
Naphthalene	< 10	< 10	--	< 10	< 10	--	< 10
n-Butylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
n-Propylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
p-Isopropyltoluene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
sec-Butylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-22	MFC-22	MFC-23	MFC-23	MFC-23	MFC-24	MFC-24
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002
DEPTH[(1)]	4.5	7.5	1.5	5.5	8.0	1.5	4.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--	--	--
tert-Butylbenzene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Tertiary Butanol (TBA)	--	--	--	--	--	--	--
Tetrachloroethene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Toluene	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
trans-1,3-Dichloropropene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Trichloroethene	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Trichlorofluoromethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Trichlorotrifluoroethane	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Vinyl acetate	< 50	< 50	--	< 50	< 50	--	< 50
Vinyl chloride	< 5.0	< 5.0	--	< 5.0	< 5.0	--	< 5.0
Xylenes (Total)	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 0.0050	**5.0**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-24	MFC-25	MFC-25	MFC-25	MFC-26
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/28/2002	3/28/2002	3/28/2002	3/27/2002
DEPTH[(1)]	4.5	1.0	4.5	7.5	1.5
UNITS	μg/kg	μg/kg	μg/kg	μg/kg	μg/kg
1,1,1,2-Tetrachloroethane	--	--	< 5.0	--	--
1,1,1-Trichloroethane	< 1.0	< 1.0	< 5.0	< 1.0	--
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	< 5.0	< 1.0	--
1,1,2-Trichloroethane	< 1.0	< 1.0	< 5.0	< 1.0	--
1,1-Dichloroethane	< 1.0	< 1.0	< 5.0	< 1.0	--
1,1-Dichloroethene	< 1.0	< 1.0	< 5.0	< 1.0	--
1,1-Dichloropropene	--	--	< 5.0	--	--
1,2,3-Trichlorobenzene	--	--	< 5.0	--	--
1,2,4-Trichlorobenzene	--	--	< 5.0	--	--
1,2,4-Trimethylbenzene	--	--	< 5.0	--	--
1,2-Dibromo-3-chloropropane	--	--	< 50	--	--
1,2-Dibromoethane	--	--	< 10	--	--
1,2-Dichlorobenzene	--	--	< 5.0	--	--
1,2-Dichloroethane	< 2.0	< 2.0	< 5.0	< 2.0	--
1,2-Dichloropropane	< 2.0	< 2.0	< 5.0	< 2.0	--
1,3,5-Trimethylbenzene	--	--	< 5.0	--	--
1,3-Dichlorobenzene	--	--	< 5.0	--	--
1,3-Dichloropropane	--	--	< 5.0	--	--
1,4-Dichlorobenzene	--	--	< 5.0	--	--
2,2-Dichloropropane	--	--	< 5.0	--	--
2-Butanone(MEK)	< 10.0	< 10.0	< 50	< 10.0	--
2-Chloroethylvinyl ether	--	--	< 50	--	--
2-Chlorotoluene	--	--	< 5.0	--	--
2-Hexanone	< 2.0	< 2.0	< 50	< 2.0	--
4-Chlorotoluene	--	--	< 5.0	--	--
4-Methyl-2-pentanone (MIBK)	< 2.0	< 2.0	< 50	< 2.0	--
Acetone	< 5.0	< 5.0	**59**	< 5.0	--
Benzene	< 1.0	< 1.0	< 5.0	< 1.0	< 0.0050
Bromobenzene	--	--	< 5.0	--	--
Bromochloromethane	--	--	< 20	--	--
Bromodichloromethane	< 1.0	< 1.0	< 5.0	< 1.0	--
Bromoform	< 1.0	< 1.0	< 5.0	< 1.0	--
Bromomethane	< 2.0	< 2.0	< 10	< 2.0	--
Carbon disulfide	< 1.0	< 1.0	< 5.0	< 1.0	--
Carbon tetrachloride	< 1.0	< 1.0	< 5.0	< 1.0	--
Chlorobenzene	< 1.0	< 1.0	< 5.0	< 1.0	--
Chloroethane	< 2.0	< 2.0	< 10	< 2.0	--
Chloroform	< 2.0	< 2.0	< 5.0	< 2.0	--
Chloromethane	< 2.0	< 2.0	< 10	< 2.0	--
cis-1,2-Dichloroethene	< 1.0	< 1.0	< 5.0	< 1.0	--
cis-1,3-Dichloropropene	< 1.0	< 1.0	< 5.0	< 1.0	--
Dibromochloromethane	< 1.0	< 1.0	< 5.0	< 1.0	--
Dibromomethane	--	--	< 10	--	--
Dichlorodifluoromethane	--	--	< 10	--	--
di-Isopropyl Ether (DIPE)	< 2.0	< 2.0	--	< 2.0	--
Ethanol	< 200.0	< 200.0	--	< 200.0	--
Ethyl tert-Butyl Ether (ETBE)	< 2.0	< 2.0	--	< 2.0	--
Ethylbenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 0.0050
Hexachlorobutadiene	--	--	< 5.0	--	--
Isopropylbenzene	--	--	< 5.0	--	--
Methylene chloride	--	--	< 5.0	--	--
MTBE	< 1.0	< 1.0	< 5.0	< 1.0	--
(Continued)					
Naphthalene	--	--	< 10	--	--
n-Butylbenzene	--	--	< 5.0	--	--
n-Propylbenzene	< 2.0	< 2.0	< 5.0	< 2.0	--
p-Isopropyltoluene	--	--	< 5.0	--	--
sec-Butylbenzene	--	--	< 5.0	--	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-24	MFC-25	MFC-25	MFC-25	MFC-26
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/28/2002	3/28/2002	3/28/2002	3/27/2002
DEPTH[(1)]	4.5	1.0	4.5	7.5	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 1.0	< 1.0	< 5.0	< 1.0	--
tert-Amyl Ethyl Ether (TAME)	< 2.0	< 2.0	--	< 2.0	--
tert-Butylbenzene	--	--	< 5.0	--	--
Tertiary Butanol (TBA)	< 50.0	< 50.0	--	< 50.0	--
Tetrachloroethene	< 1.0	< 1.0	< 5.0	< 1.0	--
Toluene	**1.1**	< 1.0	< 5.0	< 1.0	< 0.0050
trans-1,2-Dichloroethene	< 1.0	< 1.0	< 5.0	< 1.0	--
trans-1,3-Dichloropropene	< 1.0	< 1.0	< 5.0	< 1.0	--
Trichloroethene	< 1.0	< 1.0	< 5.0	< 1.0	--
Trichlorofluoromethane	--	--	< 5.0	--	--
Trichlorotrifluoroethane	--	--	< 5.0	--	--
Vinyl acetate	< 5.0	< 5.0	< 50	< 5.0	--
Vinyl chloride	< 3.0	< 3.0	< 5.0	< 3.0	--
Xylenes (Total)	< 2.0	< 2.0	< 5.0	< 2.0	< 0.0050

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-26	MFC-26	MFC-27	MFC-27	MFC-27
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH (1)	5.0	7.5	1.5	4.5	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	< 5.0	--	< 5.0	--
1,1,1-Trichloroethane	< 5.0	< 5.0	--	< 5.0	< 1.0
1,1,2,2-Tetrachloroethane	< 5.0	< 5.0	--	< 5.0	< 1.0
1,1,2-Trichloroethane	< 5.0	< 5.0	--	< 5.0	< 1.0
1,1-Dichloroethane	< 5.0	< 5.0	--	< 5.0	< 1.0
1,1-Dichloroethene	< 5.0	< 5.0	--	< 5.0	< 1.0
1,1-Dichloropropene	< 5.0	< 5.0	--	< 5.0	--
1,2,3-Trichlorobenzene	< 5.0	< 5.0	--	< 5.0	--
1,2,4-Trichlorobenzene	< 5.0	< 5.0	--	< 5.0	--
1,2,4-Trimethylbenzene	< 5.0	< 5.0	--	< 5.0	--
1,2-Dibromo-3-chloropropane	< 50	< 50	--	< 50	--
1,2-Dibromoethane	< 10	< 10	--	< 10	--
1,2-Dichlorobenzene	< 5.0	< 5.0	--	< 5.0	--
1,2-Dichloroethane	< 5.0	< 5.0	--	< 5.0	< 2.0
1,2-Dichloropropane	< 5.0	< 5.0	--	< 5.0	< 2.0
1,3,5-Trimethylbenzene	< 5.0	< 5.0	--	< 5.0	--
1,3-Dichlorobenzene	< 5.0	< 5.0	--	< 5.0	--
1,3-Dichloropropane	< 5.0	< 5.0	--	< 5.0	--
1,4-Dichlorobenzene	< 5.0	< 5.0	--	< 5.0	--
2,2-Dichloropropane	< 5.0	< 5.0	--	< 5.0	--
2-Butanone(MEK)	< 50	< 50	--	< 50	< 10.0
2-Chloroethylvinyl ether	< 50	< 50	--	< 50	--
2-Chlorotoluene	< 5.0	< 5.0	--	< 5.0	--
2-Hexanone	< 50	< 50	--	< 50	< 2.0
4-Chlorotoluene	< 5.0	< 5.0	--	< 5.0	--
4-Methyl-2-pentanone (MIBK)	< 50	< 50	--	< 50	< 2.0
Acetone	< 50	< 50	--	< 50	< 5.0
Benzene	< 5.0	< 5.0	< 0.0050	< 5.0	< 1.0
Bromobenzene	< 5.0	< 5.0	--	< 5.0	--
Bromochloromethane	< 20	< 20	--	< 20	--
Bromodichloromethane	< 5.0	< 5.0	--	< 5.0	< 1.0
Bromoform	< 5.0	< 5.0	--	< 5.0	< 1.0
Bromomethane	< 10	< 10	--	< 10	< 2.0
Carbon disulfide	< 5.0	< 5.0	--	< 5.0	< 1.0
Carbon tetrachloride	< 5.0	< 5.0	--	< 5.0	< 1.0
Chlorobenzene	< 5.0	< 5.0	--	< 5.0	< 1.0
Chloroethane	< 10	< 10	--	< 10	< 2.0
Chloroform	< 5.0	< 5.0	--	< 5.0	< 2.0
Chloromethane	< 10	< 10	--	< 10	< 2.0
cis-1,2-Dichloroethene	< 5.0	< 5.0	--	< 5.0	< 1.0
cis-1,3-Dichloropropene	< 5.0	< 5.0	--	< 5.0	< 1.0
Dibromochloromethane	< 5.0	< 5.0	--	< 5.0	< 1.0
Dibromomethane	< 10	< 10	--	< 10	--
Dichlorodifluoromethane	< 10	< 10	--	< 10	--
di-Isopropyl Ether (DIPE)	--	--	--	--	< 2.0
Ethanol	--	--	--	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	< 2.0
Ethylbenzene	< 5.0	< 5.0	**5.5**	< 5.0	< 1.0
Hexachlorobutadiene	< 5.0	< 5.0	--	< 5.0	--
Isopropylbenzene	< 5.0	< 5.0	--	< 5.0	--
Methylene chloride	< 5.0	< 5.0	--	< 5.0	--
MTBE	< 5.0	< 5.0	--	< 5.0	< 1.0
(Continued)					
Naphthalene	< 10	< 10	--	< 10	--
n-Butylbenzene	< 5.0	< 5.0	--	< 5.0	--
n-Propylbenzene	< 5.0	< 5.0	--	< 5.0	< 2.0
p-Isopropyltoluene	< 5.0	< 5.0	--	< 5.0	--
sec-Butylbenzene	< 5.0	< 5.0	--	< 5.0	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-26	MFC-26	MFC-27	MFC-27	MFC-27
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH(1)	5.0	7.5	1.5	4.5	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 5.0	--	< 5.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	< 2.0
tert-Butylbenzene	< 5.0	< 5.0	--	< 5.0	--
Tertiary Butanol (TBA)	--	--	--	--	< 50.0
Tetrachloroethene	< 5.0	< 5.0	--	< 5.0	< 1.0
Toluene	< 5.0	< 5.0	**18**	< 5.0	< 1.0
trans-1,2-Dichloroethene	< 5.0	< 5.0	--	< 5.0	< 1.0
trans-1,3-Dichloropropene	< 5.0	< 5.0	--	< 5.0	< 1.0
Trichloroethene	< 5.0	< 5.0	--	< 5.0	< 1.0
Trichlorofluoromethane	< 5.0	< 5.0	--	< 5.0	--
Trichlorotrifluoroethane	< 5.0	< 5.0	--	< 5.0	--
Vinyl acetate	< 50	< 50	--	< 50	< 5.0
Vinyl chloride	< 5.0	< 5.0	--	< 5.0	< 3.0
Xylenes (Total)	< 5.0	< 5.0	**26**	< 5.0	< 2.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-28	MFC-28	MFC-29	MFC-29	MFC-29
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH [(1)]	1.0	5.0	1.0	5.5	4.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	--	--	< 5.0
1,1,1-Trichloroethane	--	< 5.0	--	< 1.0	< 5.0
1,1,2,2-Tetrachloroethane	--	< 5.0	--	< 1.0	< 5.0
1,1,2-Trichloroethane	--	< 5.0	--	< 1.0	< 5.0
1,1-Dichloroethane	--	< 5.0	--	< 1.0	< 5.0
1,1-Dichloroethene	--	< 5.0	--	< 1.0	< 5.0
1,1-Dichloropropene	--	< 5.0	--	--	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	--	--	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	--	--	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	--	--	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	--	--	< 50
1,2-Dibromoethane	--	< 10	--	--	< 10
1,2-Dichlorobenzene	--	< 5.0	--	--	< 5.0
1,2-Dichloroethane	--	< 5.0	--	< 2.0	< 5.0
1,2-Dichloropropane	--	< 5.0	--	< 2.0	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	--	--	< 5.0
1,3-Dichlorobenzene	--	< 5.0	--	--	< 5.0
1,3-Dichloropropane	--	< 5.0	--	--	< 5.0
1,4-Dichlorobenzene	--	< 5.0	--	--	< 5.0
2,2-Dichloropropane	--	< 5.0	--	--	< 5.0
2-Butanone(MEK)	--	< 50	--	< 10.0	< 50
2-Chloroethylvinyl ether	--	< 50	--	--	< 50
2-Chlorotoluene	--	< 5.0	--	--	< 5.0
2-Hexanone	--	< 50	--	< 2.0	< 50
4-Chlorotoluene	--	< 5.0	--	--	< 5.0
4-Methyl-2-pentanone (MIBK)	--	< 50	--	< 2.0	< 50
Acetone	--	< 50	--	< 5.0	< 50
Benzene	< 0.0050	< 5.0	< 0.0050	< 1.0	< 5.0
Bromobenzene	--	< 5.0	--	--	< 5.0
Bromochloromethane	--	< 20	--	--	< 20
Bromodichloromethane	--	< 5.0	--	< 1.0	< 5.0
Bromoform	--	< 5.0	--	< 1.0	< 5.0
Bromomethane	--	< 10	--	< 2.0	< 10
Carbon disulfide	--	< 5.0	--	< 1.0	< 5.0
Carbon tetrachloride	--	< 5.0	--	< 1.0	< 5.0
Chlorobenzene	--	< 5.0	--	< 1.0	< 5.0
Chloroethane	--	< 10	--	< 2.0	< 10
Chloroform	--	< 5.0	--	< 2.0	< 5.0
Chloromethane	--	< 10	--	< 2.0	< 10
cis-1,2-Dichloroethene	--	< 5.0	--	< 1.0	< 5.0
cis-1,3-Dichloropropene	--	< 5.0	--	< 1.0	< 5.0
Dibromochloromethane	--	< 5.0	--	< 1.0	< 5.0
Dibromomethane	--	< 10	--	--	< 10
Dichlorodifluoromethane	--	< 10	--	--	< 10
di-Isopropyl Ether (DIPE)	--	--	--	< 2.0	--
Ethanol	--	--	--	< 200.0	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	< 2.0	--
Ethylbenzene	< 0.0050	< 5.0	< 0.0050	< 1.0	< 5.0
Hexachlorobutadiene	--	< 5.0	--	--	< 5.0
Isopropylbenzene	--	< 5.0	--	--	< 5.0
Methylene chloride	--	< 5.0	--	--	< 5.0
MTBE	--	< 5.0	--	< 1.0	< 5.0
(Continued)					
Naphthalene	--	< 10	--	--	< 10
n-Butylbenzene	--	< 5.0	--	--	< 5.0
n-Propylbenzene	--	< 5.0	--	< 2.0	< 5.0
p-Isopropyltoluene	--	< 5.0	--	--	< 5.0
sec-Butylbenzene	--	< 5.0	--	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-28	MFC-28	MFC-29	MFC-29	MFC-29
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/2002	3/27/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH [1]	1.0	5.0	1.0	5.5	4.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	--	< 5.0	--	< 1.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	< 2.0	--
tert-Butylbenzene	--	< 5.0	--	--	< 5.0
Tertiary Butanol (TBA)	--	--	--	< 50.0	--
Tetrachloroethene	--	< 5.0	--	< 1.0	< 5.0
Toluene	**6.2**	< 5.0	< 0.0050	< 1.0	< 5.0
trans-1,2-Dichloroethene	--	< 5.0	--	< 1.0	< 5.0
trans-1,3-Dichloropropene	--	< 5.0	--	< 1.0	< 5.0
Trichloroethene	--	< 5.0	--	< 1.0	< 5.0
Trichlorofluoromethane	--	< 5.0	--	--	< 5.0
Trichlorotrifluoroethane	--	< 5.0	--	--	< 5.0
Vinyl acetate	--	< 50	--	< 5.0	< 50
Vinyl chloride	--	< 5.0	--	< 3.0	< 5.0
Xylenes (Total)	**12**	< 5.0	< 0.0050	< 2.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-29-DUP	MFC-30	MFC-30	MFC-31	MFC-31
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/27/2002	3/27/2002	3/25/2002	3/25/2002
DEPTH[(1)]	4.5	1.5	4.5	1.0	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	--	--	< 5.0
1,1,1-Trichloroethane	< 5.0	--	< 1.0	--	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	--	< 1.0	--	< 5.0
1,1,2-Trichloroethane	< 5.0	--	< 1.0	--	< 5.0
1,1-Dichloroethane	< 5.0	--	< 1.0	--	< 5.0
1,1-Dichloroethene	< 5.0	--	< 1.0	--	< 5.0
1,1-Dichloropropene	< 5.0	--	--	--	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	--	--	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	--	--	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	--	--	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	--	--	< 50
1,2-Dibromoethane	< 10	--	--	--	< 10
1,2-Dichlorobenzene	< 5.0	--	--	--	< 5.0
1,2-Dichloroethane	< 5.0	--	< 2.0	--	< 5.0
1,2-Dichloropropane	< 5.0	--	< 2.0	--	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	--	--	< 5.0
1,3-Dichlorobenzene	< 5.0	--	--	--	< 5.0
1,3-Dichloropropane	< 5.0	--	--	--	< 5.0
1,4-Dichlorobenzene	< 5.0	--	--	--	< 5.0
2,2-Dichloropropane	< 5.0	--	--	--	< 5.0
2-Butanone(MEK)	< 50	--	< 10.0	--	< 50
2-Chloroethylvinyl ether	< 50	--	--	--	< 50
2-Chlorotoluene	< 5.0	--	--	--	< 5.0
2-Hexanone	< 50	--	< 2.0	--	< 50
4-Chlorotoluene	< 5.0	--	--	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	--	< 2.0	--	< 50
Acetone	< 50	--	< 5.0	--	< 50
Benzene	< 5.0	< 0.0050	< 1.0	< 0.0050	< 5.0
Bromobenzene	< 5.0	--	--	--	< 5.0
Bromochloromethane	< 20	--	--	--	< 20
Bromodichloromethane	< 5.0	--	< 1.0	--	< 5.0
Bromoform	< 5.0	--	< 1.0	--	< 5.0
Bromomethane	< 10	--	< 2.0	--	< 10
Carbon disulfide	< 5.0	--	< 1.0	--	< 5.0
Carbon tetrachloride	< 5.0	--	< 1.0	--	< 5.0
Chlorobenzene	< 5.0	--	< 1.0	--	< 5.0
Chloroethane	< 10	--	< 2.0	--	< 10
Chloroform	< 5.0	--	< 2.0	--	< 5.0
Chloromethane	< 10	--	< 2.0	--	< 10
cis-1,2-Dichloroethene	< 5.0	--	< 1.0	--	< 5.0
cis-1,3-Dichloropropene	< 5.0	--	< 1.0	--	< 5.0
Dibromochloromethane	< 5.0	--	< 1.0	--	< 5.0
Dibromomethane	< 10	--	--	--	< 10
Dichlorodifluoromethane	< 10	--	--	--	< 10
di-Isopropyl Ether (DIPE)	--	--	< 2.0	--	--
Ethanol	--	--	< 200.0	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	< 2.0	--	--
Ethylbenzene	< 5.0	< 0.0050	< 1.0	< 0.0050	< 5.0
Hexachlorobutadiene	< 5.0	--	--	--	< 5.0
Isopropylbenzene	< 5.0	--	--	--	< 5.0
Methylene chloride	< 5.0	--	--	--	< 5.0
MTBE	< 5.0	--	< 1.0	--	< 5.0
(Continued)					
Naphthalene	< 10	--	--	--	< 10
n-Butylbenzene	< 5.0	--	--	--	< 5.0
n-Propylbenzene	< 5.0	--	< 2.0	--	< 5.0
p-Isopropyltoluene	< 5.0	--	--	--	< 5.0
sec-Butylbenzene	< 5.0	--	--	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-29-DUP	MFC-30	MFC-30	MFC-31	MFC-31
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/27/2002	3/27/2002	3/25/2002	3/25/2002
DEPTH [1]	4.5	1.5	4.5	1.0	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	--	< 1.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	--	< 2.0	--	--
tert-Butylbenzene	< 5.0	--	--	--	< 5.0
Tertiary Butanol (TBA)	--	--	< 50.0	--	--
Tetrachloroethene	< 5.0	--	< 1.0	--	< 5.0
Toluene	< 5.0	< 0.0050	**1.0**	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 5.0	--	< 1.0	--	< 5.0
trans-1,3-Dichloropropene	< 5.0	--	< 1.0	--	< 5.0
Trichloroethene	< 5.0	--	< 1.0	--	< 5.0
Trichlorofluoromethane	< 5.0	--	--	--	< 5.0
Trichlorotrifluoroethane	< 5.0	--	--	--	< 5.0
Vinyl acetate	< 50	--	< 5.0	--	< 50
Vinyl chloride	< 5.0	--	< 3.0	--	< 5.0
Xylenes (Total)	< 5.0	< 0.0050	< 2.0	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-31	MFC-32	MFC-33	MFC-33
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/25/2002	3/25/2002
DEPTH (1)	4.5	5.0	1.5	1.5	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	--	--	< 5.0
1,1,1-Trichloroethane	< 5.0	< 1.0	--	--	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	< 1.0	--	--	< 5.0
1,1,2-Trichloroethane	< 5.0	< 1.0	--	--	< 5.0
1,1-Dichloroethane	< 5.0	< 1.0	--	--	< 5.0
1,1-Dichloroethene	< 5.0	< 1.0	--	--	< 5.0
1,1-Dichloropropene	< 5.0	--	--	--	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	--	--	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	--	--	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	--	--	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	--	--	< 50
1,2-Dibromoethane	< 10	--	--	--	< 10
1,2-Dichlorobenzene	< 5.0	--	--	--	< 5.0
1,2-Dichloroethane	< 5.0	< 2.0	--	--	< 5.0
1,2-Dichloropropane	< 5.0	< 2.0	--	--	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	--	--	< 5.0
1,3-Dichlorobenzene	< 5.0	--	--	--	< 5.0
1,3-Dichloropropane	< 5.0	--	--	--	< 5.0
1,4-Dichlorobenzene	< 5.0	--	--	--	< 5.0
2,2-Dichloropropane	< 5.0	--	--	--	< 5.0
2-Butanone(MEK)	< 50	< 10.0	--	--	< 50
2-Chloroethylvinyl ether	< 50	--	--	--	< 50
2-Chlorotoluene	< 5.0	--	--	--	< 5.0
2-Hexanone	< 50	< 2.0	--	--	< 50
4-Chlorotoluene	< 5.0	--	--	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	< 2.0	--	--	< 50
Acetone	< 50	< 5.0	--	--	< 50
Benzene	< 5.0	< 1.0	< 0.0050	< 0.0050	< 5.0
Bromobenzene	< 5.0	--	--	--	< 5.0
Bromochloromethane	< 20	--	--	--	< 20
Bromodichloromethane	< 5.0	< 1.0	--	--	< 5.0
Bromoform	< 5.0	< 1.0	--	--	< 5.0
Bromomethane	< 10	< 2.0	--	--	< 10
Carbon disulfide	< 5.0	< 1.0	--	--	< 5.0
Carbon tetrachloride	< 5.0	< 1.0	--	--	< 5.0
Chlorobenzene	< 5.0	< 1.0	--	--	< 5.0
Chloroethane	< 10	< 2.0	--	--	< 10
Chloroform	< 5.0	< 2.0	--	--	< 5.0
Chloromethane	< 10	< 2.0	--	--	< 10
cis-1,2-Dichloroethene	< 5.0	< 1.0	--	--	< 5.0
cis-1,3-Dichloropropene	< 5.0	< 1.0	--	--	< 5.0
Dibromochloromethane	< 5.0	< 1.0	--	--	< 5.0
Dibromomethane	< 10	--	--	--	< 10
Dichlorodifluoromethane	< 10	--	--	--	< 10
di-Isopropyl Ether (DIPE)	--	< 2.0	--	--	--
Ethanol	--	< 200.0	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	< 2.0	--	--	--
Ethylbenzene	< 5.0	< 1.0	< 0.0050	< 0.0050	< 5.0
Hexachlorobutadiene	< 5.0	--	--	--	< 5.0
Isopropylbenzene	< 5.0	--	--	--	< 5.0
Methylene chloride	< 5.0	--	--	--	< 5.0
MTBE	< 5.0	< 1.0	--	--	< 5.0
(Continued)					
Naphthalene	< 10	--	--	--	< 10
n-Butylbenzene	< 5.0	--	--	--	< 5.0
n-Propylbenzene	< 5.0	< 2.0	--	--	< 5.0
p-Isopropyltoluene	< 5.0	--	--	--	< 5.0
sec-Butylbenzene	< 5.0	--	--	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-31	MFC-32	MFC-33	MFC-33
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/25/2002	3/25/2002
DEPTH (1)	4.5	5.0	1.5	1.5	3.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 1.0	--	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	< 2.0	--	--	--
tert-Butylbenzene	< 5.0	--	--	--	< 5.0
Tertiary Butanol (TBA)	--	< 50.0	--	--	--
Tetrachloroethene	< 5.0	< 1.0	--	--	< 5.0
Toluene	< 5.0	< 1.0	< 0.0050	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 5.0	< 1.0	--	--	< 5.0
trans-1,3-Dichloropropene	< 5.0	< 1.0	--	--	< 5.0
Trichloroethene	< 5.0	< 1.0	--	--	< 5.0
Trichlorofluoromethane	< 5.0	--	--	--	< 5.0
Trichlorotrifluoroethane	< 5.0	--	--	--	< 5.0
Vinyl acetate	< 50	< 5.0	--	--	< 50
Vinyl chloride	< 5.0	< 3.0	--	--	< 5.0
Xylenes (Total)	< 5.0	< 2.0	< 0.0050	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-33	MFC-33	MFC-34	MFC-34	MFC-34
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH[(1)]	5.0	5.5	1.5	3.0	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	--	< 5.0	< 5.0
1,1,1-Trichloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0
1,1,2-Trichloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0
1,1-Dichloroethane	< 5.0	< 1.0	--	< 5.0	< 5.0
1,1-Dichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0
1,1-Dichloropropene	< 5.0	--	--	< 5.0	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	--	< 5.0	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	--	< 5.0	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	--	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	--	< 50	< 50
1,2-Dibromoethane	< 10	--	--	< 10	< 10
1,2-Dichlorobenzene	< 5.0	--	--	< 5.0	< 5.0
1,2-Dichloroethane	< 5.0	< 2.0	--	< 5.0	< 5.0
1,2-Dichloropropane	< 5.0	< 2.0	--	< 5.0	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	--	< 5.0	< 5.0
1,3-Dichlorobenzene	< 5.0	--	--	< 5.0	< 5.0
1,3-Dichloropropane	< 5.0	--	--	< 5.0	< 5.0
1,4-Dichlorobenzene	< 5.0	--	--	< 5.0	< 5.0
2,2-Dichloropropane	< 5.0	--	--	< 5.0	< 5.0
2-Butanone(MEK)	< 50	< 10.0	--	< 50	< 50
2-Chloroethylvinyl ether	< 50	--	--	< 50	< 50
2-Chlorotoluene	< 5.0	--	--	< 5.0	< 5.0
2-Hexanone	< 50	< 2.0	--	< 50	< 50
4-Chlorotoluene	< 5.0	--	--	< 5.0	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	< 2.0	--	< 50	< 50
Acetone	< 50	< 5.0	--	< 50	< 50
Benzene	< 5.0	< 1.0	< 0.0050	< 5.0	< 5.0
Bromobenzene	< 5.0	--	--	< 5.0	< 5.0
Bromochloromethane	< 20	--	--	< 20	< 20
Bromodichloromethane	< 5.0	< 1.0	--	< 5.0	< 5.0
Bromoform	< 5.0	< 1.0	--	< 5.0	< 5.0
Bromomethane	< 10	< 2.0	--	< 10	< 10
Carbon disulfide	< 5.0	< 1.0	--	< 5.0	< 5.0
Carbon tetrachloride	< 5.0	< 1.0	--	< 5.0	< 5.0
Chlorobenzene	< 5.0	< 1.0	--	< 5.0	< 5.0
Chloroethane	< 10	< 2.0	--	< 10	< 10
Chloroform	< 5.0	< 2.0	--	< 5.0	< 5.0
Chloromethane	< 10	< 2.0	--	< 10	< 10
cis-1,2-Dichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0
cis-1,3-Dichloropropene	< 5.0	< 1.0	--	< 5.0	< 5.0
Dibromochloromethane	< 5.0	< 1.0	--	< 5.0	< 5.0
Dibromomethane	< 10	--	--	< 10	< 10
Dichlorodifluoromethane	< 10	--	--	< 10	< 10
di-Isopropyl Ether (DIPE)	--	< 2.0	--	--	--
Ethanol	--	< 200.0	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	< 2.0	--	--	--
Ethylbenzene	< 5.0	< 1.0	< 0.0050	< 5.0	< 5.0
Hexachlorobutadiene	< 5.0	--	--	< 5.0	< 5.0
Isopropylbenzene	< 5.0	--	--	< 5.0	< 5.0
Methylene chloride	< 5.0	--	--	< 5.0	< 5.0
MTBE	< 5.0	< 1.0	--	< 5.0	< 5.0
(Continued)					
Naphthalene	< 10	--	--	< 10	< 10
n-Butylbenzene	< 5.0	--	--	< 5.0	< 5.0
n-Propylbenzene	< 5.0	< 2.0	--	< 5.0	< 5.0
p-Isopropyltoluene	< 5.0	--	--	< 5.0	< 5.0
sec-Butylbenzene	< 5.0	--	--	< 5.0	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-33	MFC-33	MFC-34	MFC-34	MFC-34
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/2002	3/25/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	5.0	5.5	1.5	3.0	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 1.0	--	< 5.0	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	< 2.0	--	--	--
tert-Butylbenzene	< 5.0	--	--	< 5.0	< 5.0
Tertiary Butanol (TBA)	--	< 50.0	--	--	--
Tetrachloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0
Toluene	< 5.0	< 1.0	< 0.0050	< 5.0	< 5.0
trans-1,2-Dichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0
trans-1,3-Dichloropropene	< 5.0	< 1.0	--	< 5.0	< 5.0
Trichloroethene	< 5.0	< 1.0	--	< 5.0	< 5.0
Trichlorofluoromethane	< 5.0	--	--	< 5.0	< 5.0
Trichlorotrifluoroethane	< 5.0	--	--	< 5.0	< 5.0
Vinyl acetate	< 50	< 5.0	--	< 50	< 50
Vinyl chloride	< 5.0	< 3.0	--	< 5.0	< 5.0
Xylenes (Total)	< 5.0	< 2.0	< 0.0050	< 5.0	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-34	MFC-35	MFC-35	MFC-35	MFC-35
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/25/2002	37340.0	3/25/2002	3/25/2002
DEPTH[1]	6.0	1.0	2.0	5.0	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	--	< 5.0	< 5.0	--
1,1,1-Trichloroethane	< 1.0	--	< 5.0	< 5.0	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	--	< 5.0	< 5.0	< 1.0
1,1,2-Trichloroethane	< 1.0	--	< 5.0	< 5.0	< 1.0
1,1-Dichloroethane	< 1.0	--	< 5.0	< 5.0	< 1.0
1,1-Dichloroethene	< 1.0	--	< 5.0	< 5.0	< 1.0
1,1-Dichloropropene	--	--	< 5.0	< 5.0	--
1,2,3-Trichlorobenzene	--	--	< 5.0	< 5.0	--
1,2,4-Trichlorobenzene	--	--	< 5.0	< 5.0	--
1,2,4-Trimethylbenzene	--	--	< 5.0	< 5.0	--
1,2-Dibromo-3-chloropropane	--	--	< 50	< 50	--
1,2-Dibromoethane	--	--	< 10	< 10	--
1,2-Dichlorobenzene	--	--	< 5.0	< 5.0	--
1,2-Dichloroethane	< 2.0	--	< 5.0	< 5.0	< 2.0
1,2-Dichloropropane	< 2.0	--	< 5.0	< 5.0	< 2.0
1,3,5-Trimethylbenzene	--	--	< 5.0	< 5.0	--
1,3-Dichlorobenzene	--	--	< 5.0	< 5.0	--
1,3-Dichloropropane	--	--	< 5.0	< 5.0	--
1,4-Dichlorobenzene	--	--	< 5.0	< 5.0	--
2,2-Dichloropropane	--	--	< 5.0	< 5.0	--
2-Butanone(MEK)	< 10.0	--	< 50	< 50	< 10.0
2-Chloroethylvinyl ether	--	--	< 50	< 50	--
2-Chlorotoluene	--	--	< 5.0	< 5.0	--
2-Hexanone	< 2.0	--	< 50	< 50	< 2.0
4-Chlorotoluene	--	--	< 5.0	< 5.0	--
4-Methyl-2-pentanone (MIBK)	< 2.0	--	< 50	< 50	< 2.0
Acetone	< 5.0	--	< 50	< 50	< 5.0
Benzene	< 1.0	< 0.0050	< 5.0	< 5.0	< 1.0
Bromobenzene	--	--	< 5.0	< 5.0	--
Bromochloromethane	--	--	< 20	< 20	--
Bromodichloromethane	< 1.0	--	< 5.0	< 5.0	< 1.0
Bromoform	< 1.0	--	< 5.0	< 5.0	< 1.0
Bromomethane	< 2.0	--	< 10	< 10	< 2.0
Carbon disulfide	< 1.0	--	< 5.0	< 5.0	< 1.0
Carbon tetrachloride	< 1.0	--	< 5.0	< 5.0	< 1.0
Chlorobenzene	< 1.0	--	< 5.0	< 5.0	< 1.0
Chloroethane	< 2.0	--	< 10	< 10	< 2.0
Chloroform	< 2.0	--	< 5.0	< 5.0	< 2.0
Chloromethane	< 2.0	--	< 10	< 10	< 2.0
cis-1,2-Dichloroethene	< 1.0	--	< 5.0	< 5.0	< 1.0
cis-1,3-Dichloropropene	< 1.0	--	< 5.0	< 5.0	< 1.0
Dibromochloromethane	< 1.0	--	< 5.0	< 5.0	< 1.0
Dibromomethane	--	--	< 10	< 10	--
Dichlorodifluoromethane	--	--	< 10	< 10	--
di-Isopropyl Ether (DIPE)	< 2.0	--	--	--	< 2.0
Ethanol	< 200.0	--	--	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	< 2.0	--	--	--	< 2.0
Ethylbenzene	< 1.0	< 0.0050	< 5.0	< 5.0	< 1.0
Hexachlorobutadiene	--	--	< 5.0	< 5.0	--
Isopropylbenzene	--	--	**5.1**	< 5.0	--
Methylene chloride	--	--	< 5.0	< 5.0	--
MTBE	< 1.0	--	< 5.0	< 5.0	< 1.0
(Continued)					
Naphthalene	--	--	< 10	< 10	--
n-Butylbenzene	--	--	< 5.0	< 5.0	--
n-Propylbenzene	< 2.0	--	**5.7**	< 5.0	< 2.0
p-Isopropyltoluene	--	--	< 5.0	< 5.0	--
sec-Butylbenzene	--	--	**20**	< 5.0	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-34	MFC-35	MFC-35	MFC-35	MFC-35
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/25/2002	37340.0	3/25/2002	3/25/2002
DEPTH (1)	6.0	1.0	2.0	5.0	5.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 1.0	--	< 5.0	< 5.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	--	--	--	< 2.0
tert-Butylbenzene	--	--	< 5.0	< 5.0	--
Tertiary Butanol (TBA)	< 50.0	--	--	--	< 50.0
Tetrachloroethene	< 1.0	--	< 5.0	< 5.0	< 1.0
Toluene	< 1.0	< 0.0050	< 5.0	< 5.0	< 1.1
trans-1,2-Dichloroethene	< 1.0	--	< 5.0	< 5.0	< 1.2
trans-1,3-Dichloropropene	< 1.0	--	< 5.0	< 5.0	< 1.3
Trichloroethene	< 1.0	--	< 5.0	< 5.0	< 1.4
Trichlorofluoromethane	--	--	< 5.0	< 5.0	--
Trichlorotrifluoroethane	--	--	< 5.0	< 5.0	--
Vinyl acetate	< 5.0	--	< 50	< 50	< 5.0
Vinyl chloride	< 3.0	--	< 5.0	< 5.0	< 3.0
Xylenes (Total)	< 2.0	< 0.0050	< 5.0	< 5.0	< 2.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-36	MFC-36	MFC-37	MFC-37	MFC-37	MFC-38
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/2002	3/28/2002	3/25/2002	3/25/2002	3/25/2002	3/26/2002
DEPTH (1)	1.5	4.5	1.5	4.5	5.0	1.0
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	--	< 17	--	--
1,1,1-Trichloroethane	--	< 5.0	--	< 17	< 1.0	--
1,1,2,2-Tetrachloroethane	--	< 5.0	--	< 17	< 1.0	--
1,1,2-Trichloroethane	--	< 5.0	--	< 17	< 1.0	--
1,1-Dichloroethane	--	< 5.0	--	< 17	< 1.0	--
1,1-Dichloroethene	--	< 5.0	--	< 17	< 1.0	--
1,1-Dichloropropene	--	< 5.0	--	< 17	--	--
1,2,3-Trichlorobenzene	--	< 5.0	--	< 17	--	--
1,2,4-Trichlorobenzene	--	< 5.0	--	< 17	--	--
1,2,4-Trimethylbenzene	--	< 5.0	--	< 17	--	--
1,2-Dibromo-3-chloropropane	--	< 50	--	< 170	--	--
1,2-Dibromoethane	--	< 10	--	< 34	--	--
1,2-Dichlorobenzene	--	< 5.0	--	< 17	--	--
1,2-Dichloroethane	--	< 5.0	--	< 17	< 2.0	--
1,2-Dichloropropane	--	< 5.0	--	< 17	< 2.0	--
1,3,5-Trimethylbenzene	--	< 5.0	--	< 17	--	--
1,3-Dichlorobenzene	--	< 5.0	--	< 17	--	--
1,3-Dichloropropane	--	< 5.0	--	< 17	--	--
1,4-Dichlorobenzene	--	< 5.0	--	< 17	--	--
2,2-Dichloropropane	--	< 5.0	--	< 17	--	--
2-Butanone(MEK)	--	< 50	--	< 170	< 10.0	--
2-Chloroethylvinyl ether	--	< 50	--	< 170	--	--
2-Chlorotoluene	--	< 5.0	--	< 17	--	--
2-Hexanone	--	< 50	--	< 170	< 2.0	--
4-Chlorotoluene	--	< 5.0	--	< 17	--	--
4-Methyl-2-pentanone (MIBK)	--	< 50	--	< 170	< 2.0	--
Acetone	< 5.0	**55**	--	< 170	< 5.0	--
Benzene	--	< 5.0	< 0.0050	< 17	< 1.0	< 0.0050
Bromobenzene	--	< 5.0	--	< 17	--	--
Bromochloromethane	--	< 20	--	< 69	--	--
Bromodichloromethane	--	< 5.0	--	< 17	< 1.0	--
Bromoform	--	< 5.0	--	< 17	< 1.0	--
Bromomethane	--	< 10	--	< 34	< 2.0	--
Carbon disulfide	--	< 5.0	--	< 17	< 1.0	--
Carbon tetrachloride	--	< 5.0	--	< 17	< 1.0	--
Chlorobenzene	--	< 5.0	--	< 17	< 1.0	--
Chloroethane	--	< 10	--	< 34	< 2.0	--
Chloroform	--	< 5.0	--	< 17	< 2.0	--
Chloromethane	--	< 10	--	< 34	< 2.0	--
cis-1,2-Dichloroethene	--	< 5.0	--	< 17	< 1.0	--
cis-1,3-Dichloropropene	--	< 5.0	--	< 17	< 1.0	--
Dibromochloromethane	--	< 5.0	--	< 17	< 1.0	--
Dibromomethane	--	< 10	--	< 34	--	--
Dichlorodifluoromethane	--	< 10	--	< 34	--	--
di-Isopropyl Ether (DIPE)	--	--	--	--	< 2.0	--
Ethanol	--	--	--	--	< 200.0	--
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	< 2.0	--
Ethylbenzene	< 5.0	< 5.0	< 0.0050	< 17	< 1.0	< 0.0050
Hexachlorobutadiene	--	< 5.0	--	< 17	--	--
Isopropylbenzene	--	< 5.0	--	**98**	--	--
Methylene chloride	--	< 5.0	--	< 17	--	--
MTBE	--	**23**	--	< 17	< 1.0	--
(Continued)						
Naphthalene	--	< 10	--	**240**	--	--
n-Butylbenzene	--	< 5.0	--	**170**	--	--
n-Propylbenzene	--	< 5.0	--	**170**	< 2.0	--
p-Isopropyltoluene	--	< 5.0	--	< 17	--	--
sec-Butylbenzene	--	< 5.0	--	**120**	--	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-36	MFC-36	MFC-37	MFC-37	MFC-37	MFC-38
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/2002	3/28/2002	3/25/2002	3/25/2002	3/25/2002	3/26/2002
DEPTH (1)	1.5	4.5	1.5	4.5	5.0	1.0
UNITS	μg/kg	μg/kg	μg/kg	μg/kg	μg/kg	μg/kg
Styrene	--	< 5.0	--	< 17	< 1.0	--
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	< 2.0	--
tert-Butylbenzene	--	< 5.0	--	< 17	--	--
Tertiary Butanol (TBA)	--	--	--	--	< 50.0	--
Tetrachloroethene	--	< 5.0	--	< 17	< 1.0	--
Toluene	< 5.0	< 5.0	< 0.0050	< 17	< 1.0	< 0.0050
trans-1,2-Dichloroethene	--	< 5.0	--	< 17	< 1.0	--
trans-1,3-Dichloropropene	--	< 5.0	--	< 17	< 1.0	--
Trichloroethene	--	< 5.0	--	< 17	< 1.0	--
Trichlorofluoromethane	--	< 5.0	--	< 17	--	--
Trichlorotrifluoroethane	--	< 5.0	--	< 17	--	--
Vinyl acetate	--	< 50	--	< 170	< 5.0	--
Vinyl chloride	--	< 5.0	--	< 17	< 3.0	--
Xylenes (Total)	< 5.0	< 5.0	< 0.0050	< 17	< 2.0	< 0.0050

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

μg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-38	MFC-38	MFC-38	MFC-39	MFC-40
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	2.5	5.0	5.5	1.5	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	< 5.0	--	--	--
1,1,1-Trichloroethane	< 5.0	< 5.0	< 1.0	--	--
1,1,2,2-Tetrachloroethane	< 5.0	< 5.0	< 1.0	--	--
1,1,2-Trichloroethane	< 5.0	< 5.0	< 1.0	--	--
1,1-Dichloroethane	< 5.0	< 5.0	< 1.0	--	--
1,1-Dichloroethene	< 5.0	< 5.0	< 1.0	--	--
1,1-Dichloropropene	< 5.0	< 5.0	--	--	--
1,2,3-Trichlorobenzene	< 5.0	< 5.0	--	--	--
1,2,4-Trichlorobenzene	< 5.0	< 5.0	--	--	--
1,2,4-Trimethylbenzene	< 5.0	< 5.0	--	--	--
1,2-Dibromo-3-chloropropane	< 50	< 50	--	--	--
1,2-Dibromoethane	< 10	< 10	--	--	--
1,2-Dichlorobenzene	< 5.0	< 5.0	--	--	--
1,2-Dichloroethane	< 5.0	< 5.0	< 2.0	--	--
1,2-Dichloropropane	< 5.0	< 5.0	< 2.0	--	--
1,3,5-Trimethylbenzene	< 5.0	< 5.0	--	--	--
1,3-Dichlorobenzene	< 5.0	< 5.0	--	--	--
1,3-Dichloropropane	< 5.0	< 5.0	--	--	--
1,4-Dichlorobenzene	< 5.0	< 5.0	--	--	--
2,2-Dichloropropane	< 5.0	< 5.0	--	--	--
2-Butanone(MEK)	< 50	< 50	< 10.0	--	--
2-Chloroethylvinyl ether	< 50	< 50	--	--	--
2-Chlorotoluene	< 5.0	< 5.0	--	--	--
2-Hexanone	< 50	< 50	< 2.0	--	--
4-Chlorotoluene	< 5.0	< 5.0	--	--	--
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 2.0	--	--
Acetone	< 50	< 50	< 5.0	--	--
Benzene	< 5.0	< 5.0	< 1.0	< 0.0050	< 0.0050
Bromobenzene	< 5.0	< 5.0	--	--	--
Bromochloromethane	< 20	< 20	--	--	--
Bromodichloromethane	< 5.0	< 5.0	< 1.0	--	--
Bromoform	< 5.0	< 5.0	< 1.0	--	--
Bromomethane	< 10	< 10	< 2.0	--	--
Carbon disulfide	< 5.0	< 5.0	< 1.0	--	--
Carbon tetrachloride	< 5.0	< 5.0	< 1.0	--	--
Chlorobenzene	< 5.0	< 5.0	< 1.0	--	--
Chloroethane	< 10	< 10	< 2.0	--	--
Chloroform	< 5.0	< 5.0	< 2.0	--	--
Chloromethane	< 10	< 10	< 2.0	--	--
cis-1,2-Dichloroethene	< 5.0	< 5.0	< 1.0	--	--
cis-1,3-Dichloropropene	< 5.0	< 5.0	< 1.0	--	--
Dibromochloromethane	< 5.0	< 5.0	< 1.0	--	--
Dibromomethane	< 10	< 10	--	--	--
Dichlorodifluoromethane	< 10	< 10	--	--	--
di-Isopropyl Ether (DIPE)	--	--	< 2.0	--	--
Ethanol	--	--	< 200.0	--	--
Ethyl tert-Butyl Ether (ETBE)	--	--	< 2.0	--	--
Ethylbenzene	< 5.0	< 5.0	< 1.0	< 0.0050	< 0.0050
Hexachlorobutadiene	< 5.0	< 5.0	--	--	--
Isopropylbenzene	< 5.0	< 5.0	--	--	--
Methylene chloride	< 5.0	< 5.0	--	--	--
MTBE	< 5.0	< 5.0	< 1.0	--	--
(Continued)					
Naphthalene	< 10	< 10	--	--	--
n-Butylbenzene	< 5.0	< 5.0	--	--	--
n-Propylbenzene	< 5.0	< 5.0	< 2.0	--	--
p-Isopropyltoluene	< 5.0	< 5.0	--	--	--
sec-Butylbenzene	< 5.0	< 5.0	--	--	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-38	MFC-38	MFC-38	MFC-39	MFC-40
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH (1)	2.5	5.0	5.5	1.5	1.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 5.0	< 1.0	--	--
tert-Amyl Ethyl Ether (TAME)	--	--	< 2.0	--	--
tert-Butylbenzene	< 5.0	< 5.0	--	--	--
Tertiary Butanol (TBA)	--	--	< 50.0	--	--
Tetrachloroethene	< 5.0	< 5.0	< 1.0	--	--
Toluene	< 5.0	< 5.0	< 1.0	< 0.0050	< 0.0050
trans-1,2-Dichloroethene	< 5.0	< 5.0	< 1.0	--	--
trans-1,3-Dichloropropene	< 5.0	< 5.0	< 1.0	--	--
Trichloroethene	< 5.0	< 5.0	< 1.0	--	--
Trichlorofluoromethane	< 5.0	< 5.0	--	--	--
Trichlorotrifluoroethane	< 5.0	< 5.0	--	--	--
Vinyl acetate	< 50	< 50	< 5.0	--	--
Vinyl chloride	< 5.0	< 5.0	< 3.0	--	--
Xylenes (Total)	< 5.0	< 5.0	< 2.0	< 0.0050	< 0.0050

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-40	MFC-40	MFC-40	MFC-41	MFC-41
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH(1)	5.0	3.0	4.5	1.5	2.5
UNITS	μg/kg	μg/kg	μg/kg	μg/kg	μg/kg
1,1,1,2-Tetrachloroethane	--	< 5.0	< 5.0	--	< 5.0
1,1,1-Trichloroethane	< 1.0	< 5.0	< 5.0	--	< 5.0
1,1,2,2-Tetrachloroethane	< 1.0	< 5.0	< 5.0	--	< 5.0
1,1,2-Trichloroethane	< 1.0	< 5.0	< 5.0	--	< 5.0
1,1-Dichloroethane	< 1.0	< 5.0	< 5.0	--	< 5.0
1,1-Dichloroethene	< 1.0	< 5.0	< 5.0	--	< 5.0
1,1-Dichloropropene	--	< 5.0	< 5.0	--	< 5.0
1,2,3-Trichlorobenzene	--	< 5.0	< 5.0	--	< 5.0
1,2,4-Trichlorobenzene	--	< 5.0	< 5.0	--	< 5.0
1,2,4-Trimethylbenzene	--	< 5.0	< 5.0	--	< 5.0
1,2-Dibromo-3-chloropropane	--	< 50	< 50	--	< 50
1,2-Dibromoethane	--	< 10	< 10	--	< 10
1,2-Dichlorobenzene	--	< 5.0	< 5.0	--	< 5.0
1,2-Dichloroethane	< 2.0	< 5.0	< 5.0	--	< 5.0
1,2-Dichloropropane	< 2.0	< 5.0	< 5.0	--	< 5.0
1,3,5-Trimethylbenzene	--	< 5.0	< 5.0	--	< 5.0
1,3-Dichlorobenzene	--	< 5.0	< 5.0	--	< 5.0
1,3-Dichloropropane	--	< 5.0	< 5.0	--	< 5.0
1,4-Dichlorobenzene	--	< 5.0	< 5.0	--	< 5.0
2,2-Dichloropropane	--	< 5.0	< 5.0	--	< 5.0
2-Butanone(MEK)	< 10.0	< 50	< 50	--	< 50
2-Chloroethylvinyl ether	--	< 50	< 50	--	< 50
2-Chlorotoluene	--	< 5.0	< 5.0	--	< 5.0
2-Hexanone	< 2.0	< 50	< 50	--	< 50
4-Chlorotoluene	--	< 5.0	< 5.0	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 2.0	< 50	< 50	--	< 50
Acetone	< 5.0	< 50	< 50	--	< 50
Benzene	< 1.0	< 5.0	< 5.0	< 0.0050	< 5.0
Bromobenzene	--	< 5.0	< 5.0	--	< 5.0
Bromochloromethane	--	< 20	< 20	--	< 20
Bromodichloromethane	< 1.0	< 5.0	< 5.0	--	< 5.0
Bromoform	< 1.0	< 5.0	< 5.0	--	< 5.0
Bromomethane	< 2.0	< 10	< 10	--	< 10
Carbon disulfide	< 1.0	< 5.0	< 5.0	--	< 5.0
Carbon tetrachloride	< 1.0	< 5.0	< 5.0	--	< 5.0
Chlorobenzene	< 1.0	< 5.0	< 5.0	--	< 5.0
Chloroethane	< 2.0	< 10	< 10	--	< 10
Chloroform	< 2.0	< 5.0	< 5.0	--	< 5.0
Chloromethane	< 2.0	< 10	< 10	--	< 10
cis-1,2-Dichloroethene	< 1.0	< 5.0	< 5.0	--	< 5.0
cis-1,3-Dichloropropene	< 1.0	< 5.0	< 5.0	--	< 5.0
Dibromochloromethane	< 1.0	< 5.0	< 5.0	--	< 5.0
Dibromomethane	--	< 10	< 10	--	< 10
Dichlorodifluoromethane	--	< 10	< 10	--	< 10
di-Isopropyl Ether (DIPE)	< 2.0	--	--	--	--
Ethanol	< 200.0	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	< 2.0	--	--	--	--
Ethylbenzene	< 1.0	< 5.0	< 5.0	< 0.0050	< 5.0
Hexachlorobutadiene	--	< 5.0	< 5.0	--	< 5.0
Isopropylbenzene	--	< 5.0	< 5.0	--	< 5.0
Methylene chloride	--	< 5.0	< 5.0	--	< 5.0
MTBE	< 1.0	< 5.0	< 5.0	--	< 5.0
(Continued)					
Naphthalene	--	< 10	< 10	--	< 10
n-Butylbenzene	--	< 5.0	< 5.0	--	< 5.0
n-Propylbenzene	< 2.0	< 5.0	< 5.0	--	< 5.0
p-Isopropyltoluene	--	< 5.0	< 5.0	--	< 5.0
sec-Butylbenzene	--	< 5.0	< 5.0	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-40	MFC-40	MFC-40	MFC-41	MFC-41
MATRIX	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/26/2002	3/26/2002	3/26/2002
DEPTH[(1)]	5.0	3.0	4.5	1.5	2.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 1.0	< 5.0	< 5.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	--	--	--	--
tert-Butylbenzene	--	< 5.0	< 5.0	--	< 5.0
Tertiary Butanol (TBA)	< 50.0	--	--	--	--
Tetrachloroethene	< 1.0	< 5.0	< 5.0	--	< 5.0
Toluene	< 1.0	< 5.0	< 5.0	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 1.0	< 5.0	< 5.0	--	< 5.0
trans-1,3-Dichloropropene	< 1.0	< 5.0	< 5.0	--	< 5.0
Trichloroethene	< 1.0	< 5.0	< 5.0	--	< 5.0
Trichlorofluoromethane	--	< 5.0	< 5.0	--	< 5.0
Trichlorotrifluoroethane	--	< 5.0	< 5.0	--	< 5.0
Vinyl acetate	< 5.0	< 50	< 50	--	< 50
Vinyl chloride	< 3.0	< 5.0	< 5.0	--	< 5.0
Xylenes (Total)	< 2.0	< 5.0	< 5.0	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-41	MFC-41	MFC-43	MFC-43	MFC-44	MFC-44
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/28/2002	3/28/2002	3/26/2002	3/26/2002
DEPTH [(1)]	4.0	4.5	1.5	4.5	1.5	4.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	< 5.0	--	--	< 5.0	--	< 5.0
1,1,1-Trichloroethane	< 5.0	< 1.0	--	< 5.0	--	< 5.0
1,1,2,2-Tetrachloroethane	< 5.0	< 1.0	--	< 5.0	--	< 5.0
1,1,2-Trichloroethane	< 5.0	< 1.0	--	< 5.0	--	< 5.0
1,1-Dichloroethane	< 5.0	< 1.0	--	< 5.0	--	< 5.0
1,1-Dichloroethene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
1,1-Dichloropropene	< 5.0	--	--	< 5.0	--	< 5.0
1,2,3-Trichlorobenzene	< 5.0	--	--	< 5.0	--	< 5.0
1,2,4-Trichlorobenzene	< 5.0	--	--	< 5.0	--	< 5.0
1,2,4-Trimethylbenzene	< 5.0	--	--	< 5.0	--	< 5.0
1,2-Dibromo-3-chloropropane	< 50	--	--	< 50	--	< 50
1,2-Dibromoethane	< 10	--	--	< 10	--	< 10
1,2-Dichlorobenzene	< 5.0	--	--	< 5.0	--	< 5.0
1,2-Dichloroethane	< 5.0	< 2.0	--	< 5.0	--	< 5.0
1,2-Dichloropropane	< 5.0	< 2.0	--	< 5.0	--	< 5.0
1,3,5-Trimethylbenzene	< 5.0	--	--	< 5.0	--	< 5.0
1,3-Dichlorobenzene	< 5.0	--	--	< 5.0	--	< 5.0
1,3-Dichloropropane	< 5.0	--	--	< 5.0	--	< 5.0
1,4-Dichlorobenzene	< 5.0	--	--	< 5.0	--	< 5.0
2,2-Dichloropropane	< 5.0	--	--	< 5.0	--	< 5.0
2-Butanone(MEK)	< 50	< 10.0	--	< 50	--	< 50
2-Chloroethylvinyl ether	< 50	--	--	< 50	--	< 50
2-Chlorotoluene	< 5.0	--	--	< 5.0	--	< 5.0
2-Hexanone	< 50	< 2.0	--	< 50	--	< 50
4-Chlorotoluene	< 5.0	--	--	< 5.0	--	< 5.0
4-Methyl-2-pentanone (MIBK)	< 50	< 2.0	--	< 50	--	< 50
Acetone	< 50	< 5.0	< 5.0	< 50	--	< 50
Benzene	< 5.0	< 1.0	--	< 5.0	< 0.0050	< 5.0
Bromobenzene	< 5.0	--	--	< 5.0	--	< 5.0
Bromochloromethane	< 20	--	--	< 20	--	< 20
Bromodichloromethane	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Bromoform	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Bromomethane	< 10	< 2.0	--	< 10	--	< 10
Carbon disulfide	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Carbon tetrachloride	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Chlorobenzene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Chloroethane	< 10	< 2.0	--	< 10	--	< 10
Chloroform	< 5.0	< 2.0	--	< 5.0	--	< 5.0
Chloromethane	< 10	< 2.0	--	< 10	--	< 10
cis-1,2-Dichloroethene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
cis-1,3-Dichloropropene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Dibromochloromethane	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Dibromomethane	< 10	--	--	< 10	--	< 10
Dichlorodifluoromethane	< 10	--	--	< 10	--	< 10
di-Isopropyl Ether (DIPE)	--	< 2.0	--	--	--	--
Ethanol	--	< 200.0	--	--	--	--
Ethyl tert-Butyl Ether (ETBE)	--	< 2.0	--	--	--	--
Ethylbenzene	< 5.0	< 1.0	< 5.0	< 5.0	< 0.0050	< 5.0
Hexachlorobutadiene	< 5.0	--	--	< 5.0	--	< 5.0
Isopropylbenzene	< 5.0	--	--	< 5.0	--	< 5.0
Methylene chloride	< 5.0	--	--	< 5.0	--	< 5.0
MTBE	< 5.0	< 1.0	--	**5.3**	--	< 5.0
(Continued)						
Naphthalene	< 10	--	--	< 10	--	< 10
n-Butylbenzene	< 5.0	--	--	< 5.0	--	< 5.0
n-Propylbenzene	< 5.0	< 2.0	--	< 5.0	--	< 5.0
p-Isopropyltoluene	< 5.0	--	--	< 5.0	--	< 5.0
sec-Butylbenzene	< 5.0	--	--	< 5.0	--	< 5.0

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-41	MFC-41	MFC-43	MFC-43	MFC-44	MFC-44
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/26/2002	3/28/2002	3/28/2002	3/26/2002	3/26/2002
DEPTH (1)	4.0	4.5	1.5	4.5	1.5	4.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
tert-Amyl Ethyl Ether (TAME)	--	< 2.0	--	--	--	--
tert-Butylbenzene	< 5.0	--	--	< 5.0	--	< 5.0
Tertiary Butanol (TBA)	--	< 50.0	--	--	--	--
Tetrachloroethene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Toluene	< 5.0	**1.6**	< 5.0	< 5.0	< 0.0050	< 5.0
trans-1,2-Dichloroethene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
trans-1,3-Dichloropropene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Trichloroethene	< 5.0	< 1.0	--	< 5.0	--	< 5.0
Trichlorofluoromethane	< 5.0	--	--	< 5.0	--	< 5.0
Trichlorotrifluoroethane	< 5.0	--	--	< 5.0	--	< 5.0
Vinyl acetate	< 50	< 5.0	--	< 50	--	< 50
Vinyl chloride	< 5.0	< 3.0	--	< 5.0	--	< 5.0
Xylenes (Total)	< 5.0	< 2.0	< 5.0	< 5.0	< 0.0050	< 5.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-44	MFC-45	MFC-45	MFC-46	MFC-46	MFC-46
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH [(1)]	5.0	1.5	4.5	4.0	7.0	7.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1,2-Tetrachloroethane	--	--	< 5.0	< 5.0	< 5.0	--
1,1,1-Trichloroethane	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
1,1,2-Trichloroethane	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
1,1-Dichloroethane	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
1,1-Dichloroethene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
1,1-Dichloropropene	--	--	< 5.0	< 5.0	< 5.0	--
1,2,3-Trichlorobenzene	--	--	< 5.0	< 5.0	< 5.0	--
1,2,4-Trichlorobenzene	--	--	< 5.0	< 5.0	< 5.0	--
1,2,4-Trimethylbenzene	--	--	< 5.0	< 5.0	< 5.0	--
1,2-Dibromo-3-chloropropane	--	--	< 50	< 50	< 50	--
1,2-Dibromoethane	--	--	< 10	< 10	< 10	--
1,2-Dichlorobenzene	--	--	< 5.0	< 5.0	< 5.0	--
1,2-Dichloroethane	< 2.0	--	< 5.0	< 5.0	< 5.0	< 2.0
1,2-Dichloropropane	< 2.0	--	< 5.0	< 5.0	< 5.0	< 2.0
1,3,5-Trimethylbenzene	--	--	< 5.0	< 5.0	< 5.0	--
1,3-Dichlorobenzene	--	--	< 5.0	< 5.0	< 5.0	--
1,3-Dichloropropane	--	--	< 5.0	< 5.0	< 5.0	--
1,4-Dichlorobenzene	--	--	< 5.0	< 5.0	< 5.0	--
2,2-Dichloropropane	--	--	< 5.0	< 5.0	< 5.0	--
2-Butanone(MEK)	< 10.0	--	< 50	< 50	< 50	< 10.0
2-Chloroethylvinyl ether	--	--	< 50	< 50	< 50	--
2-Chlorotoluene	--	--	< 5.0	< 5.0	< 5.0	--
2-Hexanone	< 2.0	--	< 50	< 50	< 50	< 2.0
4-Chlorotoluene	--	--	< 5.0	< 5.0	< 5.0	--
4-Methyl-2-pentanone (MIBK)	< 2.0	--	< 50	< 50	< 50	< 2.0
Acetone	< 5.0	< 5.0	< 50	< 50	< 50	< 5.0
Benzene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Bromobenzene	--	--	< 5.0	< 5.0	< 5.0	--
Bromochloromethane	--	--	< 20	< 20	< 20	--
Bromodichloromethane	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Bromoform	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Bromomethane	< 2.0	--	< 10	< 10	< 10	< 2.0
Carbon disulfide	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Carbon tetrachloride	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Chlorobenzene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Chloroethane	< 2.0	--	< 10	< 10	< 10	< 2.0
Chloroform	< 2.0	--	< 5.0	< 5.0	< 5.0	< 2.0
Chloromethane	< 2.0	--	< 10	< 10	< 10	< 2.0
cis-1,2-Dichloroethene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
cis-1,3-Dichloropropene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Dibromochloromethane	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Dibromomethane	--	--	< 10	< 10	< 10	--
Dichlorodifluoromethane	--	--	< 10	< 10	< 10	--
di-Isopropyl Ether (DIPE)	< 2.0	--	--	--	--	< 2.0
Ethanol	< 200.0	--	--	--	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	< 2.0	--	--	--	--	< 2.0
Ethylbenzene	< 1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0
Hexachlorobutadiene	--	--	< 5.0	< 5.0	< 5.0	--
Isopropylbenzene	--	--	< 5.0	< 5.0	< 5.0	--
Methylene chloride	--	--	< 5.0	< 5.0	< 5.0	--
MTBE	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
(Continued)						
Naphthalene	--	--	< 10	< 10	< 10	--
n-Butylbenzene	--	--	< 5.0	< 5.0	< 5.0	--
n-Propylbenzene	< 2.0	--	< 5.0	< 5.0	< 5.0	< 2.0
p-Isopropyltoluene	--	--	< 5.0	< 5.0	< 5.0	--
sec-Butylbenzene	--	--	< 5.0	< 5.0	< 5.0	--

TABLE 5: SOIL CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-44	MFC-45	MFC-45	MFC-46	MFC-46	MFC-46
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/2002	3/28/2002	3/28/2002	3/27/2002	3/27/2002	3/27/2002
DEPTH [(1)]	5.0	1.5	4.5	4.0	7.0	7.5
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Styrene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	--	--	--	--	< 2.0
tert-Butylbenzene	--	--	< 5.0	< 5.0	< 5.0	--
Tertiary Butanol (TBA)	< 50.0	--	--	--	--	< 50.0
Tetrachloroethene	< 1.0	--	< 5.0	< 5.0	**6.6**	< 1.0
Toluene	< 1.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0
trans-1,2-Dichloroethene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
trans-1,3-Dichloropropene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Trichloroethene	< 1.0	--	< 5.0	< 5.0	< 5.0	< 1.0
Trichlorofluoromethane	--	--	< 5.0	< 5.0	< 5.0	--
Trichlorotrifluoroethane	--	--	< 5.0	< 5.0	< 5.0	--
Vinyl acetate	< 5.0	--	< 50	< 50	< 50	< 5.0
Vinyl chloride	< 3.0	--	< 5.0	< 5.0	< 5.0	< 3.0
Xylenes (Total)	< 2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 2.0

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs)

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

-- = Not Analyzed

µg/kg = micrograms per kilogram

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-02	MFC-03	MFC-04	MFC-05	MFC-06
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/02	3/28/02	3/28/02	3/28/02	3/28/02	3/27/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,1,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
1,1,1-Trichloroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
1,1,2,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
1,1,2-Trichloroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
1,1-Dichloroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
1,1-Dichloroethene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
1,1-Dichloropropene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
1,2,3-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
1,2,4-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
1,2,4-Trimethylbenzene	< 0.50	< 0.50	< 0.50	**7.4**	< 0.50	--
1,2-Dibromo-3-chloropropane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
1,2-Dibromoethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
1,2-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
1,2-Dichloroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 2.0
1,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 2.0
1,3,5-Trimethylbenzene	< 0.50	< 0.50	< 0.50	**2.0**	< 0.50	--
1,3-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
1,3-Dichloropropane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
1,4-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
2,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
2-Butanone(MEK)	< 50	< 50	< 50	< 200	< 50	< 10.0
2-Chloroethylvinyl ether	< 5.0	< 5.0	< 5.0	< 20	< 5.0	--
2-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
2-Hexanone	< 50	< 50	< 50	< 200	< 50	< 2.0
4-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 50	< 200	< 50	< 2.0
Acetone	< 50	< 50	< 50	< 200	< 50	< 5.0
Benzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Bromobenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
Bromochloromethane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
Bromodichloromethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Bromoform	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Bromomethane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 2.0
Carbon disulfide	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 1.0
Carbon tetrachloride	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Chlorobenzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Chloroethane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 2.0
Chloroform	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 2.0
Chloromethane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	< 2.0
cis-1,2-Dichloroethene	**1.2**	< 0.50	< 0.50	**130**	< 0.50	< 1.0
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Dibromochloromethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Dibromomethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
Dichlorodifluoromethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
di-Isopropyl Ether (DIPE)	--	--	--	--	--	< 2.0
Ethanol	--	--	--	--	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--	< 2.0
Ethylbenzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Hexachlorobutadiene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
Isopropylbenzene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
Methylene chloride	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 1.0
MTBE	< 5.0	< 5.0	< 5.0	< 20	< 5.0	< 2.0
Naphthalene	< 1.0	< 1.0	< 1.0	**280**	< 1.0	--

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-02	MFC-03	MFC-04	MFC-05	MFC-06
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/02	3/28/02	3/28/02	3/28/02	3/28/02	3/27/02
UNITS	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
(Continued)						
n-Butylbenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
n-Propylbenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
p-Isopropyltoluene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
sec-Butylbenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
Styrene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--	< 2.0
tert-Butylbenzene	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
Tertiary Butanol (TBA)	--	--	--	--	--	< 50.0
Tetrachloroethene	< 0.50	< 0.50	< 0.50	**13**	< 0.50	< 1.0
Toluene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
trans-1,2-Dichloroethene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 1.0
Trichloroethene	< 0.50	< 0.50	< 0.50	**4.0**	< 0.50	< 1.0
Trichlorofluoromethane	< 1.0	< 1.0	< 1.0	< 4.0	< 1.0	--
Trichlorotrifluoroethane	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	--
Vinyl acetate	< 25	< 25	< 25	< 100	< 25	< 5.0
Vinyl chloride	< 0.50	< 0.50	< 0.50	< 2.0	< 0.50	< 3.0
Xylenes (Total)	< 1.0	< 1.0	< 1.0	**5.7**	< 1.0	< 2.0

Notes:
GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

μg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-07	MFC-08	MFC-09	MFC-11	MFC-12	MFC-13
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/28/02	3/28/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,1,2-Tetrachloroethane	--	--	--	--	< 5.0	< 0.50
1,1,1-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
1,1-Dichloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	**0.90**
1,1-Dichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	**0.97**
1,1-Dichloropropene	--	--	--	--	< 5.0	< 0.50
1,2,3-Trichlorobenzene	--	--	--	--	< 10	< 1.0
1,2,4-Trichlorobenzene	--	--	--	--	< 10	< 1.0
1,2,4-Trimethylbenzene	--	--	--	--	< 5.0	< 0.50
1,2-Dibromo-3-chloropropane	--	--	--	--	< 10	< 1.0
1,2-Dibromoethane	--	--	--	--	< 5.0	< 0.50
1,2-Dichlorobenzene	--	--	--	--	< 5.0	< 0.50
1,2-Dichloroethane	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 0.50
1,2-Dichloropropane	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 0.50
1,3,5-Trimethylbenzene	--	--	--	--	< 5.0	< 0.50
1,3-Dichlorobenzene	--	--	--	--	< 5.0	< 0.50
1,3-Dichloropropane	--	--	--	--	< 10	< 1.0
1,4-Dichlorobenzene	--	--	--	--	< 5.0	< 0.50
2,2-Dichloropropane	--	--	--	--	< 5.0	< 0.50
2-Butanone(MEK)	< 10.0	< 10.0	< 10.0	< 10.0	< 500	< 50
2-Chloroethylvinyl ether	--	--	--	--	< 50	< 5.0
2-Chlorotoluene	--	--	--	--	< 5.0	< 0.50
2-Hexanone	< 2.0	< 2.0	< 2.0	< 2.0	< 500	< 50
4-Chlorotoluene	--	--	--	--	< 5.0	< 0.50
4-Methyl-2-pentanone (MIBK)	< 2.0	< 2.0	< 2.0	< 2.0	< 500	< 50
Acetone	< 5.0	< 5.0	< 5.0	< 5.0	< 500	< 50
Benzene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Bromobenzene	--	--	--	--	< 10	< 1.0
Bromochloromethane	--	--	--	--	< 10	< 1.0
Bromodichloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Bromoform	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Bromomethane	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 1.0
Carbon disulfide	< 1.0	< 1.0	< 1.0	< 1.0	< 50	< 5.0
Carbon tetrachloride	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Chlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Chloroethane	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 1.0
Chloroform	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 1.0
Chloromethane	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 1.0
cis-1,2-Dichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	**26**	**36**
cis-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Dibromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Dibromomethane	--	--	--	--	< 5.0	< 0.50
Dichlorodifluoromethane	--	--	--	--	< 5.0	< 0.50
di-Isopropyl Ether (DIPE)	< 2.0	< 2.0	< 2.0	< 2.0	--	--
Ethanol	< 200.0	< 200.0	< 200.0	< 200.0	--	--
Ethyl tert-Butyl Ether (ETBE)	< 2.0	< 2.0	< 2.0	< 2.0	--	--
Ethylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Hexachlorobutadiene	--	--	--	--	< 10	< 1.0
Isopropylbenzene	--	--	--	--	**10**	< 0.50
Methylene chloride	< 1.0	< 1.0	< 1.0	< 1.0	< 50	< 5.0
MTBE	< 2.0	< 2.0	< 2.0	< 2.0	< 50	< 5.0
Naphthalene	--	--	--	--	**24**	< 1.0

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-07	MFC-08	MFC-09	MFC-11	MFC-12	MFC-13
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/28/02	3/28/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
(Continued)						
n-Butylbenzene	--	--	--	--	< 10	< 1.0
n-Propylbenzene	--	--	--	--	**21**	< 1.0
p-Isopropyltoluene	--	--	--	--	< 10	< 1.0
sec-Butylbenzene	--	--	--	--	< 10	< 1.0
Styrene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
tert-Amyl Ethyl Ether (TAME)	< 2.0	< 2.0	< 2.0	< 2.0	--	--
tert-Butylbenzene	--	--	--	--	< 10	< 1.0
Tertiary Butanol (TBA)	< 50.0	< 50.0	< 50.0	< 50.0	--	--
Tetrachloroethene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Toluene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
trans-1,2-Dichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	**0.74**
trans-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 0.50
Trichloroethene	< 1.0	< 1.0	< 1.0	< 1.0	**10**	**29**
Trichlorofluoromethane	--	--	--	--	< 10	< 1.0
Trichlorotrifluoroethane	--	--	--	--	< 5.0	< 0.50
Vinyl acetate	< 5.0	< 5.0	< 5.0	< 5.0	< 250	< 25
Vinyl chloride	**31**	< 3.0	< 3.0	< 3.0	< 5.0	< 0.50
Xylenes (Total)	< 2.0	< 2.0	< 2.0	< 2.0	< 10	< 1.0

Notes:
GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

µg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-17	MFC-18	MFC-19	MFC-20
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/26/02	3/26/02	3/25/02	3/25/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,1,2-Tetrachloroethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
1,1,1-Trichloroethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
1,1,2,2-Tetrachloroethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
1,1,2-Trichloroethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
1,1-Dichloroethane	< 2.0	**2.8**	< 0.50	< 20	**9.7**	< 1.0
1,1-Dichloroethene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
1,1-Dichloropropene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
1,2,3-Trichlorobenzene	< 4.0	< 4.0	< 1.0	< 40	< 10	--
1,2,4-Trichlorobenzene	< 4.0	< 4.0	< 1.0	< 40	< 10	--
1,2,4-Trimethylbenzene	< 2.0	< 2.0	**0.69**	**50**	< 5.0	--
1,2-Dibromo-3-chloropropane	< 4.0	< 4.0	< 1.0	< 40	< 10	--
1,2-Dibromoethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
1,2-Dichlorobenzene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
1,2-Dichloroethane	< 2.0	< 2.0	< 0.50	< 20	**11**	< 2.0
1,2-Dichloropropane	**200**	**48**	< 0.50	< 20	< 5.0	< 2.0
1,3,5-Trimethylbenzene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
1,3-Dichlorobenzene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
1,3-Dichloropropane	< 4.0	< 4.0	< 1.0	< 40	< 10	--
1,4-Dichlorobenzene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
2,2-Dichloropropane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
2-Butanone(MEK)	< 200	< 200	< 50	< 2000	< 500	< 10.0
2-Chloroethylvinyl ether	< 20	< 20	< 5.0	< 200	< 50	--
2-Chlorotoluene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
2-Hexanone	< 200	< 200	< 50	< 2000	< 500	< 2.0
4-Chlorotoluene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
4-Methyl-2-pentanone (MIBK)	< 200	< 200	< 50	< 2000	< 500	< 2.0
Acetone	< 200	< 200	< 50	< 2000	< 500	< 5.0
Benzene	< 2.0	< 2.0	< 0.50	**78**	**56**	< 1.0
Bromobenzene	< 4.0	< 4.0	< 1.0	< 40	< 10	--
Bromochloromethane	< 4.0	< 4.0	< 1.0	< 40	< 10	--
Bromodichloromethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Bromoform	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Bromomethane	< 4.0	< 4.0	< 1.0	< 40	< 10	< 2.0
Carbon disulfide	< 20	< 20	< 5.0	< 200	< 50	< 1.0
Carbon tetrachloride	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Chlorobenzene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Chloroethane	< 4.0	< 4.0	< 1.0	< 40	**11**	< 2.0
Chloroform	< 4.0	< 4.0	< 1.0	< 40	< 10	< 2.0
Chloromethane	< 4.0	< 4.0	< 1.0	< 40	< 10	< 2.0
cis-1,2-Dichloroethene	**7.2**	**260**	< 0.50	< 20	**650**	< 1.0
cis-1,3-Dichloropropene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Dibromochloromethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Dibromomethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
Dichlorodifluoromethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
di-Isopropyl Ether (DIPE)	--	--	--	--	--	< 2.0
Ethanol	--	--	--	--	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	--	--	--	--	--	< 2.0
Ethylbenzene	< 2.0	< 2.0	< 0.50	**34**	**46**	< 1.0
Hexachlorobutadiene	< 4.0	< 4.0	< 1.0	< 40	< 10	--
Isopropylbenzene	< 2.0	< 2.0	< 0.50	< 20	**22**	--
Methylene chloride	< 20	< 20	< 5.0	< 200	< 50	< 1.0
MTBE	< 20	< 20	< 5.0	< 200	< 50	< 2.0
Naphthalene	< 4.0	< 4.0	**6.0**	**230**	**330**	--

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-17	MFC-18	MFC-19	MFC-20
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/26/02	3/26/02	3/25/02	3/25/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
(Continued)						
n-Butylbenzene	< 4.0	< 4.0	**1.8**	< 40	**19**	--
n-Propylbenzene	< 4.0	< 4.0	< 1.0	< 40	**29**	--
p-Isopropyltoluene	< 4.0	< 4.0	< 1.0	< 40	< 10	--
sec-Butylbenzene	< 4.0	< 4.0	**1.3**	< 40	**12**	--
Styrene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	--	--	--	--	--	< 2.0
tert-Butylbenzene	< 4.0	< 4.0	< 1.0	< 40	< 10	--
Tertiary Butanol (TBA)	--	--	--	--	--	< 50.0
Tetrachloroethene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Toluene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
trans-1,2-Dichloroethene	< 2.0	**22**	< 0.50	< 20	**130**	< 1.0
trans-1,3-Dichloropropene	< 2.0	< 2.0	< 0.50	< 20	< 5.0	< 1.0
Trichloroethene	**2.7**	**3.2**	< 0.50	< 20	< 5.0	< 1.0
Trichlorofluoromethane	< 4.0	< 4.0	< 1.0	< 40	< 10	--
Trichlorotrifluoroethane	< 2.0	< 2.0	< 0.50	< 20	< 5.0	--
Vinyl acetate	< 100	< 100	< 25	< 1000	< 250	< 5.0
Vinyl chloride	< 2.0	**3.6**	< 0.50	< 20	**180**	< 3.0
Xylenes (Total)	< 4.0	< 4.0	< 1.0	< 40	**11**	< 2.0

Notes:
GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

µg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-21	MFC-23	MFC-25	MFC-26	MFC-27	MFC-28
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/25/02	3/28/02	3/28/02	3/28/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,1,2-Tetrachloroethane	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,1,1-Trichloroethane	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
1,1,2,2-Tetrachloroethane	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
1,1,2-Trichloroethane	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
1,1-Dichloroethane	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
1,1-Dichloroethene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
1,1-Dichloropropene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,2,3-Trichlorobenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
1,2,4-Trichlorobenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
1,2,4-Trimethylbenzene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,2-Dibromo-3-chloropropane	< 1.0	< 1.0	--	< 1.0	--	< 1.0
1,2-Dibromoethane	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,2-Dichlorobenzene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,2-Dichloroethane	< 0.50	< 0.50	< 2.0	< 0.50	< 2.0	< 0.50
1,2-Dichloropropane	< 0.50	< 0.50	< 2.0	< 0.50	< 2.0	< 0.50
1,3,5-Trimethylbenzene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,3-Dichlorobenzene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
1,3-Dichloropropane	< 1.0	< 1.0	--	< 1.0	--	< 1.0
1,4-Dichlorobenzene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
2,2-Dichloropropane	< 0.50	< 0.50	--	< 0.50	--	< 0.50
2-Butanone(MEK)	< 50	< 50	< 10.0	< 50	< 10.0	< 50
2-Chloroethylvinyl ether	< 5.0	< 5.0	--	< 5.0	--	< 5.0
2-Chlorotoluene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
2-Hexanone	< 50	< 50	< 2.0	< 50	< 2.0	< 50
4-Chlorotoluene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 2.0	< 50	< 2.0	< 50
Acetone	< 50	< 50	< 5.0	< 50	< 5.0	< 50
Benzene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Bromobenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
Bromochloromethane	< 1.0	< 1.0	--	< 1.0	--	< 1.0
Bromodichloromethane	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Bromoform	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Bromomethane	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0
Carbon disulfide	< 5.0	< 5.0	< 1.0	< 5.0	< 1.0	< 5.0
Carbon tetrachloride	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Chlorobenzene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Chloroethane	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0
Chloroform	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0
Chloromethane	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0
cis-1,2-Dichloroethene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Dibromochloromethane	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Dibromomethane	< 0.50	< 0.50	--	< 0.50	--	< 0.50
Dichlorodifluoromethane	< 0.50	< 0.50	--	< 0.50	--	< 0.50
di-Isopropyl Ether (DIPE)	--	--	< 2.0	--	< 2.0	--
Ethanol	--	--	< 200.0	--	< 200.0	--
Ethyl tert-Butyl Ether (ETBE)	--	--	< 2.0	--	< 2.0	--
Ethylbenzene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Hexachlorobutadiene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
Isopropylbenzene	< 0.50	< 0.50	--	< 0.50	--	< 0.50
Methylene chloride	< 5.0	< 5.0	< 1.0	< 5.0	< 1.0	< 5.0
MTBE	< 5.0	< 5.0	< 2.0	< 5.0	< 2.0	< 5.0
Naphthalene	< 1.0	< 1.0	--	< 1.0	--	**4.6**

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-21	MFC-23	MFC-25	MFC-26	MFC-27	MFC-28
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/25/02	3/28/02	3/28/02	3/28/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
(Continued)						
n-Butylbenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
n-Propylbenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
p-Isopropyltoluene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
sec-Butylbenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
Styrene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
tert-Amyl Ethyl Ether (TAME)	--	--	< 2.0	--	< 2.0	--
tert-Butylbenzene	< 1.0	< 1.0	--	< 1.0	--	< 1.0
Tertiary Butanol (TBA)	--	--	< 50.0	--	< 50.0	--
Tetrachloroethene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Toluene	< 0.50	< 0.50	< 1.0	< 0.50	**1.2**	< 0.50
trans-1,2-Dichloroethene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Trichloroethene	< 0.50	< 0.50	< 1.0	< 0.50	< 1.0	< 0.50
Trichlorofluoromethane	< 1.0	< 1.0	--	< 1.0	--	< 1.0
Trichlorotrifluoroethane	< 0.50	< 0.50	--	< 0.50	--	< 0.50
Vinyl acetate	< 25	< 25	< 5.0	< 25	< 5.0	< 25
Vinyl chloride	< 0.50	< 0.50	< 3.0	< 0.50	< 3.0	< 0.50
Xylenes (Total)	< 1.0	< 1.0	< 2.0	< 1.0	< 2.0	< 1.0

Notes:
GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

µg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-31	MFC-33	MFC-33	MFC-34	MFC-35
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/02	3/25/02	3/25/02	3/25/02	3/25/02	3/25/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,1,2-Tetrachloroethane	--	< 2.0	< 1.0	--	< 0.50	--
1,1,1-Trichloroethane	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
1,1,2-Trichloroethane	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
1,1-Dichloroethane	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
1,1-Dichloroethene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
1,1-Dichloropropene	--	< 2.0	< 1.0	--	< 0.50	--
1,2,3-Trichlorobenzene	--	< 4.0	< 2.0	--	< 1.0	--
1,2,4-Trichlorobenzene	--	< 4.0	< 2.0	--	< 1.0	--
1,2,4-Trimethylbenzene	--	< 2.0	< 1.0	--	< 0.50	--
1,2-Dibromo-3-chloropropane	--	< 4.0	< 2.0	--	< 1.0	--
1,2-Dibromoethane	--	< 2.0	< 1.0	--	< 0.50	--
1,2-Dichlorobenzene	--	< 2.0	< 1.0	--	< 0.50	--
1,2-Dichloroethane	< 2.0	< 2.0	< 1.0	< 2.0	< 0.50	< 2.0
1,2-Dichloropropane	< 2.0	< 2.0	< 1.0	< 2.0	< 0.50	< 2.0
1,3,5-Trimethylbenzene	--	< 2.0	< 1.0	--	< 0.50	--
1,3-Dichlorobenzene	--	< 2.0	< 1.0	--	< 0.50	--
1,3-Dichloropropane	--	< 4.0	< 2.0	--	< 1.0	--
1,4-Dichlorobenzene	--	< 2.0	< 1.0	--	< 0.50	--
2,2-Dichloropropane	--	< 2.0	< 1.0	--	< 0.50	--
2-Butanone(MEK)	< 10.0	< 200	< 100	< 10.0	< 50	< 10.0
2-Chloroethylvinyl ether	--	< 20	< 10	--	< 5.0	--
2-Chlorotoluene	--	< 2.0	< 1.0	--	< 0.50	--
2-Hexanone	< 2.0	< 200	< 100	< 2.0	< 50	< 2.0
4-Chlorotoluene	--	< 2.0	< 1.0	--	< 0.50	--
4-Methyl-2-pentanone (MIBK)	< 2.0	< 200	< 100	< 2.0	< 50	< 2.0
Acetone	< 5.0	< 200	< 100	< 5.0	< 50	< 5.0
Benzene	< 1.0	**11**	**2.1**	**1.6**	< 0.50	**7.0**
Bromobenzene	--	< 4.0	< 2.0	--	< 1.0	--
Bromochloromethane	--	< 4.0	< 2.0	--	< 1.0	--
Bromodichloromethane	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Bromoform	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Bromomethane	< 2.0	< 4.0	< 2.0	< 2.0	< 1.0	< 2.0
Carbon disulfide	< 1.0	< 20	< 10	< 1.0	< 5.0	< 1.0
Carbon tetrachloride	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Chlorobenzene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Chloroethane	< 2.0	< 4.0	< 2.0	< 2.0	< 1.0	< 2.0
Chloroform	< 2.0	< 4.0	< 2.0	< 2.0	< 1.0	< 2.0
Chloromethane	< 2.0	< 4.0	< 2.0	< 2.0	< 1.0	< 2.0
cis-1,2-Dichloroethene	< 1.0	< 2.0	**1.6**	**1.2**	< 0.50	<1.0
cis-1,3-Dichloropropene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Dibromochloromethane	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Dibromomethane	--	< 2.0	< 1.0	--	< 0.50	--
Dichlorodifluoromethane	--	< 2.0	< 1.0	--	< 0.50	--
di-Isopropyl Ether (DIPE)	< 2.0	--	--	< 2.0	--	< 2.0
Ethanol	< 200.0	--	--	< 200.0	--	< 200.0
Ethyl tert-Butyl Ether (ETBE)	< 2.0	--	--	< 2.0	--	< 2.0
Ethylbenzene	< 1.0	**2.0**	< 1.0	< 1.0	< 0.50	**8.3**
Hexachlorobutadiene	--	< 4.0	< 2.0	--	< 1.0	--
Isopropylbenzene	--	**16**	**1.3**	--	< 0.50	--
Methylene chloride	< 1.0	< 20	< 10	< 1.0	< 5.0	< 1.0
MTBE	< 2.0	< 20	< 10	< 2.0	< 5.0	< 2.0
Naphthalene	--	**350**	**43**	--	< 1.0	--

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-31	MFC-33	MFC-33	MFC-34	MFC-35
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/28/02	3/25/02	3/25/02	3/25/02	3/25/02	3/25/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
(Continued)						
n-Butylbenzene	--	< 4.0	**6.2**	--	< 1.0	--
n-Propylbenzene	--	**24**	< 2.0	--	< 1.0	--
p-Isopropyltoluene	--	< 4.0	< 2.0	--	< 1.0	--
sec-Butylbenzene	--	**15**	**4.0**	--	< 1.0	--
Styrene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	--	--	< 2.0	--	< 2.0
tert-Butylbenzene	--	< 4.0	< 2.0	--	< 1.0	--
Tertiary Butanol (TBA)	< 50.0	--	--	< 50.0	--	< 50.0
Tetrachloroethene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Toluene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
trans-1,2-Dichloroethene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
trans-1,3-Dichloropropene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Trichloroethene	< 1.0	< 2.0	< 1.0	< 1.0	< 0.50	< 1.0
Trichlorofluoromethane	--	< 4.0	< 2.0	--	< 1.0	--
Trichlorotrifluoroethane	--	< 2.0	< 1.0	--	< 0.50	--
Vinyl acetate	< 5.0	< 100	< 50	< 5.0	< 25	< 5.0
Vinyl chloride	< 3.0	< 2.0	< 1.0	< 3.0	< 0.50	< 3.0
Xylenes (Total)	< 2.0	< 4.0	< 2.0	< 2.0	< 1.0	< 2.0

Notes:

GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

µg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-36	MFC-37	MFC-38	MFC-39	MFC-40
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/25/02	3/26/02	3/26/02	3/27/02	3/26/02
UNITS	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
1,1,1,2-Tetrachloroethane	< 5.0	< 1.0	--	--	--	--
1,1,1-Trichloroethane	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	< 5.0	< 1.0	--	--	--	--
1,2,3-Trichlorobenzene	< 10	< 2.0	--	--	--	--
1,2,4-Trichlorobenzene	< 10	< 2.0	--	--	--	--
1,2,4-Trimethylbenzene	< 5.0	< 1.0	--	--	--	--
1,2-Dibromo-3-chloropropane	< 10	< 2.0	--	--	--	--
1,2-Dibromoethane	< 5.0	< 1.0	--	--	--	--
1,2-Dichlorobenzene	< 5.0	< 1.0	--	--	--	--
1,2-Dichloroethane	< 5.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dichloropropane	< 5.0	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0
1,3,5-Trimethylbenzene	< 5.0	< 1.0	--	--	--	--
1,3-Dichlorobenzene	< 5.0	< 1.0	--	--	--	--
1,3-Dichloropropane	< 10	< 2.0	--	--	--	--
1,4-Dichlorobenzene	< 5.0	< 1.0	--	--	--	--
2,2-Dichloropropane	< 5.0	< 1.0	--	--	--	--
2-Butanone(MEK)	< 500	< 100	< 10.0	< 10.0	< 10.0	< 10.0
2-Chloroethylvinyl ether	< 50	< 10	--	--	--	--
2-Chlorotoluene	< 5.0	< 1.0	--	--	--	--
2-Hexanone	< 500	< 100	< 2.0	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	< 5.0	< 1.0	--	--	--	--
4-Methyl-2-pentanone (MIBK)	< 500	< 100	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	< 500	< 100	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	**8.0**	< 1.0	**1.0**	< 1.0	< 1.0	< 1.0
Bromobenzene	< 10	< 2.0	--	--	--	--
Bromochloromethane	< 10	< 2.0	--	--	--	--
Bromodichloromethane	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon disulfide	< 50	< 10	< 1.0	< 1.0	< 1.0	< 1.0
Carbon tetrachloride	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloromethane	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
cis-1,2-Dichloroethene	< 5.0	< 1.0	<1.0	<1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	< 5.0	< 1.0	--	--	--	--
Dichlorodifluoromethane	< 5.0	< 1.0	--	--	--	--
di-Isopropyl Ether (DIPE)	--	--	< 2.0	< 2.0	**2.6**	< 2.0
Ethanol	--	--	< 200.0	< 200.0	< 200.0	< 200.0
Ethyl tert-Butyl Ether (ETBE)	--	--	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	**14**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	< 10	< 2.0	--	--	--	--
Isopropylbenzene	**12**	< 1.0	--	--	--	--
Methylene chloride	< 50	< 10	< 1.0	< 1.0	< 1.0	< 1.0
MTBE	< 50	**130**	< 2.0	< 2.0	**3.4**	< 2.0
Naphthalene	**200**	< 2.0	--	--	--	--

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-36	MFC-37	MFC-38	MFC-39	MFC-40
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/25/02	3/26/02	3/26/02	3/27/02	3/26/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
(Continued)						
n-Butylbenzene	**19**	< 2.0	--	--	--	--
n-Propylbenzene	**16**	< 2.0	--	--	--	--
p-Isopropyltoluene	< 10	< 2.0	--	--	--	--
sec-Butylbenzene	**15**	< 2.0	--	--	--	--
Styrene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	--	--	< 2.0	< 2.0	< 2.0	< 2.0
tert-Butylbenzene	< 10	< 2.0	--	--	--	--
Tertiary Butanol (TBA)	--	--	< 50.0	< 50.0	< 50.0	< 50.0
Tetrachloroethene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	< 10	< 2.0	--	--	--	--
Trichlorotrifluoroethane	< 5.0	< 1.0	--	--	--	--
Vinyl acetate	< 250	< 50	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl chloride	< 5.0	< 1.0	< 3.0	< 3.0	< 3.0	< 3.0
Xylenes (Total)	< 10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Notes:
GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

µg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-41	MFC-44	MFC-45
MATRIX	GW	GW	GW
COLLECTION DATE	3/26/02	3/26/02	3/28/02
UNITS	µg/L	µg/L	µg/L
1,1,1,2-Tetrachloroethane	--	--	--
1,1,1-Trichloroethane	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	--	--	--
1,2,3-Trichlorobenzene	--	--	--
1,2,4-Trichlorobenzene	--	--	--
1,2,4-Trimethylbenzene	--	--	--
1,2-Dibromo-3-chloropropane	--	--	--
1,2-Dibromoethane	--	--	--
1,2-Dichlorobenzene	--	--	--
1,2-Dichloroethane	< 2.0	< 2.0	< 2.0
1,2-Dichloropropane	< 2.0	< 2.0	< 2.0
1,3,5-Trimethylbenzene	--	--	--
1,3-Dichlorobenzene	--	--	--
1,3-Dichloropropane	--	--	--
1,4-Dichlorobenzene	--	--	--
2,2-Dichloropropane	--	--	--
2-Butanone(MEK)	< 10.0	< 10.0	< 10.0
2-Chloroethylvinyl ether	--	--	--
2-Chlorotoluene	--	--	--
2-Hexanone	< 2.0	< 2.0	< 2.0
4-Chlorotoluene	--	--	--
4-Methyl-2-pentanone (MIBK)	< 2.0	< 2.0	< 2.0
Acetone	< 5.0	< 5.0	< 5.0
Benzene	< 1.0	< 1.0	< 1.0
Bromobenzene	--	--	--
Bromochloromethane	--	--	--
Bromodichloromethane	< 1.0	< 1.0	< 1.0
Bromoform	< 1.0	< 1.0	< 1.0
Bromomethane	< 2.0	< 2.0	< 2.0
Carbon disulfide	< 1.0	< 1.0	< 1.0
Carbon tetrachloride	< 1.0	< 1.0	< 1.0
Chlorobenzene	< 1.0	< 1.0	< 1.0
Chloroethane	< 2.0	< 2.0	< 2.0
Chloroform	< 2.0	< 2.0	< 2.0
Chloromethane	< 2.0	< 2.0	< 2.0
cis-1,2-Dichloroethene	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0
Dibromochloromethane	< 1.0	< 1.0	< 1.0
Dibromomethane	--	--	--
Dichlorodifluoromethane	--	--	--
di-Isopropyl Ether (DIPE)	< 2.0	< 2.0	< 2.0
Ethanol	< 200.0	< 200.0	< 200.0
Ethyl tert-Butyl Ether (ETBE)	< 2.0	< 2.0	< 2.0
Ethylbenzene	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	--	--	--
Isopropylbenzene	--	--	--
Methylene chloride	< 1.0	< 1.0	< 1.0
MTBE	< 2.0	< 2.0	< 2.0
Naphthalene	--	--	--

TABLE 6: GROUNDWATER CHEMICAL TEST RESULTS - Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-41	MFC-44	MFC-45
MATRIX	GW	GW	GW
COLLECTION DATE	3/26/02	3/26/02	3/28/02
UNITS	μg/L	μg/L	μg/L
(Continued)			
n-Butylbenzene	--	--	--
n-Propylbenzene	--	--	--
p-Isopropyltoluene	--	--	--
sec-Butylbenzene	--	--	--
Styrene	< 1.0	< 1.0	< 1.0
tert-Amyl Ethyl Ether (TAME)	< 2.0	< 2.0	< 2.0
tert-Butylbenzene	--	--	--
Tertiary Butanol (TBA)	< 50.0	< 50.0	< 50.0
Tetrachloroethene	< 1.0	**1.3**	< 1.0
Toluene	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	< 1.0	< 1.0	< 1.0
Trichloroethene	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	--	--	--
Trichlorotrifluoroethane	--	--	--
Vinyl acetate	< 5.0	< 5.0	< 5.0
Vinyl chloride	< 3.0	< 3.0	< 3.0
Xylenes (Total)	< 2.0	< 2.0	< 2.0

Notes:
GW = Grab Groundwater

All Grab Groundwater samples were collected from temporary wells.

-- = Not Analyzed

μg/L = micrograms per liter

All samples were analyzed for Volatile Organic Compounds (VOCs) be EPA Method 8260(B).

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-03	MFC-05	MFC-07	MFC-10	MFC-13
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02
SAMPLE DEPTH (1)	4.0	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
1,1,1,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,1-Trichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2,3-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dibromo-3-chloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3,5-Trimethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone(MEK)	< 50	< 50	< 50	< 50	< 50	< 50
2-Chloroethylvinyl ether	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Hexanone	< 50	< 50	< 50	< 50	< 50	< 50
4-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromomethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	**1.4**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromomethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Ethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-03	MFC-05	MFC-07	MFC-10	MFC-13
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02
SAMPLE DEPTH [(1)]	4.0	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
(Continued)						
Isopropylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene chloride	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
tert-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Toluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	**1.6**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichlorofluoromethane	< 1.0	< 1.0	**1.4**	< 1.0	< 1.0	< 1.0
Trichlorotrifluoroethane	< 1.0	< 1.0	**2.1**	< 1.0	< 1.0	< 1.0
Vinyl acetate	< 25	< 25	< 25	< 25	< 25	< 25
Vinyl chloride	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Xylenes (Total)	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Notes:

(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

µg/L = micograms per liter

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-16	MFC-17	MFC-18	MFC-19
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/27/02	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02
SAMPLE DEPTH (1)	4.0	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
1,1,1,2-Tetrachloroethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,1,1-Trichloroethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,1,2-Trichloroethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,2,3-Trichlorobenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	< 0.50	< 0.50	< 2.5	**0.56**	< 0.50	**0.57**
1,2-Dibromo-3-chloropropane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,3,5-Trimethylbenzene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
1,3-Dichloropropane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
2,2-Dichloropropane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
2-Butanone(MEK)	< 50	< 50	< 250	< 50	< 50	< 50
2-Chloroethylvinyl ether	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
2-Hexanone	< 50	< 50	< 250	< 50	< 50	< 50
4-Chlorotoluene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 250	< 50	< 50	< 50
Acetone	< 50	< 50	< 250	< 50	< 50	< 50
Benzene	< 0.50	**0.88**	**170**	< 0.50	**1.7**	**12**
Bromobenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Bromoform	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Bromomethane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Chlorobenzene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Chloroethane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Chloroform	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Chloromethane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Dibromochloromethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Dibromomethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Ethylbenzene	< 0.50	< 0.50	**7.1**	< 0.50	< 0.50	**6.8**
Hexachlorobutadiene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14	MFC-15	MFC-16	MFC-17	MFC-18	MFC-19
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/27/02	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02
SAMPLE DEPTH [(1)]	4.0	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
(Continued)						
Isopropylbenzene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	**2.2**
Methylene chloride	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0
MTBE	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0
n-Butylbenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	**2.1**
Naphthalene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	**1.2**
Styrene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
tert-Butylbenzene	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Toluene	< 0.50	< 0.50	< 2.5	**0.54**	< 0.50	< 0.50
trans-1,2-Dichloroethene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Trichloroethene	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 0.50
Trichlorofluoromethane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Trichlorotrifluoroethane	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 1.0
Vinyl acetate	< 25	< 25	< 130	< 25	< 25	< 25
Vinyl chloride	< 0.50	**7.3**	< 2.5	< 0.50	**4.3**	< 0.50
Xylenes (Total)	< 0.50	< 1.0	**14**	**1.2**	< 1.0	**2.5**

Notes:

(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

μg/L = micograms per liter

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-23	MFC-28	MFC-29	MFC-31	MFC-33	MFC-35
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/28/02	3/28/02	3/28/02	3/25/02	3/25/02	3/25/02
SAMPLE DEPTH (1)	4.0	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
1,1,1,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,1-Trichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2,3-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dibromo-3-chloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3,5-Trimethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone(MEK)	< 50	< 50	< 50	< 50	< 50	< 50
2-Chloroethylvinyl ether	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Hexanone	< 50	< 50	< 50	< 50	< 50	< 50
4-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	< 50	< 50	< 50	< 50	< 50	< 50
Benzene	< 0.50	< 0.50	< 0.50	**1.0**	< 0.50	**0.50**
Bromobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromomethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromomethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Ethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-23	MFC-28	MFC-29	MFC-31	MFC-33	MFC-35
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/28/02	3/28/02	3/28/02	3/25/02	3/25/02	3/25/02
SAMPLE DEPTH (1)	4.0	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
(Continued)						
Isopropylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene chloride	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
tert-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Toluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichlorofluoromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorotrifluoroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl acetate	< 25	< 25	< 25	< 25	< 25	< 25
Vinyl chloride	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Xylenes (Total)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

μg/L = micograms per liter

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-36	MFC-37	MFC-38	MFC-41	MFC-45
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/28/02	37340	3/28/02	3/28/02	3/28/02
SAMPLE DEPTH (1)	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L
1,1,1,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,1-Trichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2,3-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dibromo-3-chloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3,5-Trimethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichloropropane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,2-Dichloropropane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone(MEK)	< 50	< 50	< 50	< 50	< 50
2-Chloroethylvinyl ether	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Hexanone	< 50	< 50	< 50	< 50	< 50
4-Chlorotoluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Methyl-2-pentanone (MIBK)	< 50	< 50	< 50	< 50	< 50
Acetone	< 50	< 50	< 50	< 50	< 50
Benzene	< 0.50	**0.53**	< 0.50	< 0.50	< 0.50
Bromobenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromomethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon disulfide	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbon tetrachloride	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromochloromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibromomethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichlorodifluoromethane	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Ethylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TABLE 7: SOIL GAS CHEMICAL TEST RESULTS -Volatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-36	MFC-37	MFC-38	MFC-41	MFC-45
MATRIX	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
COLLECTION DATE	3/28/02	37340	3/28/02	3/28/02	3/28/02
SAMPLE DEPTH (1)	4.0	4.0	4.0	4.0	4.0
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L
(Continued)					
Isopropylbenzene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene chloride	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE	**21**	< 5.0	< 5.0	< 5.0	< 5.0
n-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
tert-Butylbenzene	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Toluene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichlorofluoromethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorotrifluoroethane	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl acetate	< 25	< 25	< 25	< 25	< 25
Vinyl chloride	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Xylenes (Total)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

(1) Soil Gas samples collected at an average depth of 4.0 feet below ground surface (bgs).

µg/L = micograms per liter

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 (B).

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-02	MFC-03	MFC-04
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/26/02
DEPTH [1]	COMP [2]	COMP [2]	COMP [2]	COMP [2]
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 1.7	< 0.067	< 0.13	< 1.3
1,2-Dichlorobenzene	< 1.7	< 0.067	< 0.13	< 1.3
1,3-Dichlorobenzene	< 1.7	< 0.067	< 0.13	< 1.3
1,4-Dichlorobenzene	< 1.7	< 0.067	< 0.13	< 1.3
2,4,5-Trichlorophenol	< 1.7	< 0.067	< 0.13	< 1.3
2,4,6-Trichlorophenol	< 1.7	< 0.067	< 0.13	< 1.3
2,4-Dichlorophenol	< 1.7	< 0.067	< 0.13	< 1.3
2,4-Dimethylphenol	< 1.7	< 0.067	< 0.13	< 1.3
2,4-Dinitrophenol	< 8.3	< 0.33	< 0.66	< 6.6
2,4-Dinitrotoluene	< 1.7	< 0.067	< 0.13	< 1.3
2,6-Dinitrotoluene	< 1.7	< 0.067	< 0.13	< 1.3
2-Chloronaphthalene	< 1.7	< 0.067	< 0.13	< 1.3
2-Chlorophenol	< 1.7	< 0.067	< 0.13	< 1.3
2-Methyl-4,6-dinitrophenol	< 8.3	< 0.33	< 0.66	< 6.6
2-Methylnaphthalene	< 1.7	< 0.067	< 0.13	**18**
2-Methylphenol	< 1.7	< 0.067	< 0.13	< 1.3
2-Nitroaniline	< 8.3	< 0.33	< 0.66	< 6.6
2-Nitrophenol	< 1.7	< 0.067	< 0.13	< 1.3
3,3-Dichlorobenzidine	< 4.3	< 0.17	< 0.34	< 3.4
3-Nitroaniline	< 1.7	< 0.067	< 0.13	< 1.3
4-Bromophenyl phenyl ether	< 4.3	< 0.17	< 0.34	< 3.4
4-Chloro-3-methylphenol	< 4.3	< 0.17	< 0.34	< 3.4
4-Chloroaniline	< 1.7	< 0.067	< 0.13	< 1.3
4-Chlorophenyl phenyl ether	< 4.3	< 0.17	< 0.34	< 3.4
4-Methylphenol	< 1.7	< 0.067	< 0.13	< 1.3
4-Nitroaniline	< 8.3	< 0.33	< 0.66	< 6.6
4-Nitrophenol	< 8.3	< 0.33	< 0.66	< 6.6
Acenaphthene	< 1.7	< 0.067	< 0.13	**14**
Acenaphthylene	< 1.7	< 0.067	< 0.13	< 1.3
Anthracene	< 1.7	< 0.067	< 0.13	**12**
Benzo(a)anthracene	< 1.7	< 0.067	< 0.13	**4.0**
Benzo(a)pyrene	< 1.7	< 0.067	< 0.13	< 1.3
Benzo(b)fluoranthene	< 1.7	< 0.067	< 0.13	< 1.3
Benzo(g,h,i)perylene	< 1.7	< 0.067	< 0.13	< 1.3
Benzo(k)fluoranthene	< 1.7	< 0.067	< 0.13	< 1.3
Benzoic acid	< 8.3	< 0.33	< 0.66	< 6.6
Benzyl alcohol	< 4.3	< 0.17	< 0.34	< 3.4
Bis(2-chloroethoxy) methane	< 4.3	< 0.17	< 0.34	< 3.4
Bis(2-chloroethyl)ether	< 1.7	< 0.067	< 0.13	< 1.3
Bis(2-chloroisopropyl) ether	< 1.7	< 0.067	< 0.13	< 1.3
bis(2-Ethylhexyl) phthalate	< 8.3	< 0.33	< 0.66	< 6.6
Butyl benzyl phthalate	< 4.3	< 0.17	< 0.34	< 3.4
Chrysene	< 1.7	< 0.067	< 0.13	**2.9**
Di-n-butyl phthalate	< 4.3	< 0.17	< 0.34	< 3.4
Di-n-octyl phthalate	< 4.3	< 0.17	< 0.34	< 3.4
Dibenzo(a,h)anthracene	< 1.7	< 0.067	< 0.13	< 1.3
Dibenzofuran	< 1.7	< 0.067	< 0.13	**8.5**
Diethyl phthalate	< 4.3	< 0.17	< 0.34	< 3.4
Dimethyl phthalate	< 4.3	< 0.17	< 0.34	< 3.4

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-02	MFC-03	MFC-04
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/26/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 1.7	< 0.067	< 0.13	**15**
Fluorene	< 1.7	< 0.067	< 0.13	**12**
Hexachlorobenzene	< 1.7	< 0.067	< 0.13	< 1.3
Hexachlorobutadiene	< 1.7	< 0.067	< 0.13	< 1.3
Hexachlorocyclopentadiene	< 4.3	< 0.17	< 0.34	< 3.4
Hexachloroethane	< 1.7	< 0.067	< 0.13	< 1.3
Indeno(1,2,3-c,d)pyrene	< 1.7	< 0.067	< 0.13	< 1.3
Isophorone	< 1.7	< 0.067	< 0.13	< 1.3
N-Nitroso-di-n-propylamine	< 1.7	< 0.067	< 0.13	< 1.3
N-Nitrosodiphenylamine	< 1.7	< 0.067	< 0.13	< 1.3
Naphthalene	< 1.7	< 0.067	< 0.13	**5.9**
Nitrobenzene	< 1.7	< 0.067	< 0.13	< 1.3
Pentachlorophenol	< 8.3	< 0.33	< 0.66	< 6.6
Phenanthrene	< 1.7	< 0.067	< 0.13	**36**
Phenol	< 1.7	< 0.067	< 0.13	< 1.3
Pyrene	< 1.7	< 0.067	< 0.13	**15**

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-05	MFC-06	MFC-07	MFC-08
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/26/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.67	< 0.67	< 0.67	< 1.3
1,2-Dichlorobenzene	< 0.67	< 0.67	< 0.67	< 1.3
1,3-Dichlorobenzene	< 0.67	< 0.67	< 0.67	< 1.3
1,4-Dichlorobenzene	< 0.67	< 0.67	< 0.67	< 1.3
2,4,5-Trichlorophenol	< 0.67	< 0.67	< 0.67	< 1.3
2,4,6-Trichlorophenol	< 0.67	< 0.67	< 0.67	< 1.3
2,4-Dichlorophenol	< 0.67	< 0.67	< 0.67	< 1.3
2,4-Dimethylphenol	< 0.67	< 0.67	< 0.67	< 1.3
2,4-Dinitrophenol	< 3.3	< 3.3	< 3.3	< 6.6
2,4-Dinitrotoluene	< 0.67	< 0.67	< 0.67	< 1.3
2,6-Dinitrotoluene	< 0.67	< 0.67	< 0.67	< 1.3
2-Chloronaphthalene	< 0.67	< 0.67	< 0.67	< 1.3
2-Chlorophenol	< 0.67	< 0.67	< 0.67	< 1.3
2-Methyl-4,6-dinitrophenol	< 3.3	< 3.3	< 3.3	< 6.6
2-Methylnaphthalene	< 0.67	< 0.67	< 0.67	< 1.3
2-Methylphenol	< 0.67	< 0.67	< 0.67	< 1.3
2-Nitroaniline	< 3.3	< 3,3	< 3.3	< 6.6
2-Nitrophenol	< 0.67	< 0.67	< 0.67	< 1.3
3,3-Dichlorobenzidine	< 1.7	< 1.7	< 1.7	< 3.4
3-Nitroaniline	< 0.67	< 0.67	< 0.67	< 1.3
4-Bromophenyl phenyl ether	< 1.7	< 1.7	< 1.7	< 3.4
4-Chloro-3-methylphenol	< 1.7	< 1.7	< 1.7	< 3.4
4-Chloroaniline	< 0.67	< 0.67	< 0.67	< 1.3
4-Chlorophenyl phenyl ether	< 1.7	< 1.7	< 1.7	< 3.4
4-Methylphenol	< 0.67	< 0.67	< 0.67	< 1.3
4-Nitroaniline	< 3.3	< 3.3	< 3.3	< 6.6
4-Nitrophenol	< 3.3	< 3.3	< 3.3	< 6.6
Acenaphthene	< 0.67	< 0.67	< 0.67	< 1.3
Acenaphthylene	< 0.67	< 0.67	< 0.67	< 1.3
Anthracene	< 0.67	< 0.67	< 0.67	< 1.3
Benzo(a)anthracene	< 0.67	< 0.67	< 0.67	< 1.3
Benzo(a)pyrene	< 0.67	< 0.67	< 0.67	< 1.3
Benzo(b)fluoranthene	< 0.67	< 0.67	< 0.67	< 1.3
Benzo(g,h,i)perylene	< 0.67	< 0.67	< 0.67	< 1.3
Benzo(k)fluoranthene	< 0.67	< 0.67	< 0.67	< 1.3
Benzoic acid	< 3.3	< 3.3	< 3.3	< 6.6
Benzyl alcohol	< 1.7	< 1.7	< 1.7	< 3.4
Bis(2-chloroethoxy) methane	< 1.7	< 1.7	< 1.7	< 3.4
Bis(2-chloroethyl)ether	< 0.67	< 0.67	< 0.67	< 1.3
Bis(2-chloroisopropyl) ether	< 0.67	< 0.67	< 0.67	< 1.3
bis(2-Ethylhexyl) phthalate	< 3.3	< 3.3	< 3.3	< 6.6
Butyl benzyl phthalate	< 1.7	< 1.7	< 1.7	< 3.4
Chrysene	< 0.67	< 0.67	< 0.67	< 1.3
Di-n-butyl phthalate	< 1.7	< 1.7	< 1.7	< 3.4
Di-n-octyl phthalate	< 1.7	< 1.7	< 1.7	< 3.4
Dibenzo(a,h)anthracene	< 0.67	< 0.67	< 0.67	< 1.3
Dibenzofuran	< 0.67	< 0.67	< 0.67	< 1.3
Diethyl phthalate	< 1.7	< 1.7	< 1.7	< 3.4
Dimethyl phthalate	< 1.7	< 1.7	< 1.7	< 3.4

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-05	MFC-06	MFC-07	MFC-08
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/26/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.67	< 0.67	< 0.67	< 1.3
Fluorene	< 0.67	< 0.67	< 0.67	< 1.3
Hexachlorobenzene	< 0.67	< 0.67	< 0.67	< 1.3
Hexachlorobutadiene	< 0.67	< 0.67	< 0.67	< 1.3
Hexachlorocyclopentadiene	< 1.7	< 1.7	< 1.7	< 3.4
Hexachloroethane	< 0.67	< 0.67	< 0.67	< 1.3
Indeno(1,2,3-c,d)pyrene	< 0.67	< 0.67	< 0.67	< 1.3
Isophorone	< 0.67	< 0.67	< 0.67	< 1.3
N-Nitroso-di-n-propylamine	< 0.67	< 0.67	< 0.67	< 1.3
N-Nitrosodiphenylamine	< 0.67	< 0.67	< 0.67	< 1.3
Naphthalene	< 0.67	< 0.67	< 0.67	< 1.3
Nitrobenzene	< 0.67	< 0.67	< 0.67	< 1.3
Pentachlorophenol	< 3.3	< 3.3	< 3.3	< 6.6
Phenanthrene	< 0.67	< 0.67	< 0.67	< 1.3
Phenol	< 0.67	< 0.67	< 0.67	< 1.3
Pyrene	< 0.67	< 0.67	< 0.67	< 1.3

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-09	MFC-10	MFC-11	MFC-12
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/27/02	3/27/02	3/26/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.67	< 0.067	< 0.67	< 1.7
1,2-Dichlorobenzene	< 0.67	< 0.067	< 0.67	< 1.7
1,3-Dichlorobenzene	< 0.67	< 0.067	< 0.67	< 1.7
1,4-Dichlorobenzene	< 0.67	< 0.067	< 0.67	< 1.7
2,4,5-Trichlorophenol	< 0.67	< 0.067	< 0.67	< 1.7
2,4,6-Trichlorophenol	< 0.67	< 0.067	< 0.67	< 1.7
2,4-Dichlorophenol	< 0.67	< 0.067	< 0.67	< 1.7
2,4-Dimethylphenol	< 0.67	< 0.067	< 0.67	< 1.7
2,4-Dinitrophenol	< 3.3	< 0.33	< 3.3	< 8.3
2,4-Dinitrotoluene	< 0.67	< 0.067	< 0.67	< 1.7
2,6-Dinitrotoluene	< 0.67	< 0.067	< 0.67	< 1.7
2-Chloronaphthalene	< 0.67	< 0.067	< 0.67	< 1.7
2-Chlorophenol	< 0.67	< 0.067	< 0.67	< 1.7
2-Methyl-4,6-dinitrophenol	< 3.3	< 0.33	< 3.3	< 8.3
2-Methylnaphthalene	< 0.67	< 0.067	< 0.67	< 1.7
2-Methylphenol	< 0.67	< 0.067	< 0.67	< 1.7
2-Nitroaniline	< 3.3	< 0.33	< 3.3	< 8.3
2-Nitrophenol	< 0.67	< 0.067	< 0.67	< 1.7
3,3-Dichlorobenzidine	< 1.7	< 0.17	< 1.7	< 4.3
3-Nitroaniline	< 0.67	< 0.067	< 0.67	< 1.7
4-Bromophenyl phenyl ether	< 1.7	< 0.17	< 1.7	< 4.3
4-Chloro-3-methylphenol	< 1.7	< 0.17	< 1.7	< 4.3
4-Chloroaniline	< 0.67	< 0.067	< 0.67	< 1.7
4-Chlorophenyl phenyl ether	< 1.7	< 0.17	< 1.7	< 4.3
4-Methylphenol	< 0.67	< 0.067	< 0.67	< 1.7
4-Nitroaniline	< 3.3	< 0.33	< 3.3	< 8.3
4-Nitrophenol	< 3.3	< 0.33	< 3.3	< 8.3
Acenaphthene	< 0.67	< 0.067	< 0.67	< 1.7
Acenaphthylene	< 0.67	< 0.067	< 0.67	< 1.7
Anthracene	< 0.67	< 0.067	< 0.67	< 1.7
Benzo(a)anthracene	< 0.67	< 0.067	< 0.67	< 1.7
Benzo(a)pyrene	< 0.67	< 0.067	< 0.67	< 1.7
Benzo(b)fluoranthene	< 0.67	< 0.067	< 0.67	< 1.7
Benzo(g,h,i)perylene	< 0.67	< 0.067	< 0.67	< 1.7
Benzo(k)fluoranthene	< 0.67	< 0.067	< 0.67	< 1.7
Benzoic acid	< 3.3	< 0.33	< 3.3	< 8.3
Benzyl alcohol	< 1.7	< 0.17	< 1.7	< 4.3
Bis(2-chloroethoxy) methane	< 1.7	< 0.17	< 1.7	< 4.3
Bis(2-chloroethyl)ether	< 0.67	< 0.067	< 0.67	< 1.7
Bis(2-chloroisopropyl) ether	< 0.67	< 0.067	< 0.67	< 1.7
bis(2-Ethylhexyl) phthalate	< 3.3	< 0.33	< 3.3	< 8.3
Butyl benzyl phthalate	< 1.7	< 0.17	< 1.7	< 4.3
Chrysene	< 0.67	< 0.067	< 0.67	< 1.7
Di-n-butyl phthalate	< 1.7	< 0.17	< 1.7	< 4.3
Di-n-octyl phthalate	< 1.7	< 0.17	< 1.7	< 4.3
Dibenzo(a,h)anthracene	< 0.67	< 0.067	< 0.67	< 1.7
Dibenzofuran	< 0.67	< 0.067	< 0.67	< 1.7
Diethyl phthalate	< 1.7	< 0.17	< 1.7	< 4.3
Dimethyl phthalate	< 1.7	< 0.17	< 1.7	< 4.3

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-09	MFC-10	MFC-11	MFC-12
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/27/02	3/27/02	3/26/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.67	< 0.067	< 0.67	< 1.7
Fluorene	< 0.67	< 0.067	< 0.67	< 1.7
Hexachlorobenzene	< 0.67	< 0.067	< 0.67	< 1.7
Hexachlorobutadiene	< 0.67	< 0.067	< 0.67	< 1.7
Hexachlorocyclopentadiene	< 1.7	< 0.17	< 1.7	< 4.3
Hexachloroethane	< 0.67	< 0.067	< 0.67	< 1.7
Indeno(1,2,3-c,d)pyrene	< 0.67	< 0.067	< 0.67	< 1.7
Isophorone	< 0.67	< 0.067	< 0.67	< 1.7
N-Nitroso-di-n-propylamine	< 0.67	< 0.067	< 0.67	< 1.7
N-Nitrosodiphenylamine	< 0.67	< 0.067	< 0.67	< 1.7
Naphthalene	< 0.67	< 0.067	< 0.67	< 1.7
Nitrobenzene	< 0.67	< 0.067	< 0.67	< 1.7
Pentachlorophenol	< 3.3	< 0.33	< 3.3	< 8.3
Phenanthrene	< 0.67	< 0.067	< 0.67	< 1.7
Phenol	< 0.67	< 0.067	< 0.67	< 1.7
Pyrene	< 0.67	< 0.067	< 0.67	< 1.7

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-13	MFC-14	MFC-15	MFC-16
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/25/02	3/25/02	3/25/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.34	< 0.067	< 0.34	< 0.067
1,2-Dichlorobenzene	< 0.34	< 0.067	< 0.34	< 0.067
1,3-Dichlorobenzene	< 0.34	< 0.067	< 0.34	< 0.067
1,4-Dichlorobenzene	< 0.34	< 0.067	< 0.34	< 0.067
2,4,5-Trichlorophenol	< 0.34	< 0.067	< 0.34	< 0.067
2,4,6-Trichlorophenol	< 0.34	< 0.067	< 0.34	< 0.067
2,4-Dichlorophenol	< 0.34	< 0.067	< 0.34	< 0.067
2,4-Dimethylphenol	< 0.34	< 0.067	< 0.34	< 0.067
2,4-Dinitrophenol	< 1.7	< 0.33	< 1.7	< 0.33
2,4-Dinitrotoluene	< 0.34	< 0.067	< 0.34	< 0.067
2,6-Dinitrotoluene	< 0.34	< 0.067	< 0.34	< 0.067
2-Chloronaphthalene	< 0.34	< 0.067	< 0.34	< 0.067
2-Chlorophenol	< 0.34	< 0.067	< 0.34	< 0.067
2-Methyl-4,6-dinitrophenol	< 1.7	< 0.33	< 1.7	< 0.33
2-Methylnaphthalene	< 0.34	< 0.067	< 0.34	< 0.067
2-Methylphenol	< 0.34	< 0.067	< 0.34	< 0.067
2-Nitroaniline	< 1.7	< 0.33	< 1.7	< 0.33
2-Nitrophenol	< 0.34	< 0.067	< 0.34	< 0.067
3,3-Dichlorobenzidine	< 0.85	< 0.17	< 0.85	< 0.17
3-Nitroaniline	< 0.34	< 0.067	< 0.34	< 0.067
4-Bromophenyl phenyl ether	< 0.85	< 0.17	< 0.85	< 0.17
4-Chloro-3-methylphenol	< 0.85	< 0.17	< 0.85	< 0.17
4-Chloroaniline	< 0.34	< 0.067	< 0.34	< 0.067
4-Chlorophenyl phenyl ether	< 0.85	< 0.17	< 0.85	< 0.17
4-Methylphenol	< 0.34	< 0.067	< 0.34	< 0.067
4-Nitroaniline	< 1.7	< 0.33	< 1.7	< 0.33
4-Nitrophenol	< 1.7	< 0.33	< 1.7	< 0.33
Acenaphthene	< 0.34	< 0.067	< 0.34	< 0.067
Acenaphthylene	< 0.34	< 0.067	< 0.34	< 0.067
Anthracene	< 0.34	< 0.067	< 0.34	< 0.067
Benzo(a)anthracene	< 0.34	< 0.067	< 0.34	< 0.067
Benzo(a)pyrene	< 0.34	< 0.067	< 0.34	< 0.067
Benzo(b)fluoranthene	< 0.34	< 0.067	< 0.34	< 0.067
Benzo(g,h,i)perylene	< 0.34	< 0.067	< 0.34	< 0.067
Benzo(k)fluoranthene	< 0.34	< 0.067	< 0.34	< 0.067
Benzoic acid	< 1.7	< 0.33	< 1.7	< 0.33
Benzyl alcohol	< 0.85	< 0.17	< 0.85	< 0.17
Bis(2-chloroethoxy) methane	< 0.85	< 0.17	< 0.85	< 0.17
Bis(2-chloroethyl)ether	< 0.34	< 0.067	< 0.34	< 0.067
Bis(2-chloroisopropyl) ether	< 0.34	< 0.067	< 0.34	< 0.067
bis(2-Ethylhexyl) phthalate	< 1.7	< 0.33	< 1.7	< 0.33
Butyl benzyl phthalate	< 0.85	< 0.17	< 0.85	< 0.17
Chrysene	< 0.34	< 0.067	< 0.34	< 0.067
Di-n-butyl phthalate	< 0.85	< 0.17	< 0.85	< 0.17
Di-n-octyl phthalate	< 0.85	< 0.17	< 0.85	< 0.17
Dibenzo(a,h)anthracene	< 0.34	< 0.067	< 0.34	< 0.067
Dibenzofuran	< 0.34	< 0.067	< 0.34	< 0.067
Diethyl phthalate	< 0.85	< 0.17	< 0.85	< 0.17
Dimethyl phthalate	< 0.85	< 0.17	< 0.85	< 0.17

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-13	MFC-14	MFC-15	MFC-16
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/25/02	3/25/02	3/25/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.34	< 0.067	< 0.34	< 0.067
Fluorene	< 0.34	< 0.067	< 0.34	< 0.067
Hexachlorobenzene	< 0.34	< 0.067	< 0.34	< 0.067
Hexachlorobutadiene	< 0.34	< 0.067	< 0.34	< 0.067
Hexachlorocyclopentadiene	< 0.85	< 0.17	< 0.85	< 0.17
Hexachloroethane	< 0.34	< 0.067	< 0.34	< 0.067
Indeno(1,2,3-c,d)pyrene	< 0.34	< 0.067	< 0.34	< 0.067
Isophorone	< 0.34	< 0.067	< 0.34	< 0.067
N-Nitroso-di-n-propylamine	< 0.34	< 0.067	< 0.34	< 0.067
N-Nitrosodiphenylamine	< 0.34	< 0.067	< 0.34	< 0.067
Naphthalene	< 0.34	< 0.067	< 0.34	< 0.067
Nitrobenzene	< 0.34	< 0.067	< 0.34	< 0.067
Pentachlorophenol	< 1.7	< 0.33	< 1.7	< 0.33
Phenanthrene	< 0.34	< 0.067	< 0.34	< 0.067
Phenol	< 0.34	< 0.067	< 0.34	< 0.067
Pyrene	< 0.34	< 0.067	< 0.34	< 0.067

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-17	MFC-18	MFC-19	MFC-20
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/25/02	3/25/02	3/27/02
DEPTH [1]	COMP [2]	COMP [2]	COMP [2]	COMP [2]
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.34	< 0.34	< 0.34	< 1.7
1,2-Dichlorobenzene	< 0.34	< 0.34	< 0.34	< 1.7
1,3-Dichlorobenzene	< 0.34	< 0.34	< 0.34	< 1.7
1,4-Dichlorobenzene	< 0.34	< 0.34	< 0.34	< 1.7
2,4,5-Trichlorophenol	< 0.34	< 0.34	< 0.34	< 1.7
2,4,6-Trichlorophenol	< 0.34	< 0.34	< 0.34	< 1.7
2,4-Dichlorophenol	< 0.34	< 0.34	< 0.34	< 1.7
2,4-Dimethylphenol	< 0.34	< 0.34	< 0.34	< 1.7
2,4-Dinitrophenol	< 1.7	< 1.7	< 1.7	< 8.3
2,4-Dinitrotoluene	< 0.34	< 0.34	< 0.34	< 1.7
2,6-Dinitrotoluene	< 0.34	< 0.34	< 0.34	< 1.7
2-Chloronaphthalene	< 0.34	< 0.34	< 0.34	< 1.7
2-Chlorophenol	< 0.34	< 0.34	< 0.34	< 1.7
2-Methyl-4,6-dinitrophenol	< 1.7	< 1.7	< 1.7	< 8.3
2-Methylnaphthalene	< 0.34	**0.42**	< 0.34	< 1.7
2-Methylphenol	< 0.34	< 0.34	< 0.34	< 1.7
2-Nitroaniline	< 1.7	< 1.7	< 1.7	< 8.3
2-Nitrophenol	< 0.34	< 0.34	< 0.34	< 1.7
3,3-Dichlorobenzidine	< 0.85	< 0.85	< 0.85	< 4.3
3-Nitroaniline	< 0.34	< 0.34	< 0.34	< 1.7
4-Bromophenyl phenyl ether	< 0.85	< 0.85	< 0.85	< 4.3
4-Chloro-3-methylphenol	< 0.85	< 0.85	< 0.85	< 4.3
4-Chloroaniline	< 0.34	< 0.34	< 0.34	< 1.7
4-Chlorophenyl phenyl ether	< 0.85	< 0.85	< 0.85	< 4.3
4-Methylphenol	< 0.34	< 0.34	< 0.34	< 1.7
4-Nitroaniline	< 1.7	< 1.7	< 1.7	< 8.3
4-Nitrophenol	< 1.7	< 1.7	< 1.7	< 8.3
Acenaphthene	< 0.34	< 0.34	< 0.34	< 1.7
Acenaphthylene	< 0.34	< 0.34	< 0.34	< 1.7
Anthracene	< 0.34	< 0.34	< 0.34	< 1.7
Benzo(a)anthracene	< 0.34	< 0.34	< 0.34	< 1.7
Benzo(a)pyrene	< 0.34	< 0.34	< 0.34	< 1.7
Benzo(b)fluoranthene	< 0.34	< 0.34	< 0.34	< 1.7
Benzo(g,h,i)perylene	< 0.34	< 0.34	< 0.34	< 1.7
Benzo(k)fluoranthene	< 0.34	< 0.34	< 0.34	< 1.7
Benzoic acid	< 1.7	< 1.7	< 1.7	< 8.3
Benzyl alcohol	< 0.85	< 0.85	< 0.85	< 4.3
Bis(2-chloroethoxy) methane	< 0.85	< 0.85	< 0.85	< 4.3
Bis(2-chloroethyl)ether	< 0.34	< 0.34	< 0.34	< 1.7
Bis(2-chloroisopropyl) ether	< 0.34	< 0.34	< 0.34	< 1.7
bis(2-Ethylhexyl) phthalate	< 1.7	< 1.7	< 1.7	< 8.3
Butyl benzyl phthalate	< 0.85	< 0.85	< 0.85	< 4.3
Chrysene	< 0.34	< 0.34	< 0.34	< 1.7
Di-n-butyl phthalate	< 0.85	< 0.85	< 0.85	< 4.3
Di-n-octyl phthalate	< 0.85	< 0.85	< 0.85	< 4.3
Dibenzo(a,h)anthracene	< 0.34	< 0.34	< 0.34	< 1.7
Dibenzofuran	< 0.34	< 0.34	< 0.34	< 1.7
Diethyl phthalate	< 0.85	< 0.85	< 0.85	< 4.3
Dimethyl phthalate	< 0.85	< 0.85	< 0.85	< 4.3

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-17	MFC-18	MFC-19	MFC-20
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/25/02	3/25/02	3/27/02
DEPTH [1]	COMP [2]	COMP [2]	COMP [2]	COMP [2]
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.34	< 0.34	< 0.34	< 1.7
Fluorene	< 0.34	< 0.34	< 0.34	< 1.7
Hexachlorobenzene	< 0.34	< 0.34	< 0.34	< 1.7
Hexachlorobutadiene	< 0.34	< 0.34	< 0.34	< 1.7
Hexachlorocyclopentadiene	< 0.85	< 0.85	< 0.85	< 4.3
Hexachloroethane	< 0.34	< 0.34	< 0.34	< 1.7
Indeno(1,2,3-c,d)pyrene	< 0.34	< 0.34	< 0.34	< 1.7
Isophorone	< 0.34	< 0.34	< 0.34	< 1.7
N-Nitroso-di-n-propylamine	< 0.34	< 0.34	< 0.34	< 1.7
N-Nitrosodiphenylamine	< 0.34	< 0.34	< 0.34	< 1.7
Naphthalene	< 0.34	**0.36**	< 0.34	< 1.7
Nitrobenzene	< 0.34	< 0.34	< 0.34	< 1.7
Pentachlorophenol	< 1.7	< 1.7	< 1.7	< 8.3
Phenanthrene	< 0.34	< 0.34	< 0.34	< 1.7
Phenol	< 0.34	< 0.34	< 0.34	< 1.7
Pyrene	< 0.34	< 0.34	< 0.34	< 1.7

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-21
MATRIX	Soil
COLLECTION DATE	3/28/02
DEPTH [(1)]	COMP [(2)]
UNITS	mg/kg
1,2,4-Trichlorobenzene	< 0.067
1,2-Dichlorobenzene	< 0.067
1,3-Dichlorobenzene	< 0.067
1,4-Dichlorobenzene	< 0.067
2,4,5-Trichlorophenol	< 0.067
2,4,6-Trichlorophenol	< 0.067
2,4-Dichlorophenol	< 0.067
2,4-Dimethylphenol	< 0.067
2,4-Dinitrophenol	< 0.33
2,4-Dinitrotoluene	< 0.067
2,6-Dinitrotoluene	< 0.067
2-Chloronaphthalene	< 0.067
2-Chlorophenol	< 0.067
2-Methyl-4,6-dinitrophenol	< 0.33
2-Methylnaphthalene	< 0.067
2-Methylphenol	< 0.067
2-Nitroaniline	< 0.33
2-Nitrophenol	< 0.067
3,3-Dichlorobenzidine	< 0.17
3-Nitroaniline	< 0.067
4-Bromophenyl phenyl ether	< 0.17
4-Chloro-3-methylphenol	< 0.17
4-Chloroaniline	< 0.067
4-Chlorophenyl phenyl ether	< 0.17
4-Methylphenol	< 0.067
4-Nitroaniline	< 0.33
4-Nitrophenol	< 0.33
Acenaphthene	< 0.067
Acenaphthylene	< 0.067
Anthracene	< 0.067
Benzo(a)anthracene	< 0.067
Benzo(a)pyrene	< 0.067
Benzo(b)fluoranthene	< 0.067
Benzo(g,h,i)perylene	< 0.067
Benzo(k)fluoranthene	< 0.067
Benzoic acid	< 0.33
Benzyl alcohol	< 0.17
Bis(2-chloroethoxy) methane	< 0.17
Bis(2-chloroethyl)ether	< 0.067
Bis(2-chloroisopropyl) ether	< 0.067
bis(2-Ethylhexyl) phthalate	< 0.33
Butyl benzyl phthalate	< 0.17
Chrysene	< 0.067
Di-n-butyl phthalate	< 0.17
Di-n-octyl phthalate	< 0.17
Dibenzo(a,h)anthracene	< 0.067
Dibenzofuran	< 0.067
Diethyl phthalate	< 0.17
Dimethyl phthalate	< 0.17

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-21
MATRIX	Soil
COLLECTION DATE	3/28/02
DEPTH (1)	COMP (2)
UNITS	mg/kg
Fluoranthene	< 0.067
Fluorene	< 0.067
Hexachlorobenzene	< 0.067
Hexachlorobutadiene	< 0.067
Hexachlorocyclopentadiene	< 0.17
Hexachloroethane	< 0.067
Indeno(1,2,3-c,d)pyrene	< 0.067
Isophorone	< 0.067
N-Nitroso-di-n-propylamine	< 0.067
N-Nitrosodiphenylamine	< 0.067
Naphthalene	< 0.067
Nitrobenzene	< 0.067
Pentachlorophenol	< 0.33
Phenanthrene	< 0.067
Phenol	< 0.067
Pyrene	< 0.067

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-21-DUP	MFC-22	MFC-23
MATRIX	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/28/02	3/28/02
DEPTH (1)	1.5	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.34	< 0.067	< 0.067
1,2-Dichlorobenzene	< 0.34	< 0.067	< 0.067
1,3-Dichlorobenzene	< 0.34	< 0.067	< 0.067
1,4-Dichlorobenzene	< 0.34	< 0.067	< 0.067
2,4,5-Trichlorophenol	< 0.34	< 0.067	< 0.067
2,4,6-Trichlorophenol	< 0.34	< 0.067	< 0.067
2,4-Dichlorophenol	< 0.34	< 0.067	< 0.067
2,4-Dimethylphenol	< 0.34	< 0.067	< 0.067
2,4-Dinitrophenol	< 1.7	< 0.33	< 0.33
2,4-Dinitrotoluene	< 0.34	< 0.067	< 0.067
2,6-Dinitrotoluene	< 0.34	< 0.067	< 0.067
2-Chloronaphthalene	< 0.34	< 0.067	< 0.067
2-Chlorophenol	< 0.34	< 0.067	< 0.067
2-Methyl-4,6-dinitrophenol	< 1.7	< 0.33	< 0.33
2-Methylnaphthalene	< 0.34	< 0.067	< 0.067
2-Methylphenol	< 0.34	< 0.067	< 0.067
2-Nitroaniline	< 1.7	< 0.33	< 0.33
2-Nitrophenol	< 0.34	< 0.067	< 0.067
3,3-Dichlorobenzidine	< 0.85	< 0.17	< 0.17
3-Nitroaniline	< 0.34	< 0.067	< 0.067
4-Bromophenyl phenyl ether	< 0.85	< 0.17	< 0.17
4-Chloro-3-methylphenol	< 0.85	< 0.17	< 0.17
4-Chloroaniline	< 0.34	< 0.067	< 0.067
4-Chlorophenyl phenyl ether	< 0.85	< 0.17	< 0.17
4-Methylphenol	< 0.34	< 0.067	< 0.067
4-Nitroaniline	< 1.7	< 0.33	< 0.33
4-Nitrophenol	< 1.7	< 0.33	< 0.33
Acenaphthene	< 0.34	< 0.067	< 0.067
Acenaphthylene	< 0.34	< 0.067	< 0.067
Anthracene	< 0.34	< 0.067	< 0.067
Benzo(a)anthracene	< 0.34	< 0.067	< 0.067
Benzo(a)pyrene	< 0.34	< 0.067	< 0.067
Benzo(b)fluoranthene	< 0.34	< 0.067	< 0.067
Benzo(g,h,i)perylene	< 0.34	< 0.067	< 0.067
Benzo(k)fluoranthene	< 0.34	< 0.067	< 0.067
Benzoic acid	< 1.7	< 0.33	< 0.33
Benzyl alcohol	< 0.85	< 0.17	< 0.17
Bis(2-chloroethoxy) methane	< 0.85	< 0.17	< 0.17
Bis(2-chloroethyl)ether	< 0.34	< 0.067	< 0.067
Bis(2-chloroisopropyl) ether	< 0.34	< 0.067	< 0.067
bis(2-Ethylhexyl) phthalate	< 1.7	< 0.33	< 0.33
Butyl benzyl phthalate	< 0.85	< 0.17	< 0.17
Chrysene	< 0.34	< 0.067	< 0.067
Di-n-butyl phthalate	< 0.85	< 0.17	< 0.17
Di-n-octyl phthalate	< 0.85	< 0.17	< 0.17
Dibenzo(a,h)anthracene	< 0.34	< 0.067	< 0.067
Dibenzofuran	< 0.34	< 0.067	< 0.067
Diethyl phthalate	< 0.85	< 0.17	< 0.17
Dimethyl phthalate	< 0.85	< 0.17	< 0.17

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-21-DUP	MFC-22	MFC-23
MATRIX	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/28/02	3/28/02
DEPTH (1)	1.5	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.34	< 0.067	< 0.067
Fluorene	< 0.34	< 0.067	< 0.067
Hexachlorobenzene	< 0.34	< 0.067	< 0.067
Hexachlorobutadiene	< 0.34	< 0.067	< 0.067
Hexachlorocyclopentadiene	< 0.85	< 0.17	< 0.17
Hexachloroethane	< 0.34	< 0.067	< 0.067
Indeno(1,2,3-c,d)pyrene	< 0.34	< 0.067	< 0.067
Isophorone	< 0.34	< 0.067	< 0.067
N-Nitroso-di-n-propylamine	< 0.34	< 0.067	< 0.067
N-Nitrosodiphenylamine	< 0.34	< 0.067	< 0.067
Naphthalene	< 0.34	< 0.067	< 0.067
Nitrobenzene	< 0.34	< 0.067	< 0.067
Pentachlorophenol	< 1.7	< 0.33	< 0.33
Phenanthrene	< 0.34	< 0.067	< 0.067
Phenol	< 0.34	< 0.067	< 0.067
Pyrene	< 0.34	< 0.067	< 0.067

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-24	MFC-25	MFC-25-DUP	MFC-26
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/28/02	3/28/02	3/27/02
DEPTH (1)	COMP (2)	4.5	1.0	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 1.7	< 0.34	< 0.67	< 0.067
1,2-Dichlorobenzene	< 1.7	< 0.34	< 0.67	< 0.067
1,3-Dichlorobenzene	< 1.7	< 0.34	< 0.67	< 0.067
1,4-Dichlorobenzene	< 1.7	< 0.34	< 0.67	< 0.067
2,4,5-Trichlorophenol	< 1.7	< 0.34	< 0.67	< 0.067
2,4,6-Trichlorophenol	< 1.7	< 0.34	< 0.67	< 0.067
2,4-Dichlorophenol	< 1.7	< 0.34	< 0.67	< 0.067
2,4-Dimethylphenol	< 1.7	< 0.34	< 0.67	< 0.067
2,4-Dinitrophenol	< 8.3	< 1.7	< 3.3	< 0.33
2,4-Dinitrotoluene	< 1.7	< 0.34	< 0.67	< 0.067
2,6-Dinitrotoluene	< 1.7	< 0.34	< 0.67	< 0.067
2-Chloronaphthalene	< 1.7	< 0.34	< 0.67	< 0.067
2-Chlorophenol	< 1.7	< 0.34	< 0.67	< 0.067
2-Methyl-4,6-dinitrophenol	< 8.3	< 1.7	< 3.3	< 0.33
2-Methylnaphthalene	< 1.7	< 0.34	< 0.67	< 0.067
2-Methylphenol	< 1.7	< 0.34	< 0.67	< 0.067
2-Nitroaniline	< 8.3	< 1.7	< 3.3	< 0.33
2-Nitrophenol	< 1.7	< 0.34	< 0.67	< 0.067
3,3-Dichlorobenzidine	< 4.3	< 0.85	< 1.7	< 0.17
3-Nitroaniline	< 1.7	< 0.34	< 0.67	< 0.067
4-Bromophenyl phenyl ether	< 4.3	< 0.85	< 1.7	< 0.17
4-Chloro-3-methylphenol	< 4.3	< 0.85	< 1.7	< 0.17
4-Chloroaniline	< 1.7	< 0.34	< 0.67	< 0.067
4-Chlorophenyl phenyl ether	< 4.3	< 0.85	< 1.7	< 0.17
4-Methylphenol	< 1.7	< 0.34	< 0.67	< 0.067
4-Nitroaniline	< 8.3	< 1.7	< 3.3	< 0.33
4-Nitrophenol	< 8.3	< 1.7	< 3.3	< 0.33
Acenaphthene	< 1.7	< 0.34	< 0.67	< 0.067
Acenaphthylene	< 1.7	< 0.34	< 0.67	< 0.067
Anthracene	< 1.7	< 0.34	< 0.67	< 0.067
Benzo(a)anthracene	< 1.7	< 0.34	< 0.67	< 0.067
Benzo(a)pyrene	< 1.7	< 0.34	< 0.67	< 0.067
Benzo(b)fluoranthene	< 1.7	< 0.34	< 0.67	< 0.067
Benzo(g,h,i)perylene	< 1.7	< 0.34	< 0.67	< 0.067
Benzo(k)fluoranthene	< 1.7	< 0.34	< 0.67	< 0.067
Benzoic acid	< 8.3	< 1.7	< 3.3	< 0.33
Benzyl alcohol	< 4.3	< 0.85	< 1.7	< 0.17
Bis(2-chloroethoxy) methane	< 4.3	< 0.85	< 1.7	< 0.17
Bis(2-chloroethyl)ether	< 1.7	< 0.34	< 0.67	< 0.067
Bis(2-chloroisopropyl) ether	< 1.7	< 0.34	< 0.67	< 0.067
bis(2-Ethylhexyl) phthalate	< 8.3	< 1.7	< 3.3	< 0.33
Butyl benzyl phthalate	< 4.3	< 0.85	< 1.7	< 0.17
Chrysene	< 1.7	< 0.34	< 0.67	< 0.067
Di-n-butyl phthalate	< 4.3	< 0.85	< 1.7	< 0.17
Di-n-octyl phthalate	< 4.3	< 0.85	< 1.7	< 0.17
Dibenzo(a,h)anthracene	< 1.7	< 0.34	< 0.67	< 0.067
Dibenzofuran	< 1.7	< 0.34	< 0.67	< 0.067
Diethyl phthalate	< 4.3	< 0.85	< 1.7	< 0.17
Dimethyl phthalate	< 4.3	< 0.85	< 1.7	< 0.17

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-24	MFC-25	MFC-25-DUP	MFC-26
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/28/02	3/28/02	3/27/02
DEPTH (1)	COMP (2)	4.5	1.0	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 1.7	< 0.34	< 0.67	< 0.067
Fluorene	< 1.7	< 0.34	< 0.67	< 0.067
Hexachlorobenzene	< 1.7	< 0.34	< 0.67	< 0.067
Hexachlorobutadiene	< 1.7	< 0.34	< 0.67	< 0.067
Hexachlorocyclopentadiene	< 4.3	< 0.85	< 1.7	< 0.17
Hexachloroethane	< 1.7	< 0.34	< 0.67	< 0.067
Indeno(1,2,3-c,d)pyrene	< 1.7	< 0.34	< 0.67	< 0.067
Isophorone	< 1.7	< 0.34	< 0.67	< 0.067
N-Nitroso-di-n-propylamine	< 1.7	< 0.34	< 0.67	< 0.067
N-Nitrosodiphenylamine	< 1.7	< 0.34	< 0.67	< 0.067
Naphthalene	< 1.7	< 0.34	< 0.67	< 0.067
Nitrobenzene	< 1.7	< 0.34	< 0.67	< 0.067
Pentachlorophenol	< 8.3	< 1.7	< 3.3	< 0.33
Phenanthrene	< 1.7	< 0.34	< 0.67	< 0.067
Phenol	< 1.7	< 0.34	< 0.67	< 0.067
Pyrene	< 1.7	< 0.34	< 0.67	< 0.067

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-27	MFC-28	MFC-29	MFC-30
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/26/02	3/27/02
DEPTH (1)	COMP.(2)	COMP (2)	COMP (2)	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 1.7	< 0.34	< 0.067	< 0.67
1,2-Dichlorobenzene	< 1.7	< 0.34	< 0.067	< 0.67
1,3-Dichlorobenzene	< 1.7	< 0.34	< 0.067	< 0.67
1,4-Dichlorobenzene	< 1.7	< 0.34	< 0.067	< 0.67
2,4,5-Trichlorophenol	< 1.7	< 0.34	< 0.067	< 0.67
2,4,6-Trichlorophenol	< 1.7	< 0.34	< 0.067	< 0.67
2,4-Dichlorophenol	< 1.7	< 0.34	< 0.067	< 0.67
2,4-Dimethylphenol	< 1.7	< 0.34	< 0.067	< 0.67
2,4-Dinitrophenol	< 8.3	< 1.7	< 0.33	< 3.3
2,4-Dinitrotoluene	< 1.7	< 0.34	< 0.067	< 0.67
2,6-Dinitrotoluene	< 1.7	< 0.34	< 0.067	< 0.67
2-Chloronaphthalene	< 1.7	< 0.34	< 0.067	< 0.67
2-Chlorophenol	< 1.7	< 0.34	< 0.067	< 0.67
2-Methyl-4,6-dinitrophenol	< 8.3	< 1.7	< 0.33	< 3.3
2-Methylnaphthalene	< 1.7	< 0.34	< 0.067	< 0.67
2-Methylphenol	< 1.7	< 0.34	< 0.067	< 0.67
2-Nitroaniline	< 8.3	< 1.7	< 0.33	< 3.3
2-Nitrophenol	< 1.7	< 0.34	< 0.067	< 0.67
3,3-Dichlorobenzidine	< 4.3	< 0.85	< 0.17	< 1.7
3-Nitroaniline	< 1.7	< 0.34	< 0.067	< 0.67
4-Bromophenyl phenyl ether	< 4.3	< 0.85	< 0.17	< 1.7
4-Chloro-3-methylphenol	< 4.3	< 0.85	< 0.17	< 1.7
4-Chloroaniline	< 1.7	< 0.34	< 0.067	< 0.67
4-Chlorophenyl phenyl ether	< 4.3	< 0.85	< 0.17	< 1.7
4-Methylphenol	< 1.7	< 0.34	< 0.067	< 0.67
4-Nitroaniline	< 8.3	< 1.7	< 0.33	< 3.3
4-Nitrophenol	< 8.3	< 1.7	< 0.33	< 3.3
Acenaphthene	< 1.7	< 0.34	< 0.067	< 0.67
Acenaphthylene	< 1.7	< 0.34	< 0.067	< 0.67
Anthracene	< 1.7	< 0.34	< 0.067	< 0.67
Benzo(a)anthracene	< 1.7	< 0.34	< 0.067	< 0.67
Benzo(a)pyrene	< 1.7	< 0.34	< 0.067	< 0.67
Benzo(b)fluoranthene	< 1.7	< 0.34	< 0.067	< 0.67
Benzo(g,h,i)perylene	< 1.7	< 0.34	< 0.067	< 0.67
Benzo(k)fluoranthene	< 1.7	< 0.34	< 0.067	< 0.67
Benzoic acid	< 8.3	< 1.7	< 0.33	< 3.3
Benzyl alcohol	< 4.3	< 0.85	< 0.17	< 1.7
Bis(2-chloroethoxy) methane	< 4.3	< 0.85	< 0.17	< 1.7
Bis(2-chloroethyl)ether	< 1.7	< 0.34	< 0.067	< 0.67
Bis(2-chloroisopropyl) ether	< 1.7	< 0.34	< 0.067	< 0.67
bis(2-Ethylhexyl) phthalate	< 8.3	< 1.7	< 0.33	< 3.3
Butyl benzyl phthalate	< 4.3	< 0.85	< 0.17	< 1.7
Chrysene	< 1.7	< 0.34	< 0.067	< 0.67
Di-n-butyl phthalate	< 4.3	< 0.85	< 0.17	< 1.7
Di-n-octyl phthalate	< 4.3	< 0.85	< 0.17	< 1.7
Dibenzo(a,h)anthracene	< 1.7	< 0.34	< 0.067	< 0.67
Dibenzofuran	< 1.7	< 0.34	< 0.067	< 0.67
Diethyl phthalate	< 4.3	< 0.85	< 0.17	< 1.7
Dimethyl phthalate	< 4.3	< 0.85	< 0.17	< 1.7

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-27	MFC-28	MFC-29	MFC-30
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/26/02	3/27/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 1.7	< 0.34	< 0.067	< 0.67
Fluorene	< 1.7	< 0.34	< 0.067	< 0.67
Hexachlorobenzene	< 1.7	< 0.34	< 0.067	< 0.67
Hexachlorobutadiene	< 1.7	< 0.34	< 0.067	< 0.67
Hexachlorocyclopentadiene	< 4.3	< 0.85	< 0.17	< 1.7
Hexachloroethane	< 1.7	< 0.34	< 0.067	< 0.67
Indeno(1,2,3-c,d)pyrene	< 1.7	< 0.34	< 0.067	< 0.67
Isophorone	< 1.7	< 0.34	< 0.067	< 0.67
N-Nitroso-di-n-propylamine	< 1.7	< 0.34	< 0.067	< 0.67
N-Nitrosodiphenylamine	< 1.7	< 0.34	< 0.067	< 0.67
Naphthalene	< 1.7	< 0.34	< 0.067	< 0.67
Nitrobenzene	< 1.7	< 0.34	< 0.067	< 0.67
Pentachlorophenol	< 8.3	< 1.7	< 0.33	< 3.3
Phenanthrene	< 1.7	< 0.34	< 0.067	< 0.67
Phenol	< 1.7	< 0.34	< 0.067	< 0.67
Pyrene	< 1.7	< 0.34	< 0.067	< 0.67

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-32	MFC-33	MFC-34
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/02	3/26/02	3/25/02	3/26/02
DEPTH (1)	COMP (2)	1.5	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.067	< 0.067	< 0.34	< 0.67
1,2-Dichlorobenzene	< 0.067	< 0.067	< 0.34	< 0.67
1,3-Dichlorobenzene	< 0.067	< 0.067	< 0.34	< 0.67
1,4-Dichlorobenzene	< 0.067	< 0.067	< 0.34	< 0.67
2,4,5-Trichlorophenol	< 0.067	< 0.067	< 0.34	< 0.67
2,4,6-Trichlorophenol	< 0.067	< 0.067	< 0.34	< 0.67
2,4-Dichlorophenol	< 0.067	< 0.067	< 0.34	< 0.67
2,4-Dimethylphenol	< 0.067	< 0.067	< 0.34	< 0.67
2,4-Dinitrophenol	< 0.33	< 0.33	< 1.7	< 3.3
2,4-Dinitrotoluene	< 0.067	< 0.067	< 0.34	< 0.67
2,6-Dinitrotoluene	< 0.067	< 0.067	< 0.34	< 0.67
2-Chloronaphthalene	< 0.067	< 0.067	< 0.34	< 0.67
2-Chlorophenol	< 0.067	< 0.067	< 0.34	< 0.67
2-Methyl-4,6-dinitrophenol	< 0.33	< 0.33	< 1.7	< 3.3
2-Methylnaphthalene	< 0.067	< 0.067	< 0.34	< 0.67
2-Methylphenol	< 0.067	< 0.067	< 0.34	< 0.67
2-Nitroaniline	< 0.33	< 0.33	< 1.7	< 3.3
2-Nitrophenol	< 0.067	< 0.067	< 0.34	< 0.67
3,3-Dichlorobenzidine	< 0.17	< 0.17	< 0.85	< 1.7
3-Nitroaniline	< 0.067	< 0.067	< 0.34	< 0.67
4-Bromophenyl phenyl ether	< 0.17	< 0.17	< 0.85	< 1.7
4-Chloro-3-methylphenol	< 0.17	< 0.17	< 0.85	< 1.7
4-Chloroaniline	< 0.067	< 0.067	< 0.34	< 0.67
4-Chlorophenyl phenyl ether	< 0.17	< 0.17	< 0.85	< 1.7
4-Methylphenol	< 0.067	< 0.067	< 0.34	< 0.67
4-Nitroaniline	< 0.33	< 0.33	< 1.7	< 3.3
4-Nitrophenol	< 0.33	< 0.33	< 1.7	< 3.3
Acenaphthene	< 0.067	< 0.067	< 0.34	< 0.67
Acenaphthylene	< 0.067	< 0.067	< 0.34	< 0.67
Anthracene	< 0.067	< 0.067	< 0.34	< 0.67
Benzo(a)anthracene	< 0.067	< 0.067	< 0.34	< 0.67
Benzo(a)pyrene	< 0.067	< 0.067	< 0.34	< 0.67
Benzo(b)fluoranthene	< 0.067	< 0.067	< 0.34	< 0.67
Benzo(g,h,i)perylene	< 0.067	< 0.067	< 0.34	< 0.67
Benzo(k)fluoranthene	< 0.067	< 0.067	< 0.34	< 0.67
Benzoic acid	< 0.33	< 0.33	< 1.7	< 3.3
Benzyl alcohol	< 0.17	< 0.17	< 0.85	< 1.7
Bis(2-chloroethoxy) methane	< 0.17	< 0.17	< 0.85	< 1.7
Bis(2-chloroethyl)ether	< 0.067	< 0.067	< 0.34	< 0.67
Bis(2-chloroisopropyl) ether	< 0.067	< 0.067	< 0.34	< 0.67
bis(2-Ethylhexyl) phthalate	< 0.33	< 0.33	< 1.7	< 3.3
Butyl benzyl phthalate	< 0.17	< 0.17	< 0.85	< 1.7
Chrysene	< 0.067	< 0.067	< 0.34	< 0.67
Di-n-butyl phthalate	< 0.17	< 0.17	< 0.85	< 1.7
Di-n-octyl phthalate	< 0.17	< 0.17	< 0.85	< 1.7
Dibenzo(a,h)anthracene	< 0.067	< 0.067	< 0.34	< 0.67
Dibenzofuran	**0.069**	< 0.067	< 0.34	< 0.67
Diethyl phthalate	< 0.17	< 0.17	< 0.85	< 1.7
Dimethyl phthalate	< 0.17	< 0.17	< 0.85	< 1.7

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-32	MFC-33	MFC-34
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/02	3/26/02	3/25/02	3/26/02
DEPTH (1)	COMP (2)	1.5	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.067	< 0.067	< 0.34	< 0.67
Fluorene	**0.14**	< 0.067	< 0.34	< 0.67
Hexachlorobenzene	< 0.067	< 0.067	< 0.34	< 0.67
Hexachlorobutadiene	< 0.067	< 0.067	< 0.34	< 0.67
Hexachlorocyclopentadiene	< 0.17	< 0.17	< 0.85	< 1.7
Hexachloroethane	< 0.067	< 0.067	< 0.34	< 0.67
Indeno(1,2,3-c,d)pyrene	< 0.067	< 0.067	< 0.34	< 0.67
Isophorone	< 0.067	< 0.067	< 0.34	< 0.67
N-Nitroso-di-n-propylamine	< 0.067	< 0.067	< 0.34	< 0.67
N-Nitrosodiphenylamine	< 0.067	< 0.067	< 0.34	< 0.67
Naphthalene	< 0.067	< 0.067	< 0.34	< 0.67
Nitrobenzene	< 0.067	< 0.067	< 0.34	< 0.67
Pentachlorophenol	< 0.33	< 0.33	< 1.7	< 3.3
Phenanthrene	**0.32**	< 0.067	< 0.34	**0.73**
Phenol	< 0.067	< 0.067	< 0.34	< 0.67
Pyrene	< 0.067	< 0.067	< 0.34	< 0.67

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-36	MFC-36- DUP	MFC-37
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/02	3/28/02	3/28/02	3/25/02
DEPTH (1)	COMP (2)	COMP (2)	1.5	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.34	< 3.4	< 0.34	< 0.067
1,2-Dichlorobenzene	< 0.34	< 3.4	< 0.34	< 0.067
1,3-Dichlorobenzene	< 0.34	< 3.4	< 0.34	< 0.067
1,4-Dichlorobenzene	< 0.34	< 3.4	< 0.34	< 0.067
2,4,5-Trichlorophenol	< 0.34	< 3.4	< 0.34	< 0.067
2,4,6-Trichlorophenol	< 0.34	< 3.4	< 0.34	< 0.067
2,4-Dichlorophenol	< 0.34	< 3.4	< 0.34	< 0.067
2,4-Dimethylphenol	< 0.34	< 3.4	< 0.34	< 0.067
2,4-Dinitrophenol	< 1.7	< 17	< 1.7	< 0.33
2,4-Dinitrotoluene	< 0.34	< 3.4	< 0.34	< 0.067
2,6-Dinitrotoluene	< 0.34	< 3.4	< 0.34	< 0.067
2-Chloronaphthalene	< 0.34	< 3.4	< 0.34	< 0.067
2-Chlorophenol	< 0.34	< 3.4	< 0.34	< 0.067
2-Methyl-4,6-dinitrophenol	< 1.7	< 17	< 1.7	< 0.33
2-Methylnaphthalene	< 0.34	< 3.4	< 0.34	**2.4**
2-Methylphenol	< 0.34	< 3.4	< 0.34	< 0.067
2-Nitroaniline	< 1.7	< 17	< 1.7	< 0.33
2-Nitrophenol	< 0.34	< 3.4	< 0.34	< 0.067
3,3-Dichlorobenzidine	< 0.85	< 8.5	< 0.85	< 0.17
3-Nitroaniline	< 0.34	< 3.4	< 0.34	< 0.067
4-Bromophenyl phenyl ether	< 0.85	< 8.5	< 0.85	< 0.17
4-Chloro-3-methylphenol	< 0.85	< 8.5	< 0.85	< 0.17
4-Chloroaniline	< 0.34	< 3.4	< 0.34	< 0.067
4-Chlorophenyl phenyl ether	< 0.85	< 8.5	< 0.85	< 0.17
4-Methylphenol	< 0.34	< 3.4	< 0.34	< 0.067
4-Nitroaniline	< 1.7	< 17	< 1.7	< 0.33
4-Nitrophenol	< 1.7	< 17	< 1.7	< 0.33
Acenaphthene	< 0.34	< 3.4	< 0.34	< 0.067
Acenaphthylene	< 0.34	< 3.4	< 0.34	< 0.067
Anthracene	< 0.34	< 3.4	< 0.34	**0.074**
Benzo(a)anthracene	< 0.34	< 3.4	< 0.34	< 0.067
Benzo(a)pyrene	< 0.34	< 3.4	< 0.34	< 0.067
Benzo(b)fluoranthene	< 0.34	< 3.4	< 0.34	< 0.067
Benzo(g,h,i)perylene	< 0.34	< 3.4	< 0.34	< 0.067
Benzo(k)fluoranthene	< 0.34	< 3.4	< 0.34	< 0.067
Benzoic acid	< 1.7	< 17	< 1.7	< 0.33
Benzyl alcohol	< 0.85	< 8.5	< 0.85	< 0.17
Bis(2-chloroethoxy) methane	< 0.85	< 8.5	< 0.85	< 0.17
Bis(2-chloroethyl)ether	< 0.34	< 3.4	< 0.34	< 0.067
Bis(2-chloroisopropyl) ether	< 0.34	< 3.4	< 0.34	< 0.067
bis(2-Ethylhexyl) phthalate	< 1.7	< 17	< 1.7	< 0.33
Butyl benzyl phthalate	< 0.85	< 8.5	< 0.85	< 0.17
Chrysene	< 0.34	< 3.4	< 0.34	< 0.067
Di-n-butyl phthalate	< 0.85	< 8.5	< 0.85	< 0.17
Di-n-octyl phthalate	< 0.85	< 8.5	< 0.85	< 0.17
Dibenzo(a,h)anthracene	< 0.34	< 3.4	< 0.34	< 0.067
Dibenzofuran	< 0.34	< 3.4	< 0.34	< 0.067
Diethyl phthalate	< 0.85	< 8.5	< 0.85	< 0.17
Dimethyl phthalate	< 0.85	< 8.5	< 0.85	< 0.17

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-36	MFC-36- *DUP*	MFC-37
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/02	3/28/02	3/28/02	3/25/02
DEPTH (1)	COMP (2)	COMP (2)	1.5	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.34	< 3.4	< 0.34	< 0.067
Fluorene	< 0.34	< 3.4	< 0.34	**0.66**
Hexachlorobenzene	< 0.34	< 3.4	< 0.34	< 0.067
Hexachlorobutadiene	< 0.34	< 3.4	< 0.34	< 0.067
Hexachlorocyclopentadiene	< 0.85	< 8.5	< 0.85	< 0.17
Hexachloroethane	< 0.34	< 3.4	< 0.34	< 0.067
Indeno(1,2,3-c,d)pyrene	< 0.34	< 3.4	< 0.34	< 0.067
Isophorone	< 0.34	< 3.4	< 0.34	< 0.067
N-Nitroso-di-n-propylamine	< 0.34	< 3.4	< 0.34	< 0.067
N-Nitrosodiphenylamine	< 0.34	< 3.4	< 0.34	< 0.067
Naphthalene	< 0.34	< 3.4	< 0.34	**0.47**
Nitrobenzene	< 0.34	< 3.4	< 0.34	< 0.067
Pentachlorophenol	< 1.7	< 17	< 1.7	< 0.33
Phenanthrene	< 0.34	< 3.4	< 0.34	**0.99**
Phenol	< 0.34	< 3.4	< 0.34	< 0.067
Pyrene	< 0.34	< 3.4	< 0.34	**0.091**

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-38	MFC-39	MFC-40	MFC-41
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/26/02
DEPTH [(1)]	COMP [(2)]	1.5	COMP [(2)]	COMP [(2)]
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.067	< 0.067	< 0.067	< 0.067
1,2-Dichlorobenzene	< 0.067	< 0.067	< 0.067	< 0.067
1,3-Dichlorobenzene	< 0.067	< 0.067	< 0.067	< 0.067
1,4-Dichlorobenzene	< 0.067	< 0.067	< 0.067	< 0.067
2,4,5-Trichlorophenol	< 0.067	< 0.067	< 0.067	< 0.067
2,4,6-Trichlorophenol	< 0.067	< 0.067	< 0.067	< 0.067
2,4-Dichlorophenol	< 0.067	< 0.067	< 0.067	< 0.067
2,4-Dimethylphenol	< 0.067	< 0.067	< 0.067	< 0.067
2,4-Dinitrophenol	< 0.33	< 0.33	< 0.33	< 0.33
2,4-Dinitrotoluene	< 0.067	< 0.067	< 0.067	< 0.067
2,6-Dinitrotoluene	< 0.067	< 0.067	< 0.067	< 0.067
2-Chloronaphthalene	< 0.067	< 0.067	< 0.067	< 0.067
2-Chlorophenol	< 0.067	< 0.067	< 0.067	< 0.067
2-Methyl-4,6-dinitrophenol	< 0.33	< 0.33	< 0.33	< 0.33
2-Methylnaphthalene	< 0.067	< 0.067	< 0.067	< 0.067
2-Methylphenol	< 0.067	< 0.067	< 0.067	< 0.067
2-Nitroaniline	< 0.33	< 0.33	< 0.33	< 0.33
2-Nitrophenol	< 0.067	< 0.067	< 0.067	< 0.067
3,3-Dichlorobenzidine	< 0.17	< 0.17	< 0.17	< 0.17
3-Nitroaniline	< 0.067	< 0.067	< 0.067	< 0.067
4-Bromophenyl phenyl ether	< 0.17	< 0.17	< 0.17	< 0.17
4-Chloro-3-methylphenol	< 0.17	< 0.17	< 0.17	< 0.17
4-Chloroaniline	< 0.067	< 0.067	< 0.067	< 0.067
4-Chlorophenyl phenyl ether	< 0.17	< 0.17	< 0.17	< 0.17
4-Methylphenol	< 0.067	< 0.067	< 0.067	< 0.067
4-Nitroaniline	< 0.33	< 0.33	< 0.33	< 0.33
4-Nitrophenol	< 0.33	< 0.33	< 0.33	< 0.33
Acenaphthene	< 0.067	< 0.067	< 0.067	< 0.067
Acenaphthylene	< 0.067	< 0.067	< 0.067	< 0.067
Anthracene	< 0.067	< 0.067	< 0.067	< 0.067
Benzo(a)anthracene	< 0.067	< 0.067	< 0.067	< 0.067
Benzo(a)pyrene	< 0.067	< 0.067	< 0.067	< 0.067
Benzo(b)fluoranthene	< 0.067	< 0.067	< 0.067	< 0.067
Benzo(g,h,i)perylene	< 0.067	< 0.067	< 0.067	< 0.067
Benzo(k)fluoranthene	< 0.067	< 0.067	< 0.067	< 0.067
Benzoic acid	< 0.33	< 0.33	< 0.33	< 0.33
Benzyl alcohol	< 0.17	< 0.17	< 0.17	< 0.17
Bis(2-chloroethoxy) methane	< 0.17	< 0.17	< 0.17	< 0.17
Bis(2-chloroethyl)ether	< 0.067	< 0.067	< 0.067	< 0.067
Bis(2-chloroisopropyl) ether	< 0.067	< 0.067	< 0.067	< 0.067
bis(2-Ethylhexyl) phthalate	< 0.33	< 0.33	< 0.33	< 0.33
Butyl benzyl phthalate	< 0.17	< 0.17	< 0.17	< 0.17
Chrysene	< 0.067	< 0.067	< 0.067	< 0.067
Di-n-butyl phthalate	< 0.17	< 0.17	< 0.17	< 0.17
Di-n-octyl phthalate	< 0.17	< 0.17	< 0.17	< 0.17
Dibenzo(a,h)anthracene	< 0.067	< 0.067	< 0.067	< 0.067
Dibenzofuran	< 0.067	< 0.067	< 0.067	< 0.067
Diethyl phthalate	< 0.17	< 0.17	< 0.17	< 0.17
Dimethyl phthalate	< 0.17	< 0.17	< 0.17	< 0.17

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-38	MFC-39	MFC-40	MFC-41
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/26/02
DEPTH (1)	COMP (2)	1.5	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.067	< 0.067	< 0.067	< 0.067
Fluorene	< 0.067	< 0.067	< 0.067	< 0.067
Hexachlorobenzene	< 0.067	< 0.067	< 0.067	< 0.067
Hexachlorobutadiene	< 0.067	< 0.067	< 0.067	< 0.067
Hexachlorocyclopentadiene	< 0.17	< 0.17	< 0.17	< 0.17
Hexachloroethane	< 0.067	< 0.067	< 0.067	< 0.067
Indeno(1,2,3-c,d)pyrene	< 0.067	< 0.067	< 0.067	< 0.067
Isophorone	< 0.067	< 0.067	< 0.067	< 0.067
N-Nitroso-di-n-propylamine	< 0.067	< 0.067	< 0.067	< 0.067
N-Nitrosodiphenylamine	< 0.067	< 0.067	< 0.067	< 0.067
Naphthalene	< 0.067	< 0.067	< 0.067	< 0.067
Nitrobenzene	< 0.067	< 0.067	< 0.067	< 0.067
Pentachlorophenol	< 0.33	< 0.33	< 0.33	< 0.33
Phenanthrene	< 0.067	< 0.067	< 0.067	< 0.067
Phenol	< 0.067	< 0.067	< 0.067	< 0.067
Pyrene	< 0.067	< 0.067	< 0.067	< 0.067

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-43	MFC-44	MFC-45	MFC-46
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/26/02	3/28/02	3/27/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
1,2,4-Trichlorobenzene	< 0.34	< 0.67	< 0.067	< 0.34
1,2-Dichlorobenzene	< 0.34	< 0.67	< 0.067	< 0.34
1,3-Dichlorobenzene	< 0.34	< 0.67	< 0.067	< 0.34
1,4-Dichlorobenzene	< 0.34	< 0.67	< 0.067	< 0.34
2,4,5-Trichlorophenol	< 0.34	< 0.67	< 0.067	< 0.34
2,4,6-Trichlorophenol	< 0.34	< 0.67	< 0.067	< 0.34
2,4-Dichlorophenol	< 0.34	< 0.67	< 0.067	< 0.34
2,4-Dimethylphenol	< 0.34	< 0.67	< 0.067	< 0.34
2,4-Dinitrophenol	< 1.7	< 3.3	< 0.33	< 1.7
2,4-Dinitrotoluene	< 0.34	< 0.67	< 0.067	< 0.34
2,6-Dinitrotoluene	< 0.34	< 0.67	< 0.067	< 0.34
2-Chloronaphthalene	< 0.34	< 0.67	< 0.067	< 0.34
2-Chlorophenol	< 0.34	< 0.67	< 0.067	< 0.34
2-Methyl-4,6-dinitrophenol	< 1.7	< 3.3	< 0.33	< 1.7
2-Methylnaphthalene	< 0.34	< 0.67	< 0.067	< 0.34
2-Methylphenol	< 0.34	< 0.67	< 0.067	< 0.34
2-Nitroaniline	< 1.7	< 3.3	< 0.33	< 1.7
2-Nitrophenol	< 0.34	< 0.67	< 0.067	< 0.34
3,3-Dichlorobenzidine	< 0.85	< 1.7	< 0.17	< 0.85
3-Nitroaniline	< 0.34	< 0.67	< 0.067	< 0.34
4-Bromophenyl phenyl ether	< 0.85	< 1.7	< 0.17	< 0.85
4-Chloro-3-methylphenol	< 0.85	< 1.7	< 0.17	< 0.85
4-Chloroaniline	< 0.34	< 0.67	< 0.067	< 0.34
4-Chlorophenyl phenyl ether	< 0.85	< 1.7	< 0.17	< 0.85
4-Methylphenol	< 0.34	< 0.67	< 0.067	< 0.34
4-Nitroaniline	< 1.7	< 3.3	< 0.33	< 1.7
4-Nitrophenol	< 1.7	< 3.3	< 0.33	< 1.7
Acenaphthene	< 0.34	< 0.67	< 0.067	< 0.34
Acenaphthylene	< 0.34	< 0.67	< 0.067	< 0.34
Anthracene	< 0.34	< 0.67	< 0.067	< 0.34
Benzo(a)anthracene	< 0.34	< 0.67	< 0.067	< 0.34
Benzo(a)pyrene	< 0.34	< 0.67	< 0.067	< 0.34
Benzo(b)fluoranthene	< 0.34	< 0.67	< 0.067	< 0.34
Benzo(g,h,i)perylene	< 0.34	< 0.67	< 0.067	< 0.34
Benzo(k)fluoranthene	< 0.34	< 0.67	< 0.067	< 0.34
Benzoic acid	< 1.7	< 3.3	< 0.33	< 1.7
Benzyl alcohol	< 0.85	< 1.7	< 0.17	< 0.85
Bis(2-chloroethoxy) methane	< 0.85	< 1.7	< 0.17	< 0.85
Bis(2-chloroethyl)ether	< 0.34	< 0.67	< 0.067	< 0.34
Bis(2-chloroisopropyl) ether	< 0.34	< 0.67	< 0.067	< 0.34
bis(2-Ethylhexyl) phthalate	< 1.7	< 3.3	< 0.33	< 1.7
Butyl benzyl phthalate	< 0.85	< 1.7	< 0.17	< 0.85
Chrysene	< 0.34	< 0.67	< 0.067	< 0.34
Di-n-butyl phthalate	< 0.85	< 1.7	< 0.17	< 0.85
Di-n-octyl phthalate	< 0.85	< 1.7	< 0.17	< 0.85
Dibenzo(a,h)anthracene	< 0.34	< 0.67	< 0.067	< 0.34
Dibenzofuran	< 0.34	< 0.67	< 0.067	< 0.34
Diethyl phthalate	< 0.85	< 1.7	< 0.17	< 0.85
Dimethyl phthalate	< 0.85	< 1.7	< 0.17	< 0.85

TABLE 8: SOIL CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-43	MFC-44	MFC-45	MFC-46
MATRIX	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/26/02	3/28/02	3/27/02
DEPTH (1)	COMP (2)	COMP (2)	COMP (2)	COMP (2)
UNITS	mg/kg	mg/kg	mg/kg	mg/kg
Fluoranthene	< 0.34	< 0.67	< 0.067	< 0.34
Fluorene	< 0.34	< 0.67	< 0.067	< 0.34
Hexachlorobenzene	< 0.34	< 0.67	< 0.067	< 0.34
Hexachlorobutadiene	< 0.34	< 0.67	< 0.067	< 0.34
Hexachlorocyclopentadiene	< 0.85	< 1.7	< 0.17	< 0.85
Hexachloroethane	< 0.34	< 0.67	< 0.067	< 0.34
Indeno(1,2,3-c,d)pyrene	< 0.34	< 0.67	< 0.067	< 0.34
Isophorone	< 0.34	< 0.67	< 0.067	< 0.34
N-Nitroso-di-n-propylamine	< 0.34	< 0.67	< 0.067	< 0.34
N-Nitrosodiphenylamine	< 0.34	< 0.67	< 0.067	< 0.34
Naphthalene	< 0.34	< 0.67	< 0.067	< 0.34
Nitrobenzene	< 0.34	< 0.67	< 0.067	< 0.34
Pentachlorophenol	< 1.7	< 3.3	< 0.33	< 1.7
Phenanthrene	< 0.34	< 0.67	< 0.067	< 0.34
Phenol	< 0.34	< 0.67	< 0.067	< 0.34
Pyrene	< 0.34	< 0.67	< 0.067	< 0.34

Notes:

(1) Soil samples collected in six-inch tubes prior to compositing.

(2) COMP = Composite Samples; samples from this location were composited into one sample for this analysis.

mg/kg = milligrams per kilogram

Samples were analyzed for Semivoltile Organic Compounds (SVOCs) by EPA Method 8270.

TABLE 9: GROUNDWATER CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-07	MFC-08	MFC-09	MFC-12	MFC-14
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/02	3/28/02	3/28/02	3/27/02	3/28/02	3/25/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,2,4-Trichlorobenzene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
1,2-Dichlorobenzene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
1,3-Dichlorobenzene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
1,4-Dichlorobenzene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2,4,5-Trichlorophenol	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2,4,6-Trichlorophenol	< 10	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2,4-Dichlorophenol	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2,4-Dimethylphenol	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2,4-Dinitrophenol	< 2.0	< 30	< 14	< 12	< 23	< 12
2,4-Dinitrotoluene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2,6-Dinitrotoluene	< 10	< 15	< 6.9	< 6.0	< 12	< 6.0
2-Chloronaphthalene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2-Chlorophenol	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2-Methyl-4,6-dinitrophenol	< 10	< 30	< 14	< 12	< 23	< 12
2-Methylnaphthalene	< 2.0	< 6.0	< 2.8	< 2.4	**40**	< 2.4
2-Methylphenol	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
2-Nitroaniline	< 2.0	< 30	< 14	< 12	< 23	< 12
2-Nitrophenol	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
3,3-Dichlorobenzidine	< 5.0	< 15	< 6.9	< 6.0	< 12	< 6.0
3-Nitroaniline	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
4-Bromophenyl phenyl ether	< 5.0	< 15	< 6.9	< 6.0	< 12	< 6.0
4-Chloro-3-methylphenol	< 2.0	< 15	< 6.9	< 6.0	< 12	< 6.0
4-Chloroaniline	< 10	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
4-Chlorophenyl phenyl ether	< 10	< 15	< 6.9	< 6.0	< 12	< 6.0
4-Methylphenol	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
4-Nitroaniline	< 2.0	< 30	< 14	< 12	< 23	< 12
4-Nitrophenol	< 2.0	< 30	< 14	< 12	< 23	< 12
Acenaphthene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Acenaphthylene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Anthracene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Benzo(a)anthracene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Benzo(a)pyrene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Benzo(b)fluoranthene	< 10	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Benzo(g,h,i)perylene	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Benzo(k)fluoranthene	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Benzoic acid	< 2.0	< 30	< 14	< 12	< 23	< 12
Benzyl alcohol	< 2.0	< 15	< 6.9	< 6.0	< 12	< 6.0
Bis(2-chloroethoxy) methane	< 10	< 15	< 6.9	< 6.0	< 12	< 6.0
Bis(2-chloroethyl)ether	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Bis(2-chloroisopropyl) ether	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
bis(2-Ethylhexyl) phthalate	< 5.0	< 30	< 14	< 12	< 23	< 12
Butyl benzyl phthalate	< 5.0	< 15	< 6.9	< 6.0	< 12	< 6.0
Chrysene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Di-n-butyl phthalate	< 2.0	< 15	< 6.9	< 6.0	< 12	< 6.0
Di-n-octyl phthalate	< 5.0	< 15	< 6.9	< 6.0	< 12	< 6.0
Dibenzo(a,h)anthracene	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Dibenzofuran	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Diethyl phthalate	< 2.0	< 15	< 6.9	< 6.0	< 12	< 6.0
Dimethyl phthalate	< 2.0	< 15	< 6.9	< 6.0	< 12	< 6.0

TABLE 9: GROUNDWATER CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-07	MFC-08	MFC-09	MFC-12	MFC-14
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/02	3/28/02	3/28/02	3/27/02	3/28/02	3/25/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Fluoranthene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Fluorene	< 5.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Hexachlorobenzene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Hexachlorobutadiene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Hexachlorocyclopentadiene	< 2.0	< 15	< 6.9	< 6.0	< 12	< 6.0
Hexachloroethane	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Indeno(1,2,3-c,d)pyrene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Isophorone	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
N-Nitroso-di-n-propylamine	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
N-Nitrosodiphenylamine	< 10	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Naphthalene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Nitrobenzene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Pentachlorophenol	< 2.0	< 30	< 14	< 12	< 23	< 12
Phenanthrene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Phenol	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4
Pyrene	< 2.0	< 6.0	< 2.8	< 2.4	< 4.7	< 2.4

Notes:

GW = Grab Groundwater Sample

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Semivolatile Organic Compounds (SVOCs) by EPA Method 8270.

µg/L = micrograms per liter

TABLE 9: GROUNDWATER CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14-DUP	MFC-15	MFC-18	MFC-19	MFC-31	MFC-31
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/26/02	3/25/02	3/25/02	3/25/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,2,4-Trichlorobenzene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
1,2-Dichlorobenzene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
1,3-Dichlorobenzene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
1,4-Dichlorobenzene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2,4,5-Trichlorophenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2,4,6-Trichlorophenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2,4-Dichlorophenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2,4-Dimethylphenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2,4-Dinitrophenol	< 12	< 10	< 110	< 50	< 10	< 100
2,4-Dinitrotoluene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2,6-Dinitrotoluene	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
2-Chloronaphthalene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2-Chlorophenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2-Methyl-4,6-dinitrophenol	< 12	< 10	< 110	< 50	< 10	< 100
2-Methylnaphthalene	< 2.3	< 2.0	**760**	**280**	**130**	**640**
2-Methylphenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
2-Nitroaniline	< 12	< 10	< 110	< 50	< 10	< 100
2-Nitrophenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
3,3-Dichlorobenzidine	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
3-Nitroaniline	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
4-Bromophenyl phenyl ether	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
4-Chloro-3-methylphenol	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
4-Chloroaniline	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
4-Chlorophenyl phenyl ether	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
4-Methylphenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
4-Nitroaniline	< 12	< 10	< 110	< 50	< 10	< 100
4-Nitrophenol	< 12	< 10	< 110	< 50	< 10	< 100
Acenaphthene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Acenaphthylene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Anthracene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Benzo(a)anthracene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Benzo(a)pyrene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Benzo(b)fluoranthene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Benzo(g,h,i)perylene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Benzo(k)fluoranthene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Benzoic acid	< 12	< 10	< 110	< 50	< 10	< 100
Benzyl alcohol	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Bis(2-chloroethoxy) methane	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Bis(2-chloroethyl)ether	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Bis(2-chloroisopropyl) ether	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
bis(2-Ethylhexyl) phthalate	< 12	< 10	< 110	< 50	< 10	< 100
Butyl benzyl phthalate	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Chrysene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Di-n-butyl phthalate	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Di-n-octyl phthalate	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Dibenzo(a,h)anthracene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Dibenzofuran	< 2.3	< 2.0	< 23	< 10	**4.6**	< 20
Diethyl phthalate	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Dimethyl phthalate	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50

TABLE 9: GROUNDWATER CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-14-DUP	MFC-15	MFC-18	MFC-19	MFC-31	MFC-31
MATRIX	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/26/02	3/25/02	3/25/02	3/25/02	3/28/02
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Fluoranthene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Fluorene	< 2.3	< 2.0	**64**	**44**	**14**	**81**
Hexachlorobenzene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Hexachlorobutadiene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Hexachlorocyclopentadiene	< 5.8	< 5.0	< 57	< 25	< 5.0	< 50
Hexachloroethane	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Indeno(1,2,3-c,d)pyrene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Isophorone	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
N-Nitroso-di-n-propylamine	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
N-Nitrosodiphenylamine	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Naphthalene	< 2.3	< 2.0	**380**	**140**	**130**	**390**
Nitrobenzene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Pentachlorophenol	< 12	< 10	< 110	< 50	< 10	< 100
Phenanthrene	< 2.3	< 2.0	**180**	**110**	**33**	**170**
Phenol	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20
Pyrene	< 2.3	< 2.0	< 23	< 10	< 2.0	< 20

Notes:

GW = Grab Groundwater Sample

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Semivolatile Organic Compounds (SVOCs) by EPA Method 8270.

µg/L = micrograms per liter

TABLE 9: GROUNDWATER CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-37
MATRIX	GW	GW
COLLECTION DATE	3/25/02	3/26/02
UNITS	µg/L	µg/L
1,2,4-Trichlorobenzene	< 20	< 4.7
1,2-Dichlorobenzene	< 20	< 4.7
1,3-Dichlorobenzene	< 20	< 4.7
1,4-Dichlorobenzene	< 20	< 4.7
2,4,5-Trichlorophenol	< 20	< 4.7
2,4,6-Trichlorophenol	< 20	< 4.7
2,4-Dichlorophenol	< 20	< 4.7
2,4-Dimethylphenol	< 20	< 4.7
2,4-Dinitrophenol	< 100	< 24
2,4-Dinitrotoluene	< 20	< 4.7
2,6-Dinitrotoluene	< 50	< 12
2-Chloronaphthalene	< 20	< 4.7
2-Chlorophenol	< 20	< 4.7
2-Methyl-4,6-dinitrophenol	< 100	< 24
2-Methylnaphthalene	**630**	< 4.7
2-Methylphenol	< 20	< 4.7
2-Nitroaniline	< 100	< 24
2-Nitrophenol	< 20	< 4.7
3,3-Dichlorobenzidine	< 50	< 12
3-Nitroaniline	< 20	< 4.7
4-Bromophenyl phenyl ether	< 50	< 12
4-Chloro-3-methylphenol	< 50	< 12
4-Chloroaniline	< 20	< 4.7
4-Chlorophenyl phenyl ether	< 50	< 12
4-Methylphenol	< 20	< 4.7
4-Nitroaniline	< 100	< 24
4-Nitrophenol	< 100	< 24
Acenaphthene	< 20	< 4.7
Acenaphthylene	< 20	< 4.7
Anthracene	< 20	< 4.7
Benzo(a)anthracene	< 20	< 4.7
Benzo(a)pyrene	< 20	< 4.7
Benzo(b)fluoranthene	< 20	< 4.7
Benzo(g,h,i)perylene	< 20	< 4.7
Benzo(k)fluoranthene	< 20	< 4.7
Benzoic acid	< 100	< 24
Benzyl alcohol	< 50	< 12
Bis(2-chloroethoxy) methane	< 50	< 12
Bis(2-chloroethyl)ether	< 20	< 4.7
Bis(2-chloroisopropyl) ether	< 20	< 4.7
bis(2-Ethylhexyl) phthalate	< 100	< 24
Butyl benzyl phthalate	< 50	< 12
Chrysene	< 20	< 4.7
Di-n-butyl phthalate	< 50	< 12
Di-n-octyl phthalate	< 50	< 12
Dibenzo(a,h)anthracene	< 20	< 4.7
Dibenzofuran	< 20	< 4.7
Diethyl phthalate	< 50	< 12
Dimethyl phthalate	< 50	< 12

TABLE 9: GROUNDWATER CHEMICAL TEST RESULTS - Semivolatile Organic Compounds
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-35	MFC-37
MATRIX	GW	GW
COLLECTION DATE	3/25/02	3/26/02
UNITS	µg/L	µg/L
Fluoranthene	< 20	< 4.7
Fluorene	**78**	**18**
Hexachlorobenzene	< 20	< 4.7
Hexachlorobutadiene	< 20	< 4.7
Hexachlorocyclopentadiene	< 50	< 12
Hexachloroethane	< 20	< 4.7
Indeno(1,2,3-c,d)pyrene	< 20	< 4.7
Isophorone	< 20	< 4.7
N-Nitroso-di-n-propylamine	< 20	< 4.7
N-Nitrosodiphenylamine	< 20	< 4.7
Naphthalene	**190**	< 4.7
Nitrobenzene	< 20	< 4.7
Pentachlorophenol	< 100	< 24
Phenanthrene	**130**	**32**
Phenol	< 20	< 4.7
Pyrene	< 20	< 4.7

Notes:

GW = Grab Groundwater Sample

Grab Groundwater samples were collected from temporary wells installed during the investigation.

Samples were analyzed for Semivolatile Organic Compounds (SVOCs) by EPA Method 8270.

µg/L = micrograms per liter

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-01	MFC-01	MFC-01	MFC-02	MFC-02	MFC-02	MFC-03
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02
BEGINNING DEPTH (1)	1.0	2.0	4.0	1.5	4.5	5.5	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	**4.1**	**2.8**	< 2.0	**3.9**	< 2.0	< 2.0	< 2.0
Arsenic	**140**	**5.8**	**3.4**	**97**	**3.5**	**2.9**	**2.9**
Barium	**58**	**53**	**78**	**69**	**92**	**42**	**120**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**4.0**	**3.2**	**2.0**	**3.3**	**2.0**	**1.5**	**2.1**
Chromium	**21**	**36**	**31**	**25**	**34**	**35**	**11**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**6.7**	**7.8**	**6.1**	**14**	**7.1**	**5.1**	**5.3**
Copper	**110**	**33**	**15**	**60**	**13**	**5.6**	**15**
Lead	**200**	**65**	**21**	**61**	**6.1**	**2.4**	**7.9**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	**0.13**	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.18**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**41**	**52**	**37**	**39**	**44**	**33**	**16**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**25**	**18**	**21**	**19**	**19**	**19**	**21**
Zinc	**81**	**39**	**27**	**49**	**44**	**16**	**28**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-03	MFC-03	MFC-04	MFC-04	MFC-04	MFC-05	MFC-05
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02
BEGINNING DEPTH (1)	4.5	7.5	5.0	8.5	11.0	5.0	8.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**12**	< 2.0
Arsenic	**22**	**3.4**	**4.0**	**3.5**	**3.4**	**33**	**4.3**
Barium	**43**	**84**	**64**	**160**	**65**	**58**	**45**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.9**	**1.9**	**2.3**	**1.8**	**1.7**	**3.2**	**1.6**
Chromium	**31**	**34**	**40**	**37**	**32**	**30**	**33**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.2**	**6.8**	**7.4**	**5.3**	**4.8**	**6.9**	**5.4**
Copper	**20**	**11**	**110**	**11**	**8.7**	**380**	**12**
Lead	**8.5**	**3.4**	**5.0**	**3.3**	**3.8**	**410**	**11**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	**0.36**	< 0.050
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**30**	**52**	**39**	**56**	**32**	**38**	**34**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**23**	**23**	**23**	**21**	**21**	**27**	**24**
Zinc	**42**	**23**	**30**	**21**	**22**	**180**	**25**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-05	MFC-06	MFC-06	MFC-07	MFC-07	MFC-07	MFC-08
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02
BEGINNING DEPTH (1)	11.0	5.0	8.5	3.0	5.0	8.5	2.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	**3.3**	< 2.0	**5.1**	**4.7**	< 2.0	**11**
Arsenic	**4.4**	**68**	**2.6**	**140**	**34**	**2.1**	**34**
Barium	**92**	**60**	**44**	**60**	**80**	**36**	**68**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.7**	**3.1**	**1.5**	**2.6**	**3.5**	**1.4**	**2.5**
Chromium	**33**	**39**	**36**	**24**	**32**	**31**	**32**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.0**	**7.7**	**5.5**	**6.0**	**8.3**	**5.3**	**6.5**
Copper	**9.5**	**71**	**7.4**	**79**	**120**	**6.6**	**270**
Lead	**3.5**	**120**	**3.3**	**150**	**200**	**2.6**	**680**
Lead (Organic)	--	--	<0.50	--	--	<0.50	--
Mercury	< 0.050	**0.091**	< 0.050	**0.091**	**0.17**	< 0.050	**0.052**
Molybdenum	< 1.0	**1.1**	< 1.0	< 1.0	**2.0**	< 1.0	< 1.0
Nickel	**34**	**67**	**42**	**36**	**43**	**34**	**39**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**24**	**30**	**22**	**22**	**30**	**20**	**27**
Zinc	**21**	**79**	**20**	**89**	**89**	**17**	**110**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-08	MFC-09	MFC-09	MFC-10	MFC-10	MFC-11	MFC-11
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/27/02	3/27/02	3/27/02	3/27/02
BEGINNING DEPTH (1)	5.0	2.0	5.0	1.5	5.0	1.5	4.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	**3.0**	**7.9**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**24**	**150**	**3.9**	**8.4**	**6.1**	**7.1**	**2.7**
Barium	**65**	**110**	**70**	**110**	**180**	**40**	**20**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**2.3**	**3.7**	**1.8**	**1.8**	**2.0**	**4.6**	**1.2**
Chromium	**20**	**46**	**34**	**18**	**38**	**1.2**	**24**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.5**	**14**	**5.0**	**4.9**	**6.2**	**6.4**	**3.8**
Copper	**50**	**150**	**7.9**	**18**	**11**	**23**	**6.0**
Lead	**60**	**120**	**3.2**	**19**	**4.3**	**12**	**3.1**
Lead (Organic)	<0.50	--	<0.50	--	--	--	--
Mercury	< 0.050	**0.50**	**0.073**	**0.23**	< 0.050	**0.10**	< 0.050
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**58**	**220**	**36**	**24**	**34**	**1.3**	**20**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**41**	**26**	**22**	**17**	**35**	**16**	**16**
Zinc	**49**	**57**	**20**	**37**	**25**	**190**	**18**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-12	MFC-12	MFC-13	MFC-13	MFC-14	MFC-14	MFC-14
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/27/02	3/25/02	3/25/02	3/25/02
BEGINNING DEPTH (1)	1.5	4.0	1.5	3.0	1.5	3.0	4.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	**5.0**	< 2.0	**2.9**	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**22**	**36**	**20**	**15**	**2.8**	**25**	**4.7**
Barium	**57**	**27**	**64**	**22**	**84**	**21**	**11**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**2.0**	**1.3**	**2.2**	**0.91**	**0.96**	**0.63**	**0.55**
Chromium	**27**	**30**	**35**	**21**	**9.0**	**16**	**13**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.2**	**4.0**	**5.8**	**2.3**	**2.7**	**2.7**	**2.4**
Copper	**68**	**6.1**	**74**	**5.1**	**14**	**3.3**	**2.5**
Lead	**140**	**3.5**	**89**	**6.7**	**9.3**	**1.2**	**1.1**
Lead (Organic)	--	--	--	--	--	--	<0.50
Mercury	**0.081**	< 0.050	**0.090**	< 0.050	**0.18**	< 0.050	< 0.050
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**30**	**26**	**31**	**16**	**10**	**18**	**14**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**24**	**20**	**28**	**14**	**9.1**	**9.6**	**8.1**
Zinc	**71**	**18**	**66**	**18**	**21**	**11**	**10**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-15	MFC-15	MFC-15	MFC-15-DUP	MFC-16	MFC-16	MFC-17
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/02	3/25/02	3/25/02	3/25/02	3/25/02	3/25/02	3/26/02
BEGINNING DEPTH (1)	1.5	3.0	4.5	4.5	1.5	4.0	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**2.1**
Arsenic	**2.7**	**8.3**	**6.7**	**8.0**	**5.3**	**6.8**	**17**
Barium	**110**	**19**	**14**	**9.6**	**92**	**72**	**92**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.3**	**0.74**	**0.61**	**0.65**	**1.2**	**2.0**	**3.5**
Chromium	**7.9**	**15**	**15**	**17**	**10**	**37**	**22**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**4.1**	**3.0**	**2.9**	**2.3**	**4.0**	**7.0**	**5.6**
Copper	**13**	**4.8**	**2.9**	**2.8**	**17**	**22**	**39**
Lead	**6.8**	**3.9**	**1.7**	**1.6**	**36**	**16**	**66**
Lead (Organic)	--	--	<0.50	--	--	<0.50	--
Mercury	**0.20**	< 0.050	< 0.050	< 0.050	**0.19**	**0.053**	**0.11**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**12**	**20**	**14**	**16**	**14**	**40**	**22**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**15**	**10**	**8.7**	**9.9**	**11**	**18**	**22**
Zinc	**25**	**14**	**10**	**10**	**33**	**120**	**46**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-17	MFC-18	MFC-18	MFC-18	MFC-19	MFC-19	MFC-19
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/25/02	3/25/02	3/25/02	3/25/02	3/25/02	3/25/02
BEGINNING DEPTH (1)	4.5	1.5	3.0	4.5	1.0	2.0	4.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	**9.7**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**510**	**3.8**	**9.2**	**7.1**	**6.4**	**15**	**1.0**
Barium	**67**	**36**	**48**	**30**	**52**	**23**	**27**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**7.2**	**2.0**	**1.4**	**0.72**	**4.0**	**0.61**	**0.73**
Chromium	**37**	**9.8**	**15**	**17**	**8.3**	**14**	**16**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.8**	**6.7**	**4.2**	**2.9**	**9.6**	**2.7**	**2.5**
Copper	**180**	**23**	**41**	**3.8**	**42**	**4.3**	**5.3**
Lead	**50**	**4.7**	**150**	**1.6**	**3.3**	**3.2**	**1.2**
Lead (Organic)	--	--	--	<0.50	--	--	<0.50
Mercury	< 0.050	**0.13**	**0.23**	< 0.050	**0.22**	< 0.050	< 0.050
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**40**	**9.5**	**26**	**14**	**8.8**	**16**	**11**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**19**	**31**	**17**	**9.9**	**63**	**9.5**	**12**
Zinc	**390**	**23**	**60**	**10**	**44**	**12**	**11**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-20	MFC-20	MFC-21	MFC-21-DUP	MFC-21	MFC-21	MFC-22
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/28/02	3/28/02	3/28/02	3/28/02	3/28/02
BEGINNING DEPTH (1)	4.0	7.0	1.5	1.5	4.5	8.0	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	**8.2**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**2.6**	**880**	**7.3**	**3.4**	**9.0**	**2.8**	**3.0**
Barium	**37**	**110**	**38**	**42**	**53**	**64**	**2.0**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.2**	**14**	**1.4**	**1.6**	**1.6**	**1.8**	**1.1**
Chromium	**24**	**25**	**23**	**26**	**32**	**32**	**7.6**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**4.6**	**9.2**	**4.3**	**5.1**	**5.3**	**6.7**	**9.3**
Copper	**13**	**220**	**15**	**9.7**	**6.5**	**8.0**	**46**
Lead	**11**	**150**	**19**	**14**	**2.8**	**3.0**	**1.4**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	< 0.050	**0.15**	**0.089**	< 0.050	< 0.050	< 0.050	< 0.050
Molybdenum	< 1.0	**1.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**23**	**37**	**24**	**27**	**34**	**35**	**10**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**15**	**15**	**17**	**19**	**21**	**22**	**20**
Zinc	**28**	**600**	**33**	**33**	**20**	**23**	**7.8**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-22	MFC-22	MFC-23	MFC-23	MFC-23	MFC-24	MFC-24
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/28/02	3/28/02	3/28/02	3/28/02	3/27/02	3/27/02
BEGINNING DEPTH [(1)]	4.5	7.5	1.5	5.5	8.0	1.5	4.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**25**	**2.8**	**5.0**	**3.4**	**3.0**	**7.0**	**18**
Barium	**100**	**57**	**23**	**52**	**56**	**32**	**74**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**2.3**	**1.6**	**2.0**	**1.5**	**1.2**	**1.9**	**2.6**
Chromium	**37**	**36**	**23**	**29**	**24**	**32**	**31**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**8.8**	**6.9**	**8.0**	**6.1**	**4.3**	**7.7**	**7.3**
Copper	**16**	**9.2**	**32**	**9.2**	**7.5**	**39**	**45**
Lead	**6.6**	**3.7**	**14**	**2.3**	**3.0**	**36**	**73**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	< 0.050	< 0.050	**0.071**	< 0.050	< 0.050	**0.081**	**0.077**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**53**	**46**	**20**	**43**	**29**	**33**	**44**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**21**	**21**	**19**	**21**	**18**	**22**	**30**
Zinc	**39**	**21**	**46**	**19**	**15**	**35**	**67**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-25-DUP	MFC-25	MFC-26	MFC-26	MFC-26	MFC-27	MFC-27
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/28/02	3/27/02	3/27/02	3/27/02	3/27/02	3/27/02
BEGINNING DEPTH (1)	1.0	4.5	1.5	5.0	7.5	1.5	4.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**22**	< 2.0
Arsenic	**5.7**	**4.2**	**2.7**	**4.9**	**3.2**	**24**	**6.1**
Barium	**45**	**100**	**56**	**73**	**63**	**87**	**130**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.6**	**2.3**	**1.8**	**2.8**	**1.7**	**9.7**	**2.4**
Chromium	**28**	**50**	**35**	**4.2**	**33**	**20**	**34**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.4**	**11**	**6.5**	**7.1**	**4.9**	**9.2**	**10**
Copper	**20**	**19**	**9.6**	**32**	**8.7**	**280**	**16**
Lead	**30**	**8.2**	**3.4**	**1.2**	**2.3**	**350**	**6.0**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	**0.056**	< 0.050	< 0.050	**0.30**	< 0.050	**0.27**	< 0.050
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.5**	< 1.0
Nickel	**26**	**74**	**50**	**3.2**	**34**	**42**	**50**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**18**	**26**	**20**	**60**	**20**	**26**	**45**
Zinc	**38**	**29**	**23**	**25**	**18**	**61**	**25**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-28	MFC-28	MFC-29	MFC-29	MFC-29-DUP	MFC-30	MFC-31
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/27/02	3/27/02	3/26/02	3/26/02	3/26/02	3/27/02	3/25/02
BEGINNING DEPTH (1)	1.0	5.0	1.0	4.5	4.5	1.5	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**9.3**	**3.9**	**5.9**	**1.8**	**1.2**	**9.7**	**2.1**
Barium	**67**	**86**	**50**	**44**	**38**	**34**	**29**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**4.6**	**1.9**	**3.4**	**1.2**	**1.3**	**1.6**	**0.68**
Chromium	**11**	**36**	**7.7**	**35**	**39**	**27**	**19**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**11**	**6.1**	**9.9**	**5.0**	**5.6**	**5.2**	**3.3**
Copper	**38**	**10**	**32**	**6.7**	**5.6**	**15**	**3.7**
Lead	**3.9**	**4.7**	**4.0**	**3.1**	**3.0**	**38**	**1.8**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	**0.25**	< 0.050	**0.48**	< 0.050	< 0.050	**0.070**	**0.097**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**10**	**42**	**8.5**	**32**	**32**	**25**	**13**
Selenium	< 2.0	< 2.0	**2.5**	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**66**	**23**	**66**	**22**	**22**	**19**	**9.5**
Zinc	**41**	**24**	**45**	**21**	**22**	**38**	**9.9**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-31	MFC-31	MFC-32	MFC-33	MFC-33	MFC-33	MFC-34
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/25/02	3/25/02	3/26/02	3/25/02	3/25/02	3/25/02	3/26/02
BEGINNING DEPTH [1]	3.0	4.5	1.5	1.5	3.0	5.0	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**4.7**	**3.1**	**2.0**	**7.2**	**2.5**	**1.3**	**5.8**
Barium	**43**	**20**	**18**	**110**	**41**	**66**	**61**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.2**	**1.2**	**1.4**	**4.1**	**1.3**	**0.57**	**3.3**
Chromium	**19**	**20**	**24**	**11**	**19**	**16**	**8.9**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**4.5**	**8.6**	**9.6**	**11**	**4.9**	**2.5**	**9.7**
Copper	**21**	**30**	**35**	**42**	**11**	**2.8**	**41**
Lead	**43**	**7.0**	**4.3**	**4.2**	**13**	**1.3**	**4.3**
Lead (Organic)	--	<0.50	--	--	--	--	--
Mercury	**0.053**	< 0.050	**0.053**	**0.38**	**0.062**	< 0.050	**0.30**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**23**	**19**	**20**	**12**	**21**	**12**	**8.4**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**2.0**
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**15**	**16**	**17**	**70**	**17**	**8.6**	**80**
Zinc	**44**	**16**	**14**	**45**	**31**	**8.2**	**42**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-34	MFC-34	MFC-35	MFC-35	MFC-35	MFC-36	MFC-36- DUP
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/25/02	3/25/02	3/25/02	3/28/02	3/28/02
BEGINNING DEPTH (1)	3.0	5.5	1.0	2.0	5.0	1.5	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	**2.4**	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**19**	**1.5**	**7.3**	**3.2**	**10**	**9.6**	**6.5**
Barium	**65**	**34**	**73**	**74**	**25**	**51**	**61**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.6**	**0.70**	**3.8**	**2.1**	**0.64**	**3.3**	**2.0**
Chromium	**22**	**22**	**9.0**	**5.2**	**18**	**10**	**35**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**4.6**	**2.6**	**10**	**5.1**	**2.3**	**4.6**	**6.5**
Copper	**170**	**3.6**	**40**	**26**	**3.5**	**18**	**11**
Lead	**480**	**1.8**	**4.2**	**40**	**1.6**	**28**	**7.4**
Lead (Organic)	--	--	--	--	<0.50	--	--
Mercury	**0.20**	< 0.050	**0.38**	**0.19**	< 0.050	< 0.050	**0.092**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**38**	**14**	**10**	**7.1**	**12**	**11**	**32**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**84**	**13**	**65**	**19**	**10**	**25**	**25**
Zinc	**79**	**11**	**42**	**55**	**8.6**	**62**	**28**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-36	MFC-37	MFC-37	MFC-38	MFC-38	MFC-38	MFC-39
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/25/02	3/25/02	3/26/02	3/26/02	3/26/02	3/26/02
BEGINNING DEPTH (1)	4.5	1.5	4.5	1.0	2.5	5.0	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**22**	**8.3**	**2.5**	**5.0**	**2.0**	**5.0**	< 1.0
Barium	**79**	**69**	**32**	**49**	**22**	**30**	**3.3**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**2.4**	**4.2**	**1.2**	**3.2**	**1.0**	**1.6**	**0.79**
Chromium	**24**	**9.3**	**21**	**9.1**	**22**	**28**	**18**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**6.5**	**11**	**4.6**	**8.8**	**3.2**	**5.7**	**8.5**
Copper	**37**	**46**	**7.6**	**30**	**6.5**	**10**	**37**
Lead	**37**	**3.5**	**5.3**	**4.6**	**12**	**3.7**	**1.8**
Lead (Organic)	--	--	<0.50	--	--	--	--
Mercury	**0.076**	**0.42**	**0.055**	**0.58**	< 0.050	< 0.050	**0.10**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**35**	**9.8**	**22**	**10**	**17**	**28**	**14**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.2**
Vanadium	**22**	**72**	**15**	**52**	**14**	**20**	**11**
Zinc	**36**	**45**	**320**	**36**	**25**	**21**	**7.1**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-40	MFC-40	MFC-40	MFC-41	MFC-41	MFC-41	MFC-43
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02	3/26/02	3/28/02
BEGINNING DEPTH [(1)]	1.5	3.0	4.5	1.5	2.5	4.0	1.5
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**6.1**	**4.1**	**1.3**	**4.7**	**4.7**	**4.0**	**6.0**
Barium	**40**	**26**	**39**	**52**	**25**	**27**	**37**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**1.5**	**1.8**	**0.65**	**2.8**	**2.2**	**1.1**	**2.0**
Chromium	**26**	**33**	**21**	**6.5**	**2.2**	**23**	**25**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**5.3**	**5.8**	**2.3**	**8.7**	**5.2**	**4.5**	**6.7**
Copper	**32**	**12**	**3.8**	**36**	**8.5**	**11**	**34**
Lead	**51**	**11**	**2.0**	**3.5**	**17**	**6.8**	**36**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	**0.055**	**0.088**	< 0.050	**0.34**	**0.075**	**0.080**	**0.052**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**27**	**31**	**14**	**6.4**	**1.9**	**20**	**23**
Selenium	< 2.0	< 2.0	< 2.0	**2.4**	**2.2**	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**20**	**23**	**14**	**68**	**25**	**17**	**20**
Zinc	**37**	**31**	**13**	**36**	**54**	**73**	**85**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 10: SOIL CHEMICAL TEST RESULTS - Metals
Phase II Environmental Site Assessment
Future Port Field Support Service Complex
Port of Oakland
Oakland, California

LOCATION	MFC-43	MFC-44	MFC-44	MFC-45	MFC-45	MFC-46	MFC-46
MATRIX	Soil	Soil	Soil	Soil	Soil	Soil	Soil
COLLECTION DATE	3/28/02	3/26/02	3/26/02	3/28/02	3/28/02	3/27/02	3/27/02
BEGINNING DEPTH [(1)]	4.5	1.5	4.5	1.5	4.5	4.0	7.0
UNITS	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Antimony	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Arsenic	**1.8**	< 1.0	**5.9**	**2.4**	**5.7**	**3.2**	**2.6**
Barium	**26**	**4.4**	**27**	**37**	**2.4**	**46**	**38**
Beryllium	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cadmium	**0.84**	**1.0**	**3.0**	**1.4**	**1.9**	**2.0**	**1.5**
Chromium	**22**	**32**	**2.6**	**18**	**25**	**17**	**25**
Chromium (Hexavalent)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Cobalt	**2.4**	**10**	**6.6**	**3.1**	**13**	**4.3**	**4.7**
Copper	**3.7**	**38**	**20**	**9.4**	**79**	**6.9**	**10**
Lead	**1.6**	**1.7**	**37**	**8.5**	**2.5**	**7.0**	**19**
Lead (Organic)	--	--	--	--	--	--	--
Mercury	< 0.050	**0.068**	**0.090**	< 0.050	**0.075**	**0.17**	**0.052**
Molybdenum	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	**13**	**20**	**3.0**	**13**	**21**	**19**	**24**
Selenium	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Silver	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thallium	< 1.0	**1.1**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	**13**	**15**	**46**	**20**	**20**	**12**	**17**
Zinc	**9.1**	**9.2**	**110**	**210**	**10**	**40**	**40**

Notes:

(1) Soil samples collected in six-inch tubes beginning with the depth indicated in feet below ground surface (bgs).

mg/kg = milligrams per kilogram
-- = Not Analyzed

Samples were analyzed for Title 26 Metals by EPA Method 6010/6020/7471, Cr VI by EPA Method 7196A, and Organic Lead (OL) by CA LUFT Method.

TABLE 11: GROUNDWATER CHEMICAL TEST RESULTS - Organic Lead
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-06	MFC-08	MFC-09	MFC-12	MFC-14	MFC-14-DUP	MFC-15	MFC-18
MATRIX	GW	GW	GW	GW	GW	GW	GW	GW
COLLECTION DATE	3/27/02	3/27/02	3/27/02	3/27/02	3/25/02	3/25/02	3/26/02	3/25/02
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Organic Lead	<0.1	<0.05	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1

Notes:

GW = Grab Groundwater

mg/L = milligrams per liter

Samples were analyzed for Organic Lead (OL) by CA LUFT Method.

TABLE 11: GROUNDWATER CHEMICAL TEST RESULTS - Organic Lead
Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

LOCATION	MFC-19	MFC-31	MFC-31	MFC-35	MFC-37
MATRIX	GW	GW	GW	GW	GW
COLLECTION DATE	3/25/02	3/25/02	3/28/02	3/25/02	3/26/02
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Organic Lead	<0.1	<0.1	<0.05	<0.1	<0.1

Notes:

GW = Grab Groundwater

mg/L = milligrams per liter

Samples were analyzed for Organic Lead (OL) by CA LUFT Method.

TABLE 12: SURVEYED BOREHOLE LOCATIONS

Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

Boring Number	Northing	Easting	Elevation
MFC-01	2,120,604	6,037,814	13.63
MFC-02	2,120,624	6,038,062	13.29
MFC-03	2,120,628	6,038,213	14.70
MFC-04	2,120,584	6,037,918	17.67
MFC-05	2,120,578	6,038,054	17.68
MFC-06	2,120,511	6,038,087	17.67
MFC-07	2,120,519	6,038,133	17.66
MFC-08	2,120,495	6,038,179	14.87
MFC-09	2,120,463	6,038,174	14.58
MFC-10	2,120,517	6,038,286	14.41
MFC-11	2,120,462	6,037,776	14.24
MFC-12	2,120,499	6,037,915	14.60
MFC-13	2,120,443	6,037,951	13.84
MFC-14	2,120,426	6,038,062	13.98
MFC-15	2,120,417	6,038,131	14.12
MFC-16	2,120,415	6,038,254	14.20
MFC-17	2,120,383	6,038,277	14.22
MFC-18	2,120,340	6,038,163	13.99
MFC-19	2,120,348	6,038,237	13.75
MFC-20	2,120,286	6,038,494	19.92
MFC-21	2,120,605	6,038,410	14.84
MFC-22	2,120,569	6,038,499	15.30
MFC-23	2,120,498	6,038,596	15.33
MFC-24	2,120,532	6,038,333	15.32
MFC-25	2,120,453	6,038,495	14.77
MFC-26	2,120,381	6,038,636	15.38
MFC-27	2,120,410	6,038,353	13.84
MFC-28	2,120,397	6,038,402	14.33
MFC-29	2,120,361	6,038,533	15.81
MFC-30	2,120,344	6,038,366	14.17
MFC-31	2,120,302	6,038,396	14.67
MFC-32	2,120,245	6,038,606	14.40
MFC-33	2,120,246	6,038,429	15.35
MFC-34	2,120,198	6,038,532	15.11
MFC-35	2,120,192	6,038,352	14.44
MFC-36	2,120,117	6,038,568	14.31
MFC-37	2,120,114	6,038,307	14.11
MFC-38	2,120,103	6,038,387	15.35
MFC-39	2,120,105	6,038,485	15.58
MFC-40	2,120,080	6,038,350	14.84
MFC-41	2,120,024	6,038,378	15.59
MFC-42	2,120,012	6,038,456	15.75
MFC-43	2,120,006	6,038,535	14.26
MFC-44	2,119,962	6,038,381	15.65
MFC-45	2,119,936	6,038,417	15.68
MFC-46	2,120,130	6,038,456	19.87

Notes:

(1) Coordinates based upon California State Plane System, NAD '83 Zone III.

(2) Vertical Benchmark is point "BART VENT", held with ar of 17.20', Port of Oakland Datum.

TABLE 12: SURVEYED BOREHOLE LOCATIONS

Phase II Environmental Site Assessment
Future Port Field Support Services Complex
Port of Oakland
Oakland, California

Boring Number	Northing	Easting	Elevation
MFC-01	2,120,604	6,037,814	13.63
MFC-02	2,120,624	6,038,062	13.29
MFC-03	2,120,628	6,038,213	14.70
MFC-04	2,120,584	6,037,918	17.67
MFC-05	2,120,578	6,038,054	17.68
MFC-06	2,120,511	6,038,087	17.67
MFC-07	2,120,519	6,038,133	17.66
MFC-08	2,120,495	6,038,179	14.87
MFC-09	2,120,463	6,038,174	14.58
MFC-10	2,120,517	6,038,286	14.41
MFC-11	2,120,462	6,037,776	14.24
MFC-12	2,120,499	6,037,915	14.60
MFC-13	2,120,443	6,037,951	13.84
MFC-14	2,120,426	6,038,062	13.98
MFC-15	2,120,417	6,038,131	14.12
MFC-16	2,120,415	6,038,254	14.20
MFC-17	2,120,383	6,038,277	14.22
MFC-18	2,120,340	6,038,163	13.99
MFC-19	2,120,348	6,038,237	13.75
MFC-20	2,120,286	6,038,494	19.92
MFC-21	2,120,605	6,038,410	14.84
MFC-22	2,120,569	6,038,499	15.30
MFC-23	2,120,498	6,038,596	15.33
MFC-24	2,120,532	6,038,333	15.32
MFC-25	2,120,453	6,038,495	14.77
MFC-26	2,120,381	6,038,636	15.38
MFC-27	2,120,410	6,038,353	13.84
MFC-28	2,120,397	6,038,402	14.33
MFC-29	2,120,361	6,038,533	15.81
MFC-30	2,120,344	6,038,366	14.17
MFC-31	2,120,302	6,038,396	14.67
MFC-32	2,120,245	6,038,606	14.40
MFC-33	2,120,246	6,038,429	15.35
MFC-34	2,120,198	6,038,532	15.11
MFC-35	2,120,192	6,038,352	14.44
MFC-36	2,120,117	6,038,568	14.31
MFC-37	2,120,114	6,038,307	14.11
MFC-38	2,120,103	6,038,387	15.35
MFC-39	2,120,105	6,038,485	15.58
MFC-40	2,120,080	6,038,350	14.84
MFC-41	2,120,024	6,038,378	15.59
MFC-42	2,120,012	6,038,456	15.75
MFC-43	2,120,006	6,038,535	14.26
MFC-44	2,119,962	6,038,381	15.65
MFC-45	2,119,936	6,038,417	15.68
MFC-46	2,120,130	6,038,456	19.87

Notes:

(1) Coordinates based upon California State Plane System, NAD '83 Zone III.

(2) Vertical Benchmark is point "BART VENT", held with ar of 17.20', Port of Oakland Datum.

APPENDIX B

MODELING METHODOLOGIES

Appendix B. Modeling Methodologies

This appendix explains the methods used to model exposure to contaminants of potential concern (COPCs) for human receptors considered at the Site. These models were used to estimate on-Site, indoor and outdoor ambient air concentrations associated with the emission of COPCs from soil, soil gas, and groundwater. Estimation of airborne COPC concentrations at on-Site receptors comprised the calculation of (i) emission rates of COPCs at the appropriate surface boundaries and (ii) dispersion factors for these COPCs into trenches and indoor environments. The calculated COPC concentrations were combined with exposure assumptions and chemical toxicity data to characterize potential adverse health effects to on-Site receptors. Note that all of the models presented in this appendix will overestimate ambient air concentrations when non-aqueous phase liquids are present.

B.1 Exposure Modeling Summary

Iris Environmental initially performed baseline modeling under an assumed default condition where specific design elements that will be incorporated into the development were not included. These specific design elements include 1) the planned passive soil-venting systems that will be placed beneath all constructed buildings and 2) the asphalt cap that will completely cover the Site. We then conducted modeling under conditions consistent with the planned site redevelopment, incorporating the aforementioned design elements. Note that these design elements will only affect the fate and transport of the COPCs in the commercial-worker scenario. The calculated, site-specific exposures were combined with the appropriate COPC-specific toxicological data to characterize the potential for adverse health effects, as described in Section 6 of the assessment. The following table summarizes the models used to estimate exposure for each human receptor subject to a complete exposure pathway, as described in Section 5 of the assessment. Uncertainties associated with these modeling approaches are discussed in Appendix C.

Baseline Evaluation				
Scenario		**Model Name**	**Model Breakdown**	
			Emissions	**Dispersion**
Development				
On-Site Construction Worker	Soil Particulate	Dust	Default	Default
	Soil	Trench	Methane Advection	Trench Model
	Subsurface Soil Gas	Trench	Methane Advection	Trench Model
	Groundwater	Trench	Methane Advection	Trench Model
Future Use				
Intrusive Worker	Soil Particulate	Dust	Default	Default
	Soil	Trench	Methane Advection	Trench Model
	Subsurface Soil Gas	Trench	Methane Advection	Trench Model
	Groundwater	Trench	Methane Advection	Trench Model
On-Site Commercial Worker	Soil Particulate	Dust	Default	Default
	Soil	Johnson & Ettinger	Methane Advection	Johnson & Ettinger
	Subsurface Soil Gas	Johnson & Ettinger	Methane Advection	Johnson & Ettinger
	Groundwater	Johnson & Ettinger	Methane Advection	Johnson & Ettinger
Planned Site Redevelopment Evaluation				
On-Site Commercial Worker	Soil Particulate	Dust	Default	Default
	Soil	Johnson & Ettinger	Diffusive Flux	Johnson & Ettinger
	Subsurface Soil Gas	Johnson & Ettinger	Diffusive Flux	Johnson & Ettinger
	Groundwater	Johnson & Ettinger	Diffusive Flux	Johnson & Ettinger

B.2 Physicochemical Properties and Site Parameters

The mobility of a COPC in the subsurface is governed by the physicochemical properties of the COPC and by the soil properties. The COPC-specific properties that govern transport include the diffusion coefficient in air, diffusion coefficient in water, Henry's law constant, solubility in water, and the organic carbon partition coefficient. The values assumed for these properties and their corresponding sources are listed in Table 5-1.

Soil properties required to estimate the transport of COPCs include total porosity, dry bulk density, soil saturation, and organic carbon content. As there is considerable uncertainty with respect to the soil properties, conservative values were assumed where site-specific data were not available. Site-specific properties were used where available, and were based on data from the Phase II ESA. Site soil, groundwater, building, and trench parameters are presented in Table 5-2. Soil properties were assumed to be homogeneous.

B.3 Dust Model

The estimation of concentration goals attendant to inhalation of particulates requires the determination of the quantitative relationship between chemical concentrations in the soil (mg/kg) and the concentration of respirable particulate matter (PM_{10}) in the air due to fugitive dust emissions. For the fugitive dust inhalation pathway, the airborne particulate concentration at the Site was assumed equal to the Federal annual-average PM_{10} standard of 50 $\mu g/m^3$. For the intrusive-construction inhalation pathway, the airborne particulate concentration was assumed to be one-tenth of the respirable-dust standard of 5,000 $\mu g/m^3$ established by the California Occupational Safety and Health Administration (Cal/OSHA), i.e., was assumed to be 500 $\mu g/m^3$. In both cases, the chemical composition of airborne particulates was assumed identical to that of the Site soil (DTSC, 1994).

B.4 Trench Model

The Trench Model was used to estimate airborne COPC concentrations resulting from the volatilization of COPCs from soil, soil gas, and groundwater into trenches dug by construction workers during Site development. This model assumes that COPCs present in subsurface soil, soil gas, and groundwater are volatilized from the surface of the trench walls and dispersed throughout the trench by winds.

Estimation of ambient COPC concentrations for the intrusive worker consisted of two steps: (i) the estimation of the volatilization flux of COPCs into the air; and, (ii) the modeling of the dispersion of the COPCs in the trench. An analytical solution to the Fickian diffusion equation was used to calculate the volatilization flux of COPCs from soil, soil gas, and groundwater into the trench. An empirical analogy approach was used to estimate the dispersion in the trench. Section A.4.1 describes the methodology used to estimate the volatilization flux from soil, soil gas, and groundwater to the trench. Section A.4.2 describes the methodology used in estimating the concentration of COPCs in the trench. Ambient air concentrations from trench modeling are incorporated into Tables 5-3 and 5-4.

B.4.1 Estimation of Baseline Flux of COPCs from Soil, Soil Gas, and Groundwater to the Trench Assuming Methane Advection

COPCs can flux through the pores of soil and be emitted into the trench. In situations where there is evidence of methane production resulting from the action of subsurface microorganisms, the potential for the pressurized flux of methane to resulting in the advective transport of other COPCs must be addressed. Methane concentrations at the Site are likely the result of the use of hydrocarbons as a food substrate by subsurface microorganisms. As the microorganisms consume the hydrocarbons as food, methane is released as a byproduct. The methane so released begins to build up pressure, resulting in a pressure gradient between the source and the surface. This pressure gradient causes methane, and other collocated gases, to be "pushed" to surface at a rate greater that expected from the diffusion gradient.

The COPC flux associated with the methane pressure gradient can be estimated by assuming a steady-state flow associated with this pressure gradient (Little et al., 1992). Under this assumption, the normalized average flux is:

$$J/C = Q/A * 10^{-5}$$

where:

J/C	=	normalized contaminant flux at ground surface (m/s);
Q	=	steady state flux rate of the methane gas (cm^3/s);
C	=	soil gas concentration resulting from media of concern (mg/m^3); and
A	=	area of trench surface (cm^2).

The steady-state flux rate of methane is calculated from:

$$Q = (k/u)\ (P/L)\ A$$

where:

k	=	soil intrinsic permeability (cm^2);
u	=	vapor viscosity (g/m·s);
P	=	pressure of methane at groundwater table ($g/cm \cdot s^2$);
L	=	distance from groundwater table to surface (cm); and
A	=	area of trench surface (cm^2).

Note that the total flux into the trench may not exceed the mass available for transport. While groundwater sources are considered infinite, soil and soil gas sources are finite; therefore, both soil and soil gas flux estimates are checked to ensure they do not result in violation of conservation of mass. To estimate the flux under these conditions, we assumed that all of the mass potentially available to flux into the trench did so, taking into account the potential flux of COPCs to the surface. Under these assumptions, the normalized flux into the trench would be:

$$J/C = \frac{(2W + 2L)\pi Z^2 / 4 + (D - Z) * WL}{AT} \times 10^{-2}$$

where:

J/C	=	normalized contaminant flux at ground surface over time T (m/s);
C	=	soil gas concentration resulting from media of concern (mg/m^3);
T	=	total flux time (exposure period, s);
D	=	depth of COPC contamination (cm);
W	=	width of trench (cm);
L	=	length of trench (cm);
Z	=	depth of trench (cm); and
A	=	surface area of trench (cm^2).

The trench parameters referenced above are presented in Table 5-2. Note that the formulation of this Trench model requires that there are no NAPLs present. If this model is used to estimate the flux of NAPLs, the flux will be overestimated. Therefore, as a conservative screen of the impact of NAPLs on exposure concentrations, this approach may be used.

B.4.2 Concentration of COPCs in the Trench

Atmospheric dispersion in trenches is similar to that found in street canyons. Street canyons are streets lined on both sides by buildings. This configuration results in a cross-street profile bound on three sides, with an open surface above the street. Winds normal to the street flow over building roof tops and drop down through the open surface above the street to create zones of turbulence within the canyon. Like street canyons, trenches are bound on three sides and surface winds traveling over the trench drop down to create zones of turbulence within the trench. Similar to emissions from cars traveling along the street at the bottom of the street canyon, emissions from the bottom of the trench may get trapped within the trench walls. Therefore, ambient air concentrations resulting from emissions in the bottom of the trench may be estimated from street canyon modeling of automotive emissions. Using this analogy, the concentrations resulting from the formation of turbulent eddies in the trench may be estimated from the following equation (Cermak, 1974):

$$C_a = \frac{J\,A_t}{0.1\,H_t\,L_t\,u_s}$$

where:

C_a	=	air concentration in the trench (mg/m^3)
J	=	flux of COPCs into the trench (g/s-m^2)
L_t	=	length of the trench (m)
H_t	=	depth of the trench (m)
A_t	=	area of trench walls and floor (m^2)
u_s	=	average surface wind speed (m/s)

To maintain the analogy with the experimental results presented in Cermak et al. (1974) the width of the trench was assumed to be one and half times the depth of the trench. All the input parameters used in the trench modeling are presented in Table 5-2. The hypothetical trench is assumed to be 100 cm deep, 150 cm wide, and 400 cm long.

The trench equation presented above assumes that the wind is constant and is always blowing normal to the trench; therefore, the equation gives a maximum one-hour average concentration. A multiplication factor of 0.08 is generally used to convert maximum one-hour concentrations to annual average concentrations. Nonetheless, Iris Environmental conservatively assumed that the one-year average concentrations in the trench would equal the maximum hourly concentrations; therefore, this multiplication factor was not used. Furthermore, wind speed and direction normal to the trench will vary significantly with change in meteorology. Therefore, it is likely that this Trench Model will provide a conservative estimate of the actual annual average concentration in the trench.

B.5 Dust Model

The estimation of concentration goals attendant to inhalation of particulates requires the determination of the quantitative relationship between chemical concentrations in the soil (mg/kg) and the concentration of respirable particulates (PM_{10}) in the air due to fugitive dust emissions. Particulate emissions are due to wind erosion and, therefore, depend on the erodibility of the surface material. For the fugitive dust inhalation pathway, we assumed that the ambient air particulates at the Site are equal to the National Ambient Air Quality Standard for the annual average respirable portion of suspended particulate matter (0.050 mg/m^3 PM_{10}) and that the particulates have the same concentration of contaminants as the soil (DTSC, 1994). For the intrusive worker, we have assumed that the airborne dust level present during the intrusive activities would be one tenth of the standard for respirable dust particulates (i.e., one tenth of 5 mg/m^3, or 0.5 mg/m^3), as established by the California Occupational Safety and Health Administration (Cal/OSHA). For both the resident and worker populations, we have assumed that 100% of the inhaled particulates come from surface soil.

B.6 Johnson and Ettinger Model

The transport of COPCs into indoor air was simulated using the USEPA-approved Johnson and Ettinger Model ("the J &E Model"; USEPA, 2000), as modified by Cal/EPA. The Advanced version of the Model was used (SL-ADV Version 2.3; 3/01). The J & E Model is used to estimate indoor air concentrations associated with the volatilization and dispersion of COPCs in soil, soil gas, and groundwater into indoor environments. COPCs in subsurface soil, soil gas, and groundwater, may be emitted into indoor environments through advection and diffusion. Once released into indoor air, turbulent mixing will disperse the COPCs in the building.

The J & E Model estimates the COPC indoor air concentrations in a two steps process: (i) the estimation of the flux of COPCs into the building; and, (ii) the estimation of the dispersion of the

COPCs in the building. For our baseline analysis, we have assumed that COPCs in subsurface soil, soil gas, and groundwater, may migrate vertically into on-Site buildings by advection and diffusion. The advective component of the flux is the result of a methane pressure gradient, as discussed above. Currently, the J & E Model does not include this advective transport mechanism. As this transport pathway can significantly increase the total flux into a building, we have modified the J & E Model to incorporate this pathway.

Using the approach developed in Section A.4.1, the advective component of the flux was incorporated into the J & E Model. This adjusted J & E Model simulates the transport of a compound into the building by both advection and diffusion and relates the flux of the substance to the pressure gradient of methane.

The planned site redevelopment will include passive vapor venting systems below building built on-Site. The passive vapor venting system will decouple the advective transport of COPCs into the building, allowing the COPCs to escape around the building, and thereby reducing the advective transport of soil gas to zero. In this case, we have conservatively assumed that diffusive transport of COPCs into the building will continue even with the addition of a passive vapor venting system. We used the standard J & E Model to estimate the diffusive transport to COPCs into the building.

The development of the Model is described in detail in the user's guide (USEPA, 2000). The modeling inputs that affect the estimate of the indoor air concentrations include building, soil, methane flow rate, and physicochemical parameters. Default building parameters used include building height, the building air exchange rate, and the seam between the floor and the building walls. Modeling parameters are presented in Tables 5-2. Table 5-3 shows the predicted air concentrations associated with baseline evaluation and Table 5-4 shows the predicted indoor ambient air concentrations associated with the inclusion of planned design elements.

B.7 Modeling References

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 1994. *Preliminary Endangerment Assessment Manual.*

Cermak, J. E., Lombardi, D. J., and R. S. Thompson. 1974. *Applications of Physical Modeling to the Investigations of Air Pollution Problems in Urban Areas*. Presented at the 67th Annual Meeting of the Air Pollution Control Association, Denver, June 9-13, Paper No. 74-160.

Little, J.C., Daisy, J.M., and W.M. Nazaroff. 1992. *Transport of Subsurface Contaminants into Buildings – An Exposure Pathway for Volatile Organics.* Environmental Science and Technology, Volume 26, Number 11.

U.S. Environmental Protection Agency (USEPA). 2000. User's Guide for the Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings. December.

APPENDIX C

UNCERTAINTIES IN THE RISK ASSESSMENT

Appendix C. Uncertainties in the Risk Assessment

The process of estimating risk has inherent uncertainties associated with the calculations and assumptions used. The approach used in this evaluation is based on health-protective agency guidelines that are specifically designed to not underestimate risk. This results in estimates of risk that represent upper-bound estimates. Both the USEPA (1989a) and the National Research Council (1994) discuss the importance of identifying the key uncertainties in each risk assessment and describing the possible influence of each uncertainty on the final risk estimates. A discussion of the assumptions and uncertainties in the risk assessment is a key component of the risk assessment process. Most often, the influence of the key uncertainties is described as either overestimating or underestimating the final risk. For some variables, however, the direction of the influence is not known. In these situations, the influence of the uncertainty is identified as either overestimating or underestimating risk. The key uncertainties for the various aspects associated with the risk assessment are described below.

C.1 Uncertainties in the Estimation of the Representative Concentrations of Chemicals of Concern

Uncertainties inherent in estimating representative concentrations at the Site for chemicals of potential concern (COPCs) are associated with the adequacy of the characterization of the site and quality of site data. Typically, the 95% upper confidence limit (UCL) of the arithmetic mean concentrations calculated from site data is used as the average representative concentrations for the estimation of health risks associated with exposure to COPCs at the Site. Site data used in this risk assessment are from a focused Phase II ESA investigation where sampling was conducted to identify potential areas of concern and delineate areas of known contamination. Therefore, the representative concentrations of COPCs estimated for the Site would be biased high and may overestimate health risks at the Site. Furthermore, due to the high concentrations of petroleum hydrocarbons detected at the Site, the detection limits for volatile and semi-volatile organic compounds were elevated in some samples. One-half the detection limit for non-detections was used in the calculations of the 95% UCL concentrations. Therefore, the inclusion of one-half the values of elevated detection limits would bias the representative concentrations for COPCs high and may overestimate health risks at the Site."

C.2 Uncertainties in the Estimation of Human Exposure to Chemicals

As discussed in Section 3.4, numerous assumptions must be made in order to estimate human exposure to chemicals. These assumptions include parameters such as daily breathing rates and human activity patterns. The exposure assumptions used in this calculation of cancer risks and noncancer hazard indices (HIs) are recommended by USEPA, and are often the upper 90th or 95th percentile values. The combination of several upper-bound estimates used as exposure parameters to calculate chemical intake overestimates chemical intake, and therefore may result in overestimates of cancer risks and noncancer HIs.

Based on the planned future use of the Site as a field services complex an on-site intrusive worker was identified for evaluation in this screening-level risk assessment. The on-site intrusive worker was conservatively assumed to be at the Site for 2 days per year for 25 years. The exposure frequency of 2 days per year is highly conservative and would likely be fewer days per year as the number of utility trenches at the Site is limited. Also, exposure durations of 25 years for the on-site worker are highly conservative and would be considerably less due to the likelihood of on-site workers not working at the Site for the full 25 years. Therefore, the exposure frequency and duration assumed for the intrusive worker used in this screening-level risk assessment may result in overestimates of cancer risks and noncancer HIs.

Additionally, the identification and selection of the complete exposure pathways to be included in the quantitative evaluation was based largely on our current understanding of the physical conditions at the Site. If any additional information or data collected during subsequent investigations materially affects the exposure pathways or assumptions used in this risk assessment, then modifications to this risk assessment may be appropriate.

C.3 Assumptions and Uncertainties in Exposure Modeling for Human Receptors

Inherent in the methodologies used to estimate air concentrations are assumptions that lead to uncertainties in the analysis. Assumptions and uncertainties (uncertainties) are present in the development and use of all of the models including the Trench Model and the Johnson and Ettinger Model. Additional uncertainties are present in the estimation of soil and physiochemical properties. As there is overlap in modeling techniques among the different models, we have focused on individual model components as the basis of our uncertainty discussion. This approach will simplify the discussion of the uncertainties and prevent repetition.

C.3.1 Uncertainties in Emission Calculations for Soil, Soil Gas and Groundwater

The uncertainties in the calculated emission flux of organic contaminants from soil, soil gas, and groundwater are associated with the assumption of pressurized methane flow as an enhancement to subsurface transport, the assumption that the contamination in groundwater is infinite, and the uncertainties associated with the soil parameters used in the modeling. The addition of pressurized methane flow introduces uncertainties in the calculated flux for the soil, soil gas, and groundwater emissions models. The emissions calculations are based on the assumption that the methane pressure differential at the Site is similar to that found at landfills. This assumption is conservative as the actual pressure differential will likely be lower than that found at landfills, as the food source for the microorganisms generating the methane will be smaller. Thus, assumption of pressurized methane flow used to estimate the emissions from soil, soil gas, and groundwater emission flux is conservative and likely to overestimate the actual emissions.

The emissions calculations for groundwater are based on the assumption that the contamination in the groundwater is infinite. This assumption is conservative as the actual source of contamination is finite and will deplete over time, as it migrates upward. For some compounds, this depletion will be delayed both by decomposition of hydrocarbons and by chemical transformation; but for others, biodegradation will accelerate their removal. Thus, the infinite source assumption used to estimate the emissions from groundwater emission flux is conservative and likely to overestimate the actual emissions.

There are uncertainties associated with the soil parameters used in this analysis. To estimate flux emissions, we assumed a single homogeneous layer for the soil and cover soils through which flux could occur (flux layer). Iris Environmental used the most conservative Site-specific soil characteristics to estimate the properties of this flux layer. Incorporating the naturally occurring heterogeneities in the flux layer will likely result in a lower estimate of emission flux. Incorporating the naturally occurring heterogeneities in the flux layer, such as clay and silt layers, would likely result in a lower estimate of emission flux.

C.3.2 Uncertainties in the Estimation of the Concentration of COPCs in the Trench

The Trench Model is based on an analogy to experiments designed to predict the contaminant concentrations in a street canyon based on emissions at the street level. This approach inherently introduces uncertainty in the estimation of trench transfer factors. As the trench and street canyon are not exactly the same, there will be some variability in the results based on this approach. Nonetheless, as formulated, the model provides a conservative estimate of the contaminant concentrations in the trench. A comparison to a similar approach, the Cavity Model, shows that the Trench Model is 15 times more conservative. Therefore, it is likely that the transfer factors predicted with the Trench Model are overestimated.

C.3.3 Uncertainties in the Johnson and Ettinger Model

The Model is based on the assumption that there is convective transport of chemicals into the indoor environment. Convective transport into a building results from temperature differences between indoors and outdoors (the "stack or chimney effect"), and is most significant during the winter heating season. Due to California's more moderate climate, the stack effect is less significant than in other, colder parts of the country. If this transport pathway were not to occur, the actual long-term exposures that may occur at the Site are likely to be lower than assumed in the development of the indoor air concentrations.

C.3.4 Uncertainties in Physicochemical Properties and Site Parameters

All physiochemical properties of the chemicals are estimated values. This includes diffusivity, solubility, vapor pressure, Henry's law constant, and soil/water partition coefficients. Most of the values used in this evaluation are based on USEPA published values. There is some variability in these values across sources. The hierarchy of source selection is given in Table 5-1, starting with source one, then source two, etc. Some of the estimated values, including diffusivity and solubility vary within a small range and do not significantly influence the estimated fluxes. Other values, such as soil/water partition coefficients and Henry's law constants do vary widely in the literature and may have a significant impact on the estimated flux.

There are uncertainties associated with the soil parameters (e.g., porosity, moisture content and soil organic fraction) used in the estimation. The soil lithology varies considerably across the Site both vertically and horizontally which may lead to significant variation in flux from different areas. For this screening level analysis, we did not perform a rigorous calculation of spatial distribution of flux as a function of soil properties, assuming rather the most conservative soil properties.

C.4 Uncertainties in the Toxicity Assessment

In this risk assessment, as in a great majority of risk assessments, available scientific information is insufficient to provide a thorough understanding of all the toxic properties of each of the chemicals to which humans may be exposed. It is generally necessary, therefore, to infer these properties by extrapolating them from data obtained under other conditions of exposure, generally in laboratory animals. Although reliance on experimental animal data has been widely accepted in general risk assessment practices, chemical absorption, metabolism, excretion, and toxic responses may differ between humans and the species for which experimental toxicity data are available. Uncertainties in using animal data to predict potential effects in humans are introduced when exposures in animal studies are short-term or subchronic, and when effects seen at relatively high exposure levels in animal studies are used to predict effects at much lower exposure levels found in the environment. Uncertainties in the toxicological assessments for carcinogens and noncarcinogens are discussed below.

C.4.1 Uncertainties in the Characterization of the Toxicity of Carcinogens

The development of cancer slope factors (CSFs) for carcinogens is predicated on the assumption generally made by regulatory agencies that no threshold exists for carcinogens (i.e., that there is some risk of cancer at all exposure levels above zero). The no-threshold hypothesis for carcinogens, however, may not be valid for all substances but likely represents an overestimate of the actual potency of a carcinogen.

C.4.2 Uncertainties in the Characterization of the Toxicity of Noncarcinogens

In order to adjust for uncertainties that arise from the use of animal data, regulatory agencies often base the reference doses (RfDs) for noncarcinogenic effects on the most sensitive animal species (i.e., the species that experiences adverse effects at the lowest dose), and adjust the dose via the use of safety or uncertainty factors. The adjustment compensates for the lack of knowledge regarding interspecies extrapolation, and guards against the possibility that humans are more sensitive than the most sensitive experimental animal species tested. The use of uncertainty factors is considered to be protective of health. In addition, when route-specific toxicity data were lacking, Iris Environmental extrapolated from one route to another (e.g., oral to inhalation). Due to the absence of contrary data, equal absorption rates were assumed for both routes.

In addition, the HIs for each noncarcinogen have been summed, to provide one estimated HI, as shown in Tables 7-7 and 7-9. However, summing HIs for compounds that are not expected to induce the same type of effect, or that do not act by the same mechanism, may overestimate the potential for noncarcinogenic effects.

C.5 Uncertainties in the Cumulative Risk Estimates

The USEPA notes in its risk assessment guidance that the use of standard procedures and assumptions are intended to assure that the estimated risks do not underestimate the actual risks posed by a site and that the estimated risks do not necessarily represent the actual risks experienced by people at a site. Recognizing that risk assessments are designed to not underestimate risk, USEPA Region IX (1989b) recommends including the following statement in all risk assessments:

"These values are upper bound estimates of excess cancer risk potentially arising from lifetime exposure to the chemical in question. A number of assumptions have been made in the derivation of these values, many of which are likely to over-estimate exposure and toxicity. The actual incidence of cancer is likely to be lower than these estimates and may be zero."

C.6 References

National Research Council (NRC). 1994. *Science and Judgment in Risk Assessment.* Committee on Risk Assessment of Hazardous Air Pollutants. Board on Environmental Studies and Toxicology, Commission on Life Sciences. National Academy Press. Washington, D.C.

U.S. Environmental Protection Agency (USEPA). 1989a. *Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part A). Interim Final.*

Office of Emergency and Remedial Response. EPA-540/1-89/002. Washington, D.C. December.

U.S. Environmental Protection Agency (USEPA). 1989b. *Risk Assessment Guidance for Superfund Human Health Risk Assessments, U.S. EPA Region IX Recommendations*. December 15.

APPENDIX D

VERSION 7 DTSC LEADSPREAD OUTPUT

TABLE D-1: CHEMICAL-SPECIFIC RISK FOR LEAD IN SOIL: CONSTRUCTION WORKERS
Future Port of Oakland Field Support Services Complex
2225 and 2277 Seventh Street
Oakland, California

LEAD RISK ASSESSMENT SPREADSHEET
CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL

USER'S GUIDE to version 7

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.028
Lead in Soil/Dust (ug/g)	57.4
Lead in Water (ug/l)	15
% Home-grown Produce	0%
Respirable Dust (ug/m^3)	1.5

OUTPUT	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT							
BLOOD Pb, CHILD							
BLOOD Pb, PICA CHILD							
CONSTRUCTION WORKER	1.3	2.3	2.8	3.4	3.8	738	1160

EXPOSURE PARAMETERS	units	adults	children
Days per week	days/wk	7	
Days per week, occupational		5	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area Intrusive Worker	cm^2	3300	
Soil adherence	ug/cm^2	70	200
Dermal uptake constant	(ug/dl)/(ug/day)	0.0001	
Soil ingestion	mg/day	240	100
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/day)	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	(ug/dl)/(ug/day)	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown produ	ug/kg	25.8	

PATHWAYS

ADULTS	Residential			Intrusive Worker		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact				1.6E-5	0.00	0%
Soil Ingestion				3.0E-3	0.17	14%
Inhalation, bkgrnd					0.03	3%
Inhalation				1.8E-6	0.00	0%
Water Ingestion					0.84	66%
Food Ingestion, bkgrnd					0.23	18%
Food Ingestion						0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact						
Soil Ingestion						
Inhalation						
Inhalation, bkgrnd						
Water Ingestion						
Food Ingestion, bkgrnd						
Food Ingestion						

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