USPCI
Remedial Services

UNION PACIFIC RAILROAD

PRELIMINARY SITE ASSESSMENT REPORT

UPRR TOFC YARD UPMF FACILITY
1750 FERRO STREET
OAKLAND, CALIFORNIA

March, 1993

USPCI
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Union Pacific Corporation

PRELIMINARY SITE ASSESSMENT REPORT
UNION PACIFIC RAILROAD
UPRR TOFC YARD, UPMF FACILITY
OAKLAND, CALIFORNIA
USPCI Project No. 96281

Prepared for:

Union Pacific Railroad
Environmental Management - Room 930
1416 Dodge Street
Omaha, Nebraska 68179

for submittal to

Ms. Jennifer Eberle
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R.G. No. 4659

April 1993

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April 21, 1993

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Mr. Harry Patterson
Union Pacific Railroad
Environmental Management - Room 930
1416 Dodge Street
Omaha, Nebraska 68179

RE: Final Report: Preliminary Site Assessment
UPMF 1750 Ferro Street Facility, Oakland, California
USPCI Project No. 96281

Mr. Patterson:

USPCI is pleased to submit two copies of the Preliminary Site Assessment (PSA) report on the Union Pacific Railroad (UPRR) property at 1750 Ferro Street, Oakland, California. Two copies have been forward to Ms. Jennifer Eberle from the Alameda County Department of Environmental Health (ACDEH) and one copy each to Mr. John Ender from the Port of Oakland and Mr. Rich Hiett from the San Francisco Bay Region, Regional Water Quality Control Board. The work was performed in response to the ACDEH letter to UPRR dated April 29, 1992. Twelve soil borings were drilled to assess soil conditions in the vicinity of the former fuel island and tankholds at the site. Five of these borings were converted to groundwater monitoring wells. Soil and groundwater samples were collected and analyzed for the presence of hydrocarbons. Selected soil and groundwater samples were analyzed for metals, purgeable halocarbons and semivolatile compounds. Based on our field work and analysis of soil and groundwater samples, USPCI has reached the following conclusions:

- Soil samples collected during USPCI's January 1993 assessment contained TPH concentrations ranging from 19 milligrams per kilogram (mg/kg) to 47,000 mg/kg. BTEX concentrations in soil samples ranged from 0.01 mg/kg to 1.38 mg/kg.

- The highest TPH concentration was in soil sample OKS-16a collected from a depth of 8 - 9 feet in boring OKUS-B4 located approximately 300 feet north (up-gradient) from the former fuel island and UST locations.

- Groundwater flows to the southeast beneath the site at a gradient of approximately 0.006 foot per foot.

- Groundwater samples collected from the five monitoring wells in January 1993 contained TPH identified as gasoline (TPH/G) and BTEX. TPH/G concentrations in groundwater samples ranged from 0.410 milligrams per liter (mg/L) in monitoring well OKUS-W1 (100 feet southwest of the known sources) to 14.0 mg/L in monitoring well OKUS-W2 (15 feet south of the former fuel island). BTEX concentrations in groundwater samples ranged from 0.244 mg/L in monitoring well OKUS-W1 to 9.07 mg/L in monitoring well OKUS-W2. Benzene concentrations exceeded the California Maximum Contaminant Level (MCL) in samples form all five monitoring wells. Ethylbenzene exceeded the MCL in samples from three of the five monitoring wells. Groundwater samples from four out of five monitoring wells contained minor concentrations (< 6.0 mg/L) of TPH 418.1 or TPH diesel (TPH/D) or both.

- Analytical results from the additional groundwater sampling event in February 1993 indicated elevated concentrations of arsenic (As) in three of the five monitoring wells and chloroform in two of the five monitoring wells. Concentrations of As in groundwater samples ranged from 0.036 mg/L in OKUS-W2 to 0.470 mg/L in OKUS-W5. Chloroform concentrations in groundwater samples ranged from 0.006 mg/L in OKUS-W5 to 0.290 mg/L in OKUS-W2. The MCL for As is 0.050 mg/L, and the MCL for chloroform is 0.100 mg/L (Marshack, 1989).

- Elevated concentrations of TPH/G, BTEX, dissolved As and chloroform were recorded in the groundwater samples located in the vicinity of the former fuel island and gasoline UST. There are also elevated concentrations of TPH/G and BTEX in monitoring well OKUS-W4 which is up-gradient from the former fuel island and UST locations.

- Arsenic and chloroform are not related to the contents of the former USTs. The former USTs contained engine oil, waste oil, diesel fuel and gasoline. The elevated concentrations of lead and zinc recorded in several soil samples are also not related to the contents of the former USTs. could be related to w.o!

Based on these conclusions, USPCI recommends the following actions:

- A quarterly monitoring program, starting in the second quarter of 1993 (May 93). The data gathered during the quarterly monitoring program will be utilized for development of a site remediation plan.

- Initiate a Phase II assessment to define the lateral extent of soil and groundwater that has been impacted by petroleum hydrocarbons.

If you have any questions regarding the attached report or our proposed recommendations, please call either Cris Byerman at UPNet 350-7265 or Eric Taylor at UPNet 350-7266. We appreciate the opportunity to provide services for Union Pacific Railroad.

Sincerely,

Christopher S. Byerman Geologist	F. Erickson Taylor F. Erickson Taylor, R.G. #4710 Geologist

Richard M. Pollard, R.G. #4659
Project Geologist

cc: John Yellich - USPCI, Boulder
Curt Hull - USPCI, Boulder
Denton Mauldin - USPCI, Boulder
Jennifer Eberle - ACDEH
File 96281.26-1

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EXECUTIVE SUMMARY

On behalf of Union Pacific Railroad (UPRR), USPCI conducted a Preliminary Site Assessment at the UPRR Union Pacific Motor Freight (UPMF) Facility located at 1750 Ferro Street in Oakland, California from January 11 to 15, 1993. The assessment was performed after several underground storage tanks had been removed from the site, and was conducted to satisfy items of concern listed in a letter from the Alameda County Department of Environmental Health (ACDEH) to UPRR dated April 29, 1992.

The site assessment involved:

- Drilling and sampling twelve exploratory soil borings;
- Completing five of the borings as groundwater monitoring wells;
- Surveying, developing and sampling the five new wells;
- Analyzing soil and groundwater samples from the borings/wells for total petroleum hydrocarbons (TPH, EPA Method 418.1), TPH diesel (TPH/D, EPA Method 8015 Modified, TPH gasoline (TPH/G, EPA Method 8015 Modified) and benzene, toluene, ethylbenzene and xylenes (BTEX, EPA Method 8020), and analyzing selected soil and groundwater samples for arsenic (As), cadmium (Cd), lead (Pb), and zinc (Zn) by EPA Method 6000/7000, purgeable halocarbons (EPA Method 8010), and semivolatile organic compounds (EPA Method 8270); and
- Preparing a Preliminary Site Assessment Report.

[redacted] collected during the January 1993 assessment contained TPH concentrations ranging from 19 milligrams per kilogram (mg/kg) to 47,000 mg/kg. BTEX concentrations in soil samples ranged from below Method Detection Limits (MDLs) to 1.38 mg/kg. [redacted] concentrations in soil samples ranged from below the MDL [redacted] and [redacted]c concentrations ranged from 22 mg/kg [redacted]

The highest TPH concentration detected in soils during this assessment was in soil sample OKS-16a collected from a depth of 8'-9' in boring OKUS-B4 located 300 feet north (up-gradient) from the former fuel island and UST locations. Soil samples collected from borings located near the former fuel storage tanks and fuel island contained TPH concentrations of less than 100 mg/kg with one exception (580 mg/kg in sample OKS-6, from boring OKUS-W3, depth 6 - 8 feet). The highest lead and zinc concentrations were also detected in soil samples from borings over 100 feet from the former UST tankhold. The contaminants detected in soils (including hydrocarbons, lead and zinc) do not, for the most part, appear to be related to the former fuel UST system.

Groundwater samples collected from the five monitoring wells in January 1993 contained TPH gasoline (TPH/G) and BTEX. TPH/G concentrations in groundwater samples ranged from 0.410 milligrams per liter (mg/L) in monitoring well OKUS-W1 to 14.0 mg/L in monitoring well OKUS-W2. BTEX concentrations in groundwater samples ranged from 0.244 mg/L in groundwater samples from monitoring well OKUS-W1 to 9.07 mg/L in monitoring well OKUS-W2. Benzene concentrations were above the Maximum Contaminant Level (MCL) (Marshack, 1989) of 0.001 mg/L in groundwater samples from all five monitoring wells. Ethylbenzene concentrations were above the MCL (680 mg/L) in samples from three of the five monitoring wells. Groundwater samples from monitoring wells OKUS-W2, -W3, -W4, and -W5 contained minor concentrations of either TPH 418.1 or TPH diesel (TPH/D) or both.

Additional groundwater samples were collected on February 18, 1993 to further evaluate the water quality of the site. Samples were analyzed for dissolved metals, purgeable hydrocarbons and semivolatile organic compounds which had been detected in several soil samples. The analytical results from the additional groundwater sampling event in February 1993 indicated elevated concentrations of arsenic (As) in samples from three of the five monitoring wells and chloroform in two of the five monitoring wells. Concentrations of As in groundwater samples ranged from 0.036 mg/L in OKUS-W2 to 0.470 mg/L in OKUS-W5. Chloroform concentrations in groundwater samples ranged from 0.006 mg/L in OKUS-W5 to 0.290 mg/L in OKUS-W2. Maximum Contaminant Levels (MCLs) for As and chloroform are 0.050 mg/L and 0.100 mg/L, respectively.

The arsenic and chloroform detected in groundwater samples are not believed to be related to the contents of the former USTs. The former USTs contained engine oil, waste oil, diesel fuel and gasoline.

Phase-separated hydrocarbons (PSH) were not observed in any of the wells, although the former engine oil UST tankhold has historically had PSH on groundwater seeping into the tankhold.

Groundwater beneath the site flowed to the southeast at a gentle gradient (0.006 ft/ft) on the date measured.

1.0 INTRODUCTION

This Preliminary Site Assessment Report has been prepared for Union Pacific Railroad (UPRR) by USPCI in response to a April 29, 1992, Alameda County Department of Environmental Health, Hazardous Materials Division (ACDEH) request for site characterization at the Union Pacific Motor Freight (UPMF) Ferro Street facility in Oakland, California (See Figure 1). The facility was the site of an unauthorized release of petroleum hydrocarbons from underground storage tanks (USTs).

The Preliminary Site Assessment (PSA) at the UPMF facility in the UPRR Oakland Trailer On Freight Car (TOFC) Yard was completed on January 15, 1993. A total of twelve soil borings were installed with five of these borings being converted to monitoring wells. Twenty-three soil samples and six groundwater samples were collected from borings and wells. Water samples were analyzed for total petroleum hydrocarbons (TPH), total petroleum hydrocarbons as diesel and gasoline (TPH-D and TPH-G), and benzene, toluene, ethylbenzene, and xylene (BTEX) utilizing EPA methods 418.1 (IR, TRPH), 8015 Mod/DOHS LUFT, and 8020, respectively. Selected soil and groundwater samples were analyzed for semivolatile organic compounds, purgeable halocarbons and metals (As, Cd, Cr, Pb and Zn), utilizing EPA methods 8270, 8010, and 6000/7000 series, respectively.

1.1 Site Background

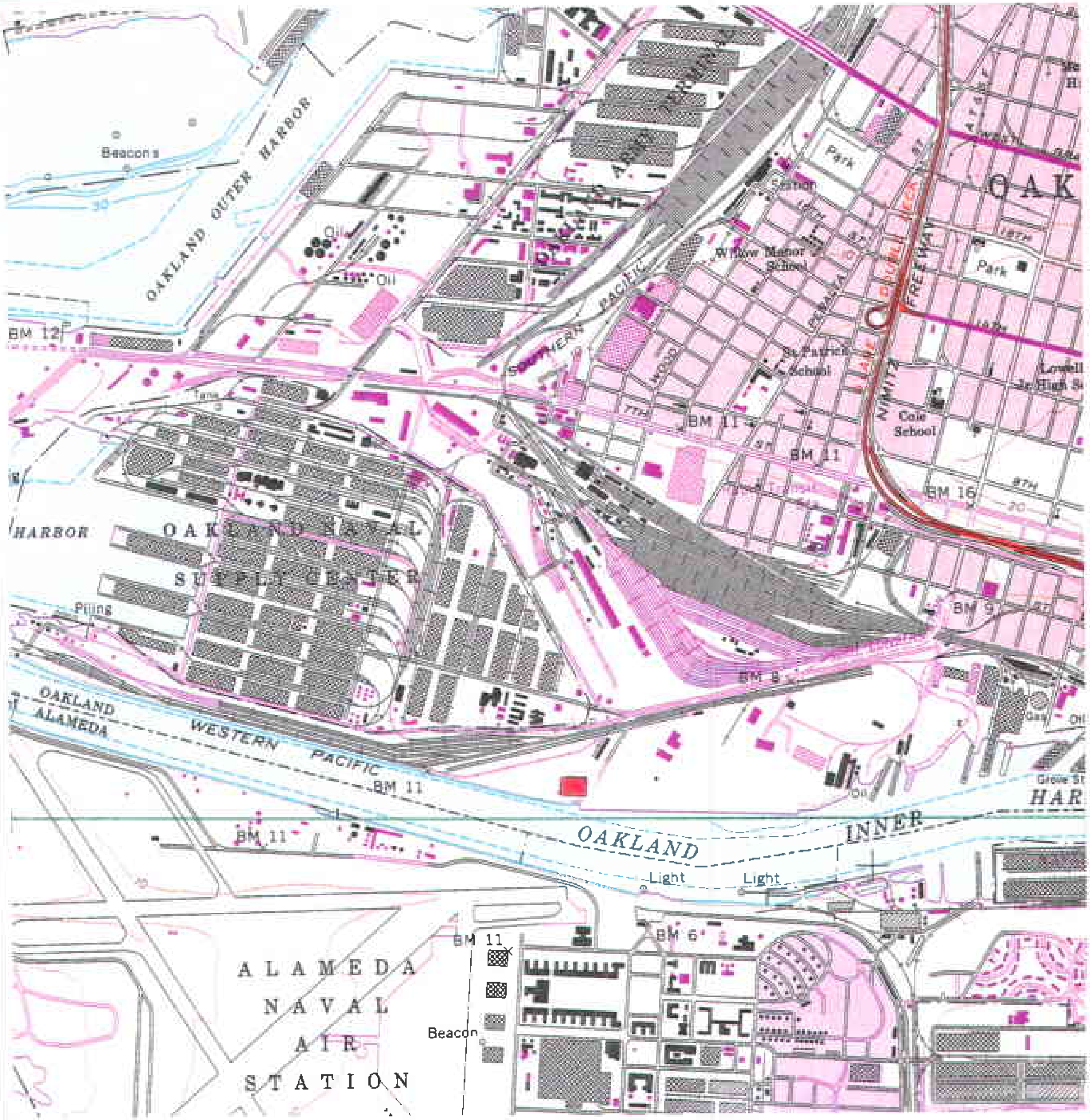
1.1.1 General Description and Previous Activities

The site is located on the southeastern end of the UPRR TOFC Yard (Figure 1) located in the Port of Oakland. The area surrounding the site is used for heavy to light commerce, with residential areas being located inland to the east and west across the Oakland Estuary. The refueling portion of the TOFC yard, approximately 700 feet northwest of the truck repair shop, is currently undergoing groundwater remediation by recovery of diesel product. The limits of the diesel plume in that portion of the site have been adequately defined (USPCI, 1991), and impacted groundwater at the truck repair facility does not appear to be related to groundwater being treated in the TOFC Yard refueling area.

news to me ? see Fig. 3

The site contained five USTs and related piping. All USTs and piping were removed from the site in December 1987, May 1988 and February 1990, as presented below.

In November, 1987, four USTs were tested at the UPMF facility. Three of the four tanks tested tight. The test indicated that product lines from the 3,000 gallon engine oil tank were not tight (Figure 2). In December, 1987, the tank was removed. Soil containing oil from the leaking line was removed and subsequently transported from the site. During



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UPRR TOFC YARD, OAKLAND, CA

FIGURE 1

SITE LOCATION MAP

SCALE: 1" = 2000'

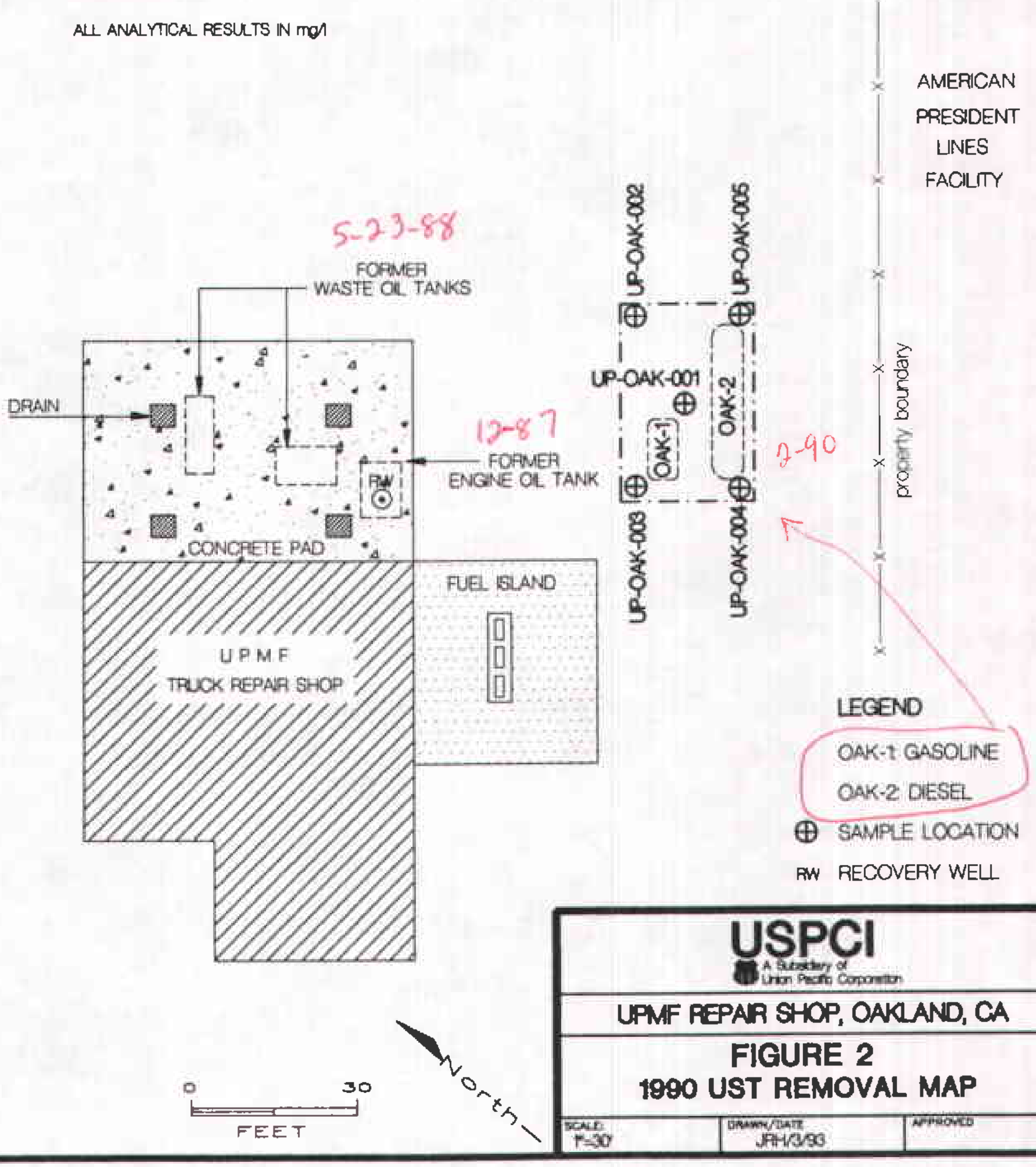
USGS 7.5 TOPO: OAKLAND WEST

ANALYTICAL RESULTS FOR OAK-1 & OAK-2 REMOVAL IN 1990

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH C5-C20 mg/kg	TPH/D mg/kg	TPH/G mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYL-BENZENE mg/kg	XYLENE mg/kg	TOTAL BTEX mg/kg
CENTRAL *	UP-OAK-001	2/22/90	ND	ND	ND	0.053	0.023	ND	0.026	0.102
NW WALL	UP-OAK-002	2/22/90	ND	ND	ND	ND	ND	ND	ND	ND
SW WALL	UP-OAK-003	2/22/90	ND	ND	ND	ND	ND	ND	ND	ND
SE WALL	UP-OAK-004	2/22/90	ND	ND	0.032	ND	0.005	ND	0.025	0.025
NE WALL	UP-OAK-005	2/22/90	2.13	ND	ND	0.004	0.003	0.007	0.012	0.026

date of UST removal

ND	NOT DETECTED
TPH	TOTAL PETROLEUM HYDROCARBONS
*	WATER SAMPLE
	ALL ANALYTICAL RESULTS IN mg/l



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UPMF REPAIR SHOP, OAKLAND, CA

FIGURE 2
1990 UST REMOVAL MAP

SCALE:	DRAWN/DATE	APPROVED
1"=30'	JRH/3/93	

96281-04

excavation, dark oil was observed to be seeping into the tankhold. Approximately 350 gallons of oil and water were removed from the excavation by Hunter Environmental Services, Inc. (Hunter, 1988).

On February 16, 1988, fluid in the former engine oil UST excavation was sampled for contamination analysis screening. Samples were collected and analyzed for polychlorinated biphenyles (PCBs), California Administrative Code (CAC) metals, BTEX, and TPH. The analytical results indicated the fluid in the excavation was oil. No PCBs or BTEX concentrations were detected above the MDLs. Of the identified CAC metals, lead was the only metal identified at a concentration above the Soluble Threshold Limit Concentration (STLC) of 5 mg/L as stated in the CAC, Title 22 (Hunter, 1988).

On May 23, 1988, two USTs were removed from north of the repair shop at the UPMF facility. The USTs had historically contained waste oil and had capacities of 500 and 1,000 gallons, respectively (Figure 2).

(DB)

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On April 26, 1988, ACDEH was informed that Hunter was submitting an Initial Remedial Plan (IRP) for UPRR. On May 23, 1988, as part of that plan, an 18-inch diameter recovery well was installed in the former engine oil UST excavation (Figure 2). The work was stopped when an inspector from the ACDEH notified UPRR that it would be necessary to construct a controlled work area for the large container transport unit. The ACDEH also reportedly stated that stormwater from the driveway and fueling pads would also have to be collected and treated in an oil-water separator (Hunter, 1988). A copy of the IRP is located in Appendix C. In 1991, UPRR constructed the drainage system for the UPMF facility and connected this drainage system to the oil-water separator. UPRR plans to begin oil recovery from the recovery well in the near future.

In February 1990, two additional USTs (designated OAK-1 and OAK-2) were removed from the UPMF facility. Tank OAK-2 was a 10,000-gallon-capacity diesel fuel tank. Tank OAK-1 historically held gasoline and had a capacity of 1,000 gallons. Analytical results from soil samples collected during the removal indicated concentrations of TPH and BTEX.

One water sample was collected in the center of the excavation before it was backfilled. Water sample UP-OAK-001 contained 0.053 milligrams per liter (mg/L) benzene, 0.023 mg/L toluene and 0.026 mg/L xylenes (Table 1). Only benzene exceeded the Maximum Concentration Level(MCL) of 0.001 mg/L (Marshack, 1989). The sample did not contain ethylbenzene or TPH above the Method Detection Limits (MDL) for these compounds.

TABLE 1
CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES
UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
1990 UST REMOVALS

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH C5-C20 mg/kg	TPH/D mg/kg	TPH/G mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYL-BENZENE mg/kg	XYLENE mg/kg	TOTAL BTEX mg/kg
CENTRAL	UP-OAK-001	2/22/90	ND	ND	ND	0.053	0.023	ND	0.026	0.102
NW - WALL	UP-OAK-002	2/22/90	ND	ND	ND	ND	ND	ND	ND	ND
SW - WALL	UP-OAK-003	2/22/90	ND	ND	ND	ND	ND	ND	ND	ND
SE - WALL	UP-OAK-004	2/22/90	ND	ND	0.032	ND	0.005	ND	0.025	0.030
NE - WALL	UP-OAK-005	2/22/90	2.13	ND	ND	0.004	0.003	0.007	0.012	0.026

ND - Not Detected
TPH - Total Petroleum Hydrocarbons
MG/L - milligram per liter

TPH/D - anaylzed by Method 8015 Mod.
TPH/G - anaylzed by Method 8015 Mod.
BTEX - analyzed by Method 8020

Groundwater samples were collected by USPCI Remedial Services, Sacramento, CA.
Groundwater samples were analyzed by National Analytical Laboratories, Tulsa, OK.

Both fiberglass tanks were destroyed during removal and were subsequently loaded onto a UPRR railroad car and transported along with the excavated soil to USPCI's Grassy Mountain Facility in Clive, Utah for disposal. The tankholds were backfilled with a clean fill material.

Based on analytical results from soil and water samples collected during 1990 UST removals, UPRR requested USPCI to determine if the local soils and/or groundwater had been impacted by petroleum hydrocarbons.

Background information for the 1750 Ferro Street UST site was supplied by UPRR, USPCI Remedial Services Group-Sacramento, the California Division of Mines and Geology, the U.S. Geological Survey (USGS), the U.S. Soil Conservation Service and BBL, Inc. (water well information services).

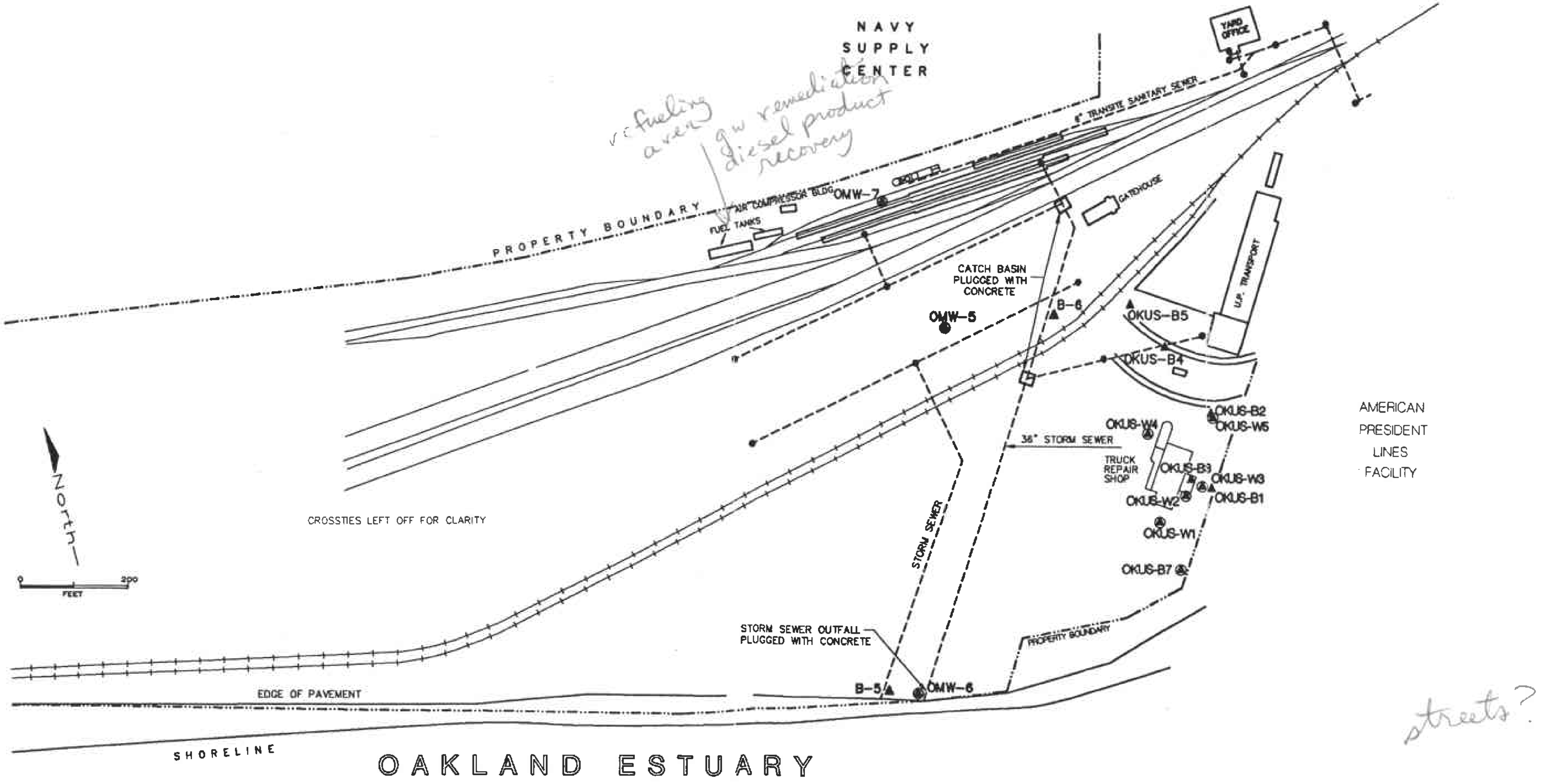
1.1.2 Location and Access

The site is located in the UPRR TOFC Yard at 1750 Ferro Street in the Port of Oakland on east side of the Inner Harbor, Oakland, California. Access to the site at the intersection of Middle Harbor Road and Ferro Street.

Underground sewer lines and fiber optics lines were located and marked before commencement of UST removal and PSA activities.

1.1.3 Use and Operations

The site is presently owned by The City of Oakland (Port of Oakland) and leased by Union Pacific Railroad. The UPRR TOFC facility (Figure 3) is an active railyard with refueling capabilities. The site area (Figure 4) is used by UPMF to repair trucks and other related equipment used in shipping and transportation activities.



re-fueling area

gw remediation diesel product recovery

streets?

Trailer On Freight Car

LEGEND

● OMW-1 MONITORING WELL LOCATION AND NUMBER

▲ B-1 BORING LOCATION AND NUMBER

● CATCH BASIN FOR STORM SEWER

−1.0' GROUNDWATER CONTOUR IN FEET ABOVE MSL

	BY	DATE
DRAWN		3/93
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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UPRR TOFC RAILYARD
UPMF REPAIR SHOP, OAKLAND, CALIFORNIA

FIGURE 3
SITE VICINITY MAP

SCALE 1"=200'
DATE 1/15/93
DWG. NO. 96199-24

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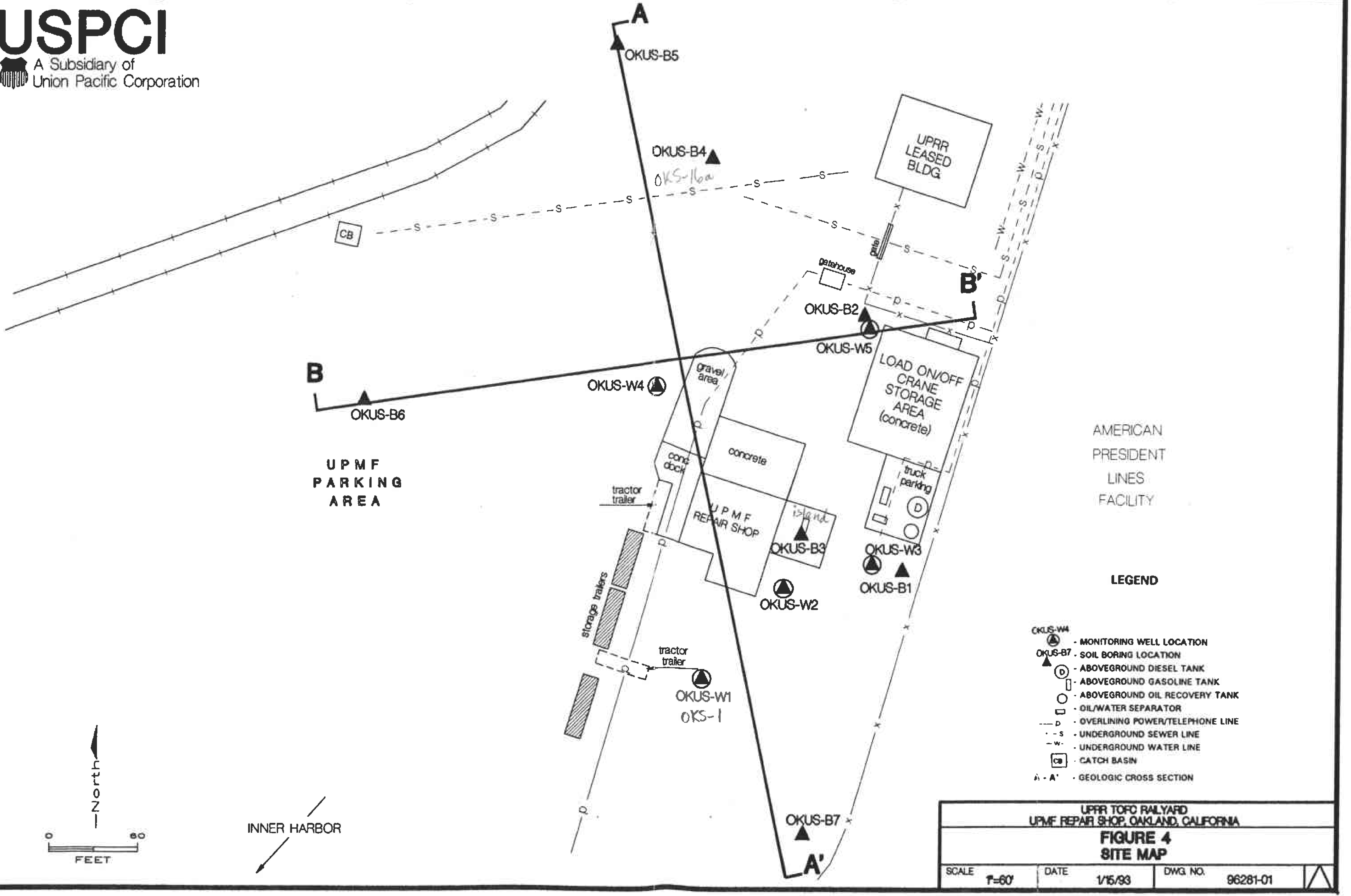


UPRR TOFC RAILYARD
UPMF REPAIR SHOP, OAKLAND, CALIFORNIA

FIGURE 4
SITE MAP

SCALE 1"=60'	DATE 1/15/93	DWG. NO. 96281-01

1.2 Preliminary Site Assessment

1.2.1 Scope

In order to characterize soil and groundwater conditions at the UPMF facility, USPCI drilled and sampled soil borings and installed groundwater monitoring wells near the former fuel island and tankholds. Two groundwater monitoring wells were installed up-gradient (north) of the former fuel island and tankholds. Three groundwater monitoring wells were installed down-gradient (south) of the former fuel island and tankholds. Analytical results obtained from the soil samples were utilizedto assess the lateral and vertical extent of petroleum hydrocarbon-impacted soils at the project site. Analytical results from the groundwater samples were used to evaluate the lateral extent of petroleum hydrocarbon-impacted groundwater beneath the site. A copy of USPCI's original workplan (USPCI, 1992) is located in Appendix B. ✓

1.2.2 Investigative Procedures

Drilling was conducted by a California State licensed drilling contractor utilizing a hollow stem auger drill rig. All USPCI field activities, including data recording procedures, decontamination methods, soil classification, sample collection, boring abandonment, well construction, and drill cuttings and purge water disposal, were conducted in accordance with USPCI's Quality Assurance/Quality Control (QA/QC) Plan located in Appendix A. ✓

Soil and groundwater samples collected from the intervals of interest were analyzed by a California state certified laboratory for the analyses listed in Section 1.0. All site activities involving potential contact with hazardous materials (i.e. gasoline impacted soils) were conducted in accordance with USPCI's Health and Safety Plan. A copy of the Health and Safety Plan is in Appendix B. ✓

This Preliminary Assessment Report has been prepared according to Regional Board guidelines summarizing the findings of the investigation and presenting options for site remediation. Copies of this report will be submitted to the ACDEH and the Regional Water Quality Control Board.

The field investigation was conducted by Mr. Christopher Byerman under the direct supervision of F. Erickson Taylor, California Registered Geologist #4710.

2.0 CHRONOLOGY OF EVENTS

The following section presents a detailed chronology of 1992 and 1993 activities related to the site assessment, along with dates of relevant correspondence between the parties involved. Activities conducted prior to 1992, conducted by Hunter and UPRR, have been summarized previously.

April 29, 1992	The Alameda County Department of Environmental Health (ACDEH) issued a letter to Mr. Andrew Clark-Clough of the Port of Oakland and Mr. John Seagle of UPRR requesting that a Preliminary Site Assessment (PSA) be performed at the UPRR facility at 1750 Ferro Street, Oakland, California.
June 10, 1992	UPRR contacted Mr. Paul Smith of the ACDEH regarding the ACDEH letter dated April 29, 1992 concerning UPRR's UST removals at 1750 Ferro Street, Oakland, California.
June 18, 1992	USPCI submitted a PSA workplan to the UPRR for review and submittal to the ACDEH and the Port of Oakland presenting the proposed workscope, technical information, and methods used to conduct the assessment.
July 10, 1992	UPRR submitted the PSA workplan, along with analytical data from the December 1987 excavation and the 1990 UST removals, to Ms. Susan Hugo of the ACDEH and Ms. Michele Heffes of the Port of Oakland.
July 28, 1992	USPCI responded to a request from Ms. Jennifer Eberle of the ACDEH for supplemental information for the PSA workplan.
August 6, 1992	The Port of Oakland responded to UPRR on USPCI's proposed PSA. Ms. Michele Heffes of the Port of Oakland informed UPRR that permits would be required from the Port of Oakland, Bay Conservation and Development Commission (BCDC) and the Alameda County Flood Control District (ACFCD) before proceeding with the PSA. A permit to install groundwater monitoring wells on Port property was also required.
August 10, 1992	USPCI responded to a second request from Ms. Jennifer Eberle of the ACDEH for supplemental information for the PSA workplan.
August 25, 1992	ACDEH approved USPCI's PSA workplan with comments. ACDEH also informed USPCI that Ms. Jennifer Eberle will be overseeing this case.

November 10, 1992	USPCI requested a permit from the ACFCD and the Port of Oakland to install monitoring wells at the UPMF facility at 1750 Ferro Street, Oakland, California.
November 16, 1992	USPCI received a permit application number (92580) from the ACFCD for the construction of the monitoring wells.
December 6, 1992	USPCI received a permit application approval from the ACFCD for the construction of the monitoring wells.
January 7, 1993	USPCI requested and received ticket numbers from UPRR Fiber Optics (# 672732) and Underground Service Alert (# 4997). Underground Service Alert notified all utilities that had underground lines in the area to mark lines by 8:00 AM, January 12, 1993. USPCI also informed Ms. Jennifer Eberle of the ACDEH that the PSA would begin on January 12, 1993.
January 11, 1993	USPCI personnel arrived at the UPMF facility to collect site information and plan drilling activities.
January 12-15, 1993	USPCI conducted a PSA on the UPMF facility at 1750 Ferro Street. Five monitoring wells and seven soil borings were installed. Soil and groundwater samples were collected and analyzed as part of the assessment.
February ~~2~~1, 1993	USPCI contacted Ms. Jennifer Eberle of the ACDEH to discuss report format and relay analytical information collected in the PSA.
February 18, 1993	USPCI personnel collected additional groundwater samples due to elevated concentrations of metals and minor concentrations of semivolatiles and purgeable halocarbons that were found in several soil samples. Composite samples of drummed soil cuttings and purge/decon water were also collected for final treatment and/or disposal.
February 25, 1993	Mr. Craig Mayfield from the ACFCD contacted USPCI by letter and requested copies of the well construction diagram, boring logs and a site map showing the locations of the borings/monitoring wells. USPCI forwarded this information to Mr. Mayfield on February 26, 1993.

3.0 SITE CHARACTERIZATION

3.1 Geologic Setting

The site is located along the eastern margin of San Francisco Bay within the East Bay Plain (Hickenbottom and Muir, 1988). The East Bay Plain lies within the Coast Range Geomorphic province and is characterized by broad alluvial fan margins sloping westward into San Francisco Bay. The eastern side of the plain in the Oakland area is marked by the active Hayward Fault, along the base of the Diablo Range escarpment (Heard, 1978). Branches of the Hayward Fault, typical of the right-lateral, strike-slip faults found in the Bay Area, are present within five miles of the site (Radbruch, 1969, California Division of Mines and Geology, 1982).

Helley, et.al. (1979) mapped the sediments underlying the site area as Holocene to late Pleistocene age alluvial deposits comprised of unconsolidated to weakly consolidated, moderately to poorly sorted, irregularly interbedded to well-bedded sand, silt, clay, and minor gravel. Radbruch (1969) and Lawson (1914) mapped the sediments underlying the site area as late Pleistocene-age alluvial deposits derived from the Berkeley Hills to the east, and known locally as the Temescal Formation.

The local topography is a relatively flat inner harbor area and was constructed by depositing fill material over former wetlands and native soil. To the east of the site (approximately five miles) are steep, eroded hilly areas which are present due to past activity of the Hayward Fault zone.

3.2 Hydrogeologic Setting

Alameda County uses groundwater as part of its domestic water supply. The remainder of the water supply is derived from surface reservoirs and imported water that is transported in from the Mokelumne Aqueduct, the State Water Project, and the Hetch Hetchy Aqueduct (Hickenbottom and Muir, 1988).

The site area is located within the Oakland Upland and Alluvial Plain, a groundwater subarea of the East Bay Plain. Groundwater quality in the water-bearing units of the Oakland Upland and Alluvial Plain is generally good (meets EPA recommended primary and secondary standards for drinking water). The most productive water wells in the Oakland Upland and Alluvial Plain are those completed within the older alluvium units. Smaller amounts of groundwater occur in the younger alluvium, fluvial deposits, interfluvial basin deposits, and Bay Mud estuarine deposits. These deposits generally are relatively thin (less than 120 feet thick), and yield only small amounts of groundwater to wells.

The site area was mapped by Hickenbottom and Muir (1988) as being immediately underlain by shallow fluvial deposits characterized by unconsolidated, moderately sorted fine sand and silt. These deposits are permeable, and generally yield only small amounts of groundwater to wells. Well log data in the area from the County of Alameda Public Water Works (CAPWA) indicate that the maximum thickness of the fluvial deposits is approximately 15 feet. Beneath the surficial fluvial deposits in the site area, the older alluvium units are encountered. These units contain appreciable quantities of groundwater and are therefore considered to be the principal groundwater reservoir in the East Bay Plain area. Data from the CAPWA well logs indicate that the thickness of the older alluvium deposits is approximately 500 to 600 feet thick in the site area.

3.3 Environmental Record Search

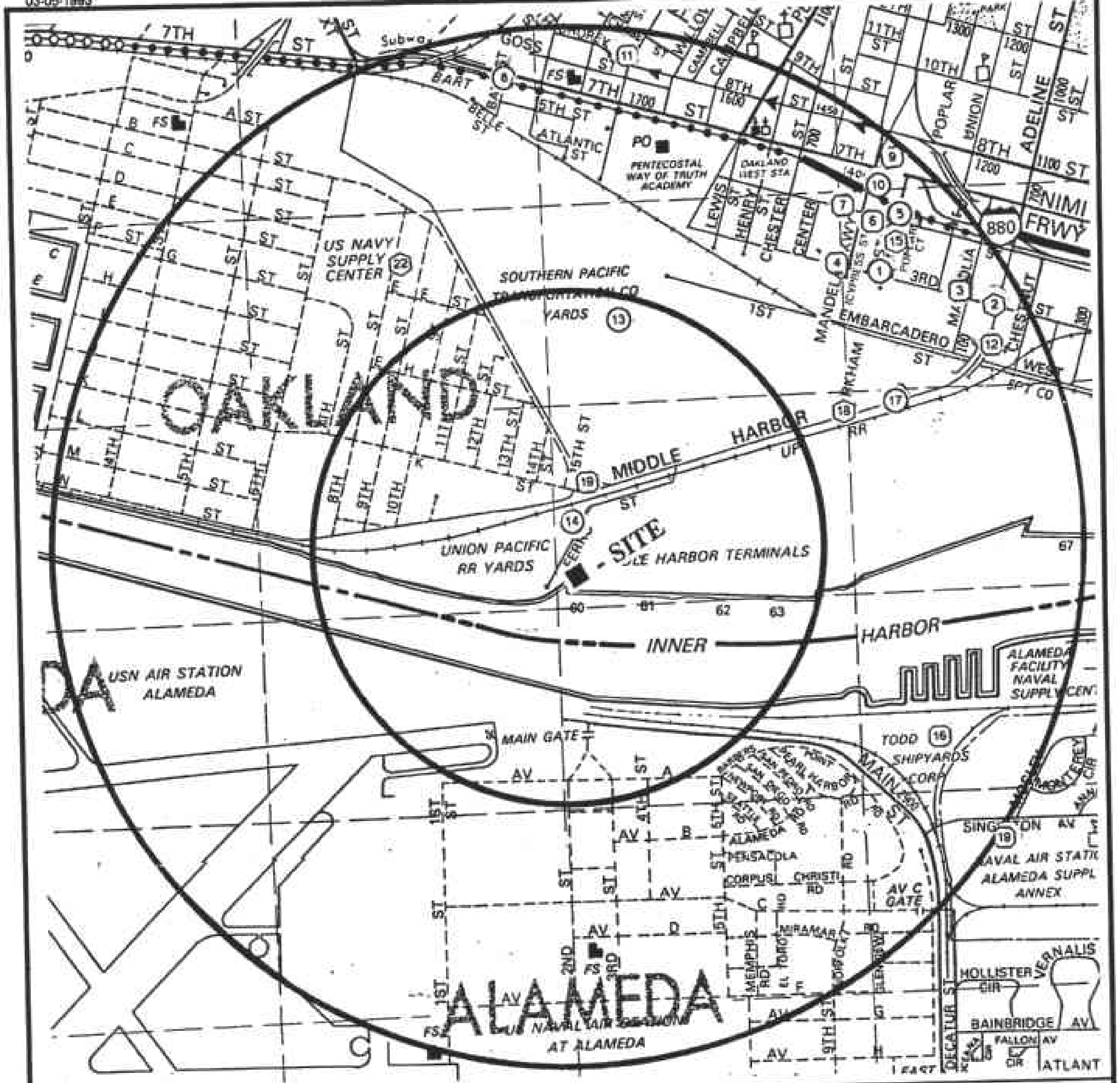
An environmental record search within a one-mile radius of the project site was completed by BBL, Inc. (a research firm). The objective of the search was to identify possible outside sources of contamination which could impact the UPRR site. According to the BBL, Inc., there are approximately 22 known sites within a one-mile radius which could be of environmental concern (Figure 4 and Table 2). A copy of this report is located in Appendix C.

4.0 FIELD INVESTIGATION RESULTS

4.1 Soil Assessment Determinations

The PSA was conducted in January 1993 to determine if the local soil and/or groundwater had been impacted by petroleum hydrocarbons migrating from leaking tanks, related piping or unknown activities. The assessment consisted of:

- Drilling sampling, and surveying twelve exploratory soil borings on the site.
- Installing groundwater monitoring wells in five of these borings.
- Surveying, developing and sampling the five monitoring wells.
- Analyzing soil and water samples collected from the borings/wells for TPH by modified EPA methods 418.1 and 8015, and BTEX by EPA method 8020. Selected soil and groundwater samples were analyzed using EPA methods 6000/7000, 8270, and 8010.



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UPMF REPAIR SHOP - OAKLAND, CA

FIGURE 5

ENVIRONMENTAL RECORD SEARCH MAP

SCALE: 2.76" = 1 MILE	THOMAS BROS.	DATE: 3-4-93

⬡ ENVIRONMENTAL CONCERNS - HIGH PRIORITY WITHIN 1 MILE

○ ENVIRONMENTAL CONCERNS WITHIN 1 MILE

○ ENVIRONMENTAL CONCERNS - WITH A 'NO FURTHER ACTION' STATUS WITHIN 1 MILE

N

2.75 inches to 1 mile

Map reproduced under license from Thomas Bros. (AA 07D8)

APPROXIMATE LOCATION OF IDENTIFIED SITES IN THE VICINITY OF 1750 FERRO STREET, OAKLAND

1.	ROBO'S JUNKYARD		3RD & KIRKHAM
2.	NOR-CAL METAL FABRICATORS	1121	3RD ST
3.	PACIFIC WESTERN SHIPPING	1221	3RD ST
4.	DON CHERRY SCRAP METAL	1446	3RD ST
5.	SOUTHERN PACIFIC TRANSPORATION		5TH & KIRKHAM
6.	RED STAR YEAST	1384	5TH ST
7.	HARRY P ROBARTS COMPANY	1403	5TH ST
8.	SOUTHERN PACIFIC OAKLAND		7TH & BAY ST
9.	BADANIC	1380	7TH ST
10.	CHEVRON	1395	7TH ST
11.	DICAR COMPANY	1848	8TH ST
12.	SKIPS TRUCKING COMPANY	112	ADELINE ST
13.	SOUTHERN PACIFIC	721	CEDAR ST
13.	SOUTHERN PACIFIC RAILROAD	W	OAKLAND YARD
14.	UNION PACIFIC MOTOR FREIGHT	1750	FERRO ST
15.	SMILO CHEMICAL CO	500	KIRKHAM ST
16.	TODD SHIPYARDS CORPORATION		MAIN ST, FOOT OF
16.	NCPA/TODD SHIPYARD		TODD SHIPYARDS
17.	PORT OF OAKLAND/APL CONATINER	1395	MIDDLE HARBOR RD
18.	SHEREX CHEM CO	1401	MIDDLE HARBOR RD
19.	SOUTHERN PACIFIC	1728	MIDDLE HARBOR RD
19.	NAVAL SUPPLY CENTER-ALAM ANNEX		NAS ALAMEDA ANNEX
22.	NAVAL SUPPLY CENTER OAKLAND		USN SUPPLY CENTER, CODE 6 BUILDING 322

UNKNOWN LOCATIONS

ALAMEDA NAVAL AIR STATION	1ST ST
ALAMEDA NAVAL AIR STATION	NAS ALAMEDA
NAVAL SUPPLY CTR LOT '710	8TH ST
SCHNITZER STEEL PRODUCTS CO	ADELINE ST, BOX #747

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UPMF REPAIR SHOP - OAKLAND, CA

TABLE 2

ENVIRONMENTAL RECORD SEARCH INFORMATION

SOURCE: BBL | DATE: 3-4-93

INDEX OF SITES LISTED BY MAP NUMBERS

☆ 4.1.1 Subsurface Soil Conditions

During the January 1993 field investigation, soil borings and wells encountered fill material (glass, bricks, and other refuse material) from the ground surface (which was paved with asphalt) to 4 to 8 feet below the ground surface (BGS). Underlying the fill material to the bottom of the borings (10 to 13 feet BGS) was a fine-to-medium grained, gray to olive green to reddish brown sand with some gravel and minor silt. From 13 to 22 feet BGS the soil became increasingly silty. Clay was noted at 18 feet BGS in one well. Groundwater was encountered at depths ranging from 7 to 10 feet below ground surface (Figures 6a and 6b). Soil borings logs are located in Appendix D. ✓ no ∇ for water levels.

4.1.2 Soil Sampling Procedure

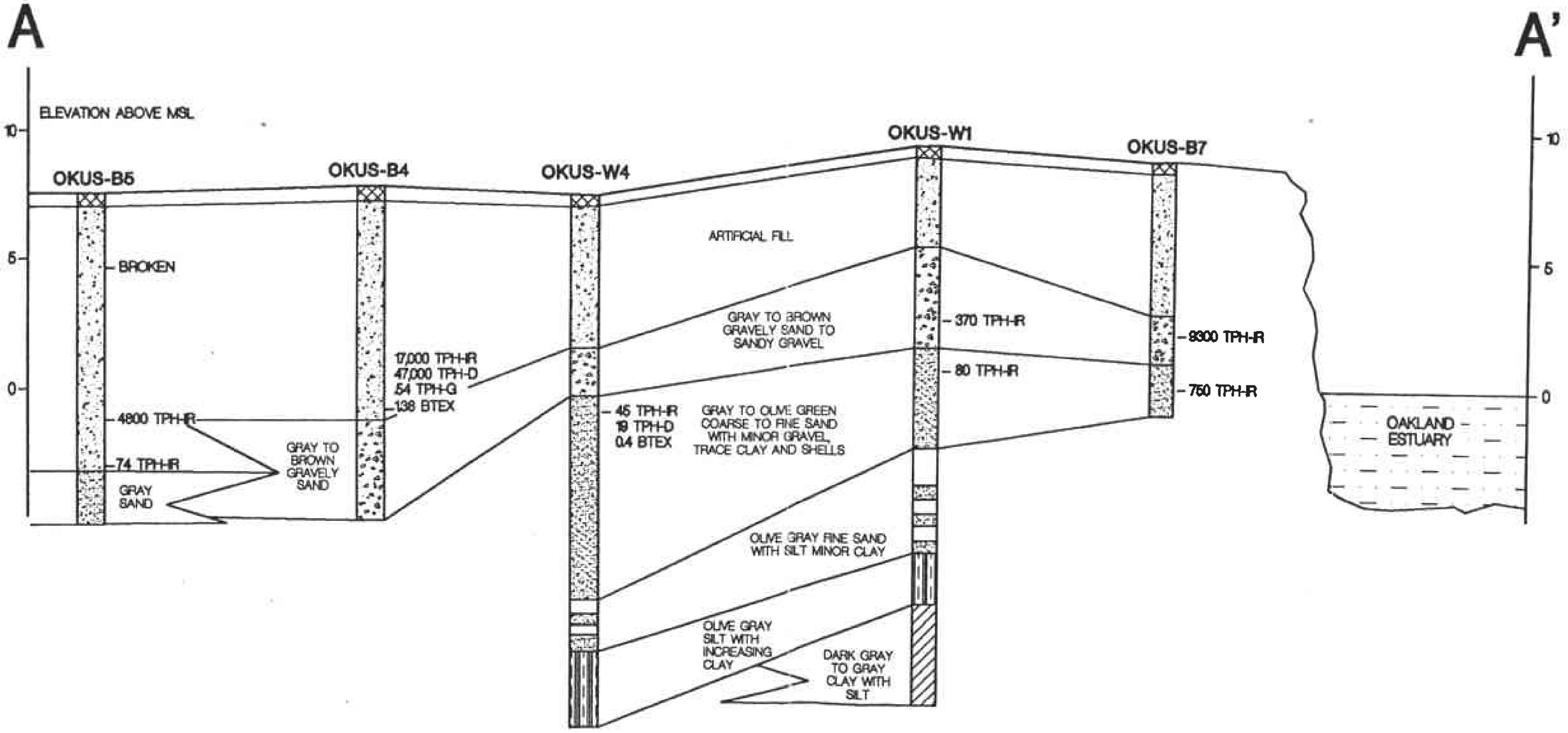
Twelve soil borings were advanced using a truck-mounted hollow-stem auger drill rig. Soil samples were collected through the hollow-stem auger using a split spoon sampler, and samples were screened for volatile organic vapors using a Organic Vapor Meter (OVM). Detailed procedures used during drilling, sampling, and screening are included in the USPCI QA/QC Plan in Appendix A.

4.1.3 Results of Laboratory Analysis of Soil Samples

type?

? Analytical results indicated that the soil samples from nine of the borings contained elevated concentrations of TPH (> 100 mg/kg). Elevated TPH concentrations ranged from 370 mg/kg in sample OKS-1 (6 - 8 feet) from monitoring well OKUS-W1 to 47,000 mg/kg in sample OKS-16a (8 - 9 feet) from soil boring OKUS-B4. Total BTEX concentrations in the soil samples ranged from below MDLs in samples OKS-1 (6 - 8 feet), OKS-3 (2 - 4 feet) and OKS-11 (4 - 5 feet) from borings OKUS-W1, -W2, and -B2 to a high of 1.38 mg/kg in sample OKS-16a (8 - 9 feet) from boring OKUS-B4 (Figure 7 and Table 3a).

? Seven soil samples were analyzed for ICAP and AA metals. Elevated concentrations of lead (Pb) were found ranging from 580 mg/kg in sample OKS-2b (8 - 10 feet) in OKUS-W1 to 1300 mg/kg, sample OKS-23 (8 - 10 feet) in OKUS-B7. Elevated concentrations of zinc (Zn) were found ranging from 373 mg/kg in sample OKS-23 (8 - 10 feet) from -W1 to 1,440 mg/kg in sample OKS-16b (8 - 9 feet) from -B4. Minor levels of Pb and Zn(< 50 mg/kg) were recorded in the remaining samples. There were minor concentrations of chromium (up to 41.2 mg/kg) in all seven soil samples and cadmium (up to 17.2 mg/kg in four soil samples (Figure 7 and Table 3a).



NOTES:

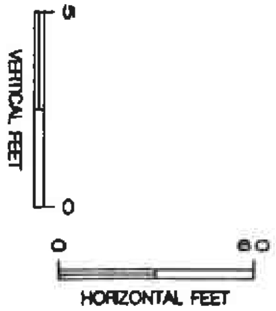
TPH AND BTEX IN mg/kg

TPH-IR (TPH 4.8.1 METHOD)

TPH D (TPH DIESEL 8015 MOD)

TPH-G (TPH GASOLINE 8015 MOD)

BTEX (8020 METHOD)



	BY	DATE
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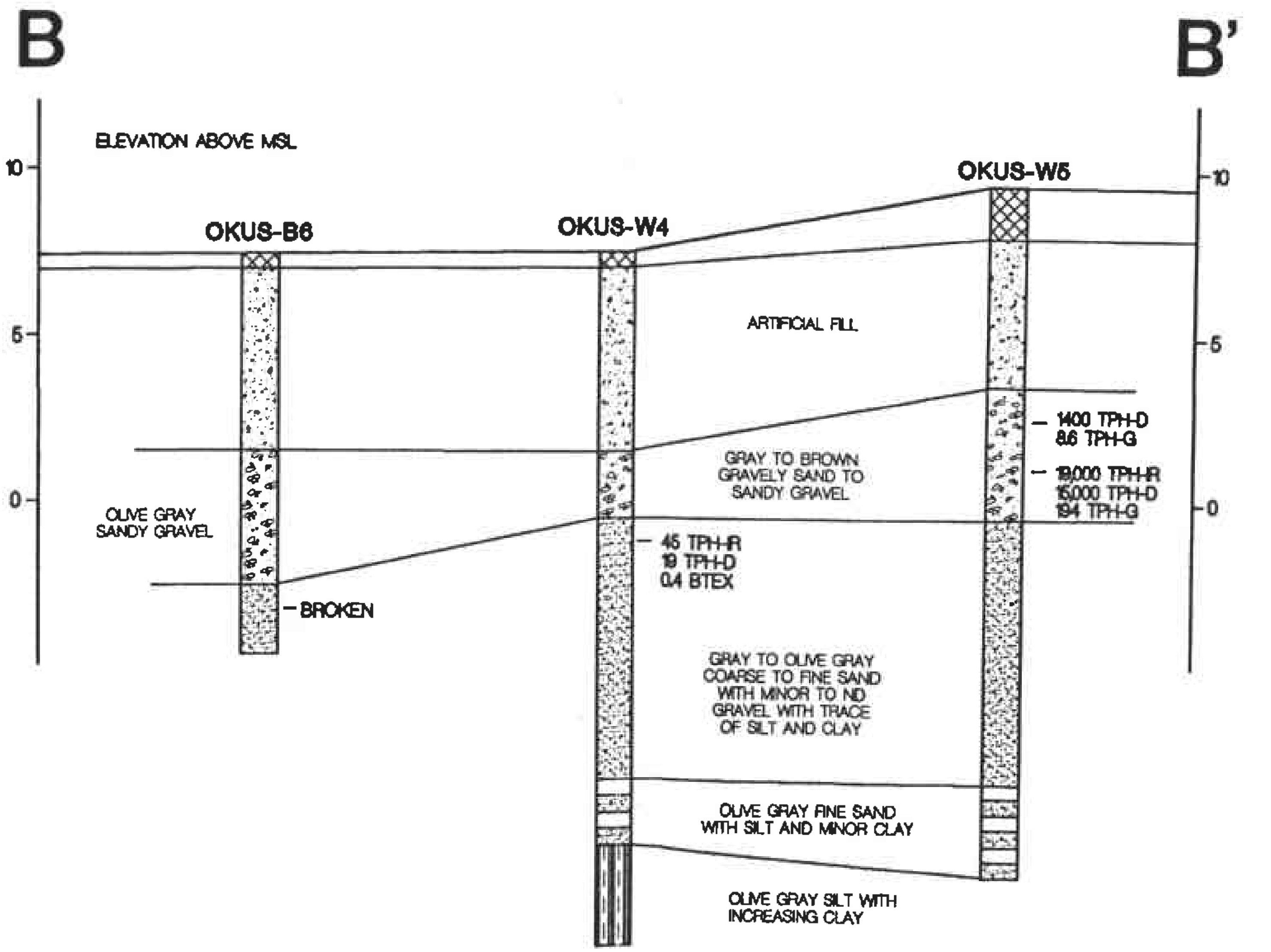
FIGURE 6A
GEOLOGIC CROSS SECTION A-A'

SCALE AS INDICATED
DATE 1/15/93
DWG. NO. 96281-03



NOTES:

TPH AND BTEX IN mg/kg

TPH-IR (TPH 4.8.1 METHOD)

TPH-D (TPH DIESEL 8015 METHOD)

TPH-G (TPH GASOLINE 8015 METHOD)

BTEX (8020 METHOD)

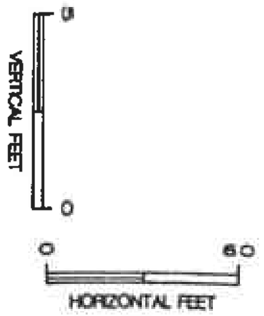


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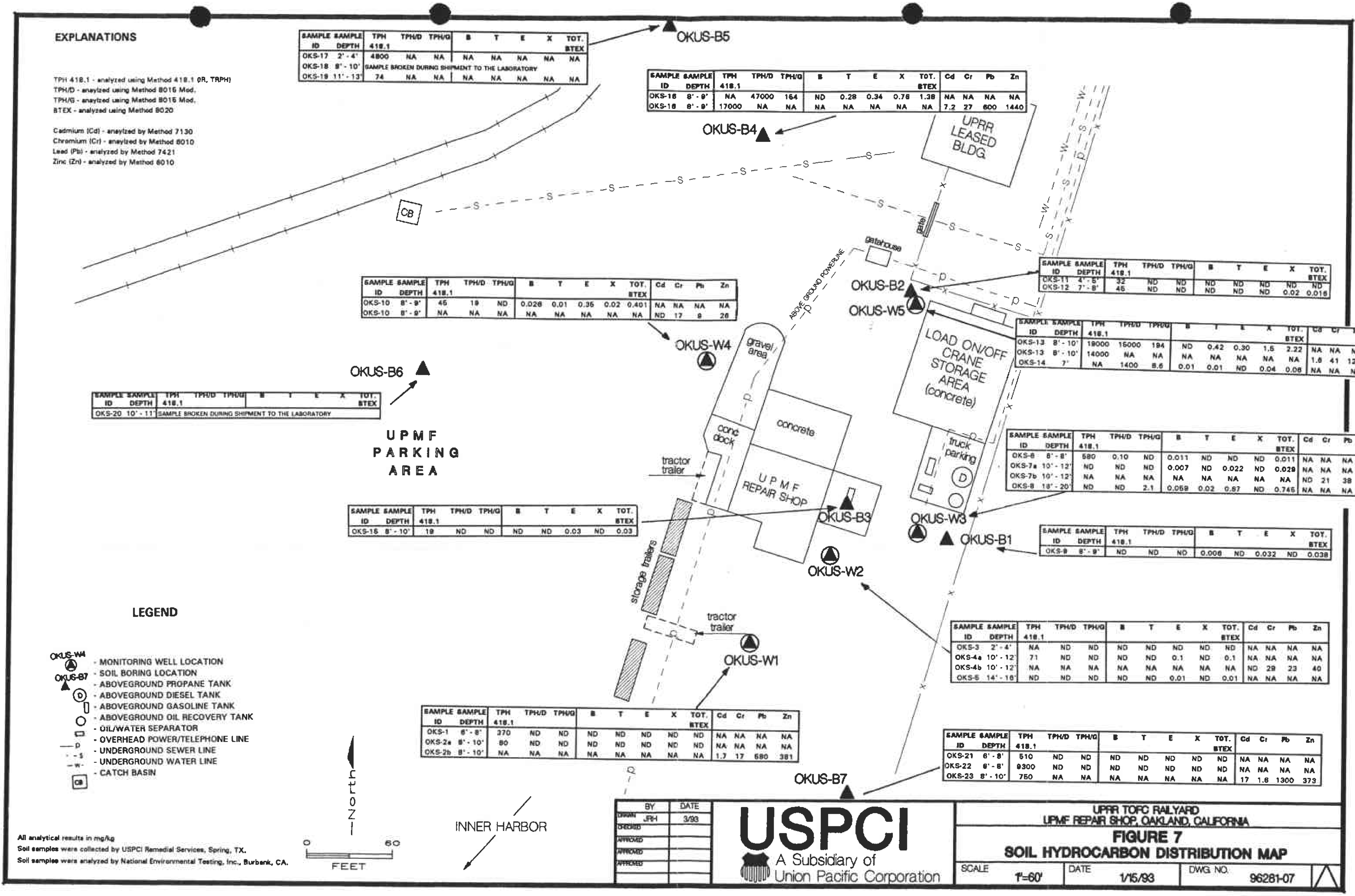
FIGURE 6B
GEOLOGICAL CROSS SECTION B-B'

SCALE AS INDICATED
DATE 1/15/93
DWG. NO. 96281-02

EXPLANATIONS

TPH 418.1 - analyzed using Method 418.1 (IR, TRPH)
TPH/D - analyzed using Method 8015 Mod.
TPH/G - analyzed using Method 8015 Mod.
BTEX - analyzed using Method 8020

Cadmium (Cd) - analyzed by Method 7130
Chromium (Cr) - analyzed by Method 6010
Lead (Pb) - analyzed by Method 7421
Zinc (Zn) - analyzed by Method 6010



OKUS-B5

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX
OKS-17	2' - 4'	4800	NA	NA	NA	NA	NA	NA	NA
OKS-18	8' - 10'	SAMPLE BROKEN DURING SHIPMENT TO THE LABORATORY							
OKS-19	11' - 13'	74	NA	NA	NA	NA	NA	NA	NA

OKUS-B4

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-16	8' - 9'	NA	47000	164	ND	0.28	0.34	0.76	1.38	NA	NA	NA	NA
OKS-16	8' - 9'	17000	NA	NA	NA	NA	NA	NA	NA	7.2	27	600	1440

OKUS-W4

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-10	8' - 9'	45	19	ND	0.026	0.01	0.35	0.02	0.401	NA	NA	NA	NA
OKS-10	8' - 9'	NA	NA	NA	NA	NA	NA	NA	NA	ND	17	9	26

OKUS-B2

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX
OKS-11	4' - 5'	32	ND	ND	ND	ND	ND	ND	ND
OKS-12	7' - 8'	46	ND	ND	ND	ND	ND	0.02	0.016

OKUS-W5

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-13	8' - 10'	19000	15000	194	ND	0.42	0.30	1.5	2.22	NA	NA	NA	NA
OKS-13	8' - 10'	14000	NA	NA	NA	NA	NA	NA	NA	1.6	41	1200	1090
OKS-14	7'	NA	1400	8.6	0.01	0.01	ND	0.04	0.06	NA	NA	NA	NA

OKUS-B6

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX
OKS-20	10' - 11'	SAMPLE BROKEN DURING SHIPMENT TO THE LABORATORY							

OKUS-W3

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-6	6' - 8'	580	0.10	ND	0.011	ND	ND	ND	0.011	NA	NA	NA	NA
OKS-7a	10' - 12'	ND	ND	ND	0.007	ND	0.022	ND	0.029	NA	NA	NA	NA
OKS-7b	10' - 12'	NA	NA	NA	NA	NA	NA	NA	NA	ND	21	38	22
OKS-8	18' - 20'	ND	ND	2.1	0.059	0.02	0.67	ND	0.745	NA	NA	NA	NA

OKUS-B3

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX
OKS-15	8' - 10'	19	ND	ND	ND	ND	0.03	ND	0.03

OKUS-B1

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX
OKS-9	8' - 9'	ND	ND	ND	0.006	ND	0.032	ND	0.038

OKUS-W2

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-3	2' - 4'	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
OKS-4a	10' - 12'	71	ND	ND	ND	ND	0.1	ND	0.1	NA	NA	NA	NA
OKS-4b	10' - 12'	NA	NA	NA	NA	NA	NA	NA	NA	ND	29	23	40
OKS-5	14' - 16'	ND	ND	ND	ND	ND	0.01	ND	0.01	NA	NA	NA	NA

OKUS-W1

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-1	6' - 8'	370	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
OKS-2a	8' - 10'	80	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
OKS-2b	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	1.7	17	680	381

OKUS-B7

SAMPLE ID	SAMPLE DEPTH	TPH 418.1	TPH/D	TPH/G	B	T	E	X	TOT. BTEX	Cd	Cr	Pb	Zn
OKS-21	6' - 8'	510	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
OKS-22	6' - 8'	9300	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
OKS-23	8' - 10'	750	NA	NA	NA	NA	NA	NA	NA	17	1.6	1300	373

LEGEND

OKUS-W4 ▲	- MONITORING WELL LOCATION
OKUS-B7 ▲	- SOIL BORING LOCATION
◎	- ABOVEGROUND PROPANE TANK
Ⓓ	- ABOVEGROUND DIESEL TANK
▯	- ABOVEGROUND GASOLINE TANK
○	- ABOVEGROUND OIL RECOVERY TANK
▭	- OIL/WATER SEPARATOR
— P	- OVERHEAD POWER/TELEPHONE LINE
- - S	- UNDERGROUND SEWER LINE
— W -	- UNDERGROUND WATER LINE
CB	- CATCH BASIN

All analytical results in mg/kg
Soil samples were collected by USPCI Remedial Services, Spring, TX.
Soil samples were analyzed by National Environmental Testing, Inc., Burbank, CA.

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FIGURE 7
SOIL HYDROCARBON DISTRIBUTION MAP

SCALE 1"=60'
DATE 1/15/93
DWG. NO. 96281-07

Four soil samples were analyzed using EPA method 8270. Two soil samples contained concentrations of semivolatile organic compounds above MDLs, including: pyrene (0.48 mg/kg) in sample OKS-4b (10 - 12 feet) from monitoring well OKUS-W2, and acenaphtylene (1.9 mg/kg), benzo (a) anthracene (4.0 mg/kg), benzo (b) fluorathene (3.8 mg/kg), benzo (a) pyrene (4.1 mg/kg), benzo (g,h,i) perylene (5.6 mg/kg), chrysene (4.6 mg/kg), indenopyrene (4.2 mg/kg), naphthalene (1.8 mg/kg), phenanthrene (11.0 mg/kg) and pyrene (18.0 mg/kg) in sample OKS-2b (8 - 10 feet) from OKUS-W1.

Four soil samples were analyzed using EPA method 8010. Only sample OKS-4b contained concentrations of purgeable halocarbons above MDLs. Analytical results for sample OKS-4b (10 - 12 feet) from OKUS-W2 indicated concentrations of chlorobenzene (0.11 mg/kg), chloroform (0.41 mg/kg), cis-1,3-dichloropropene (0.028 mg/kg) and tetrachloroethene (0.028 mg/kg). See Tables 3a and 3b.

4.2 Groundwater Assessment Determinations

4.2.1 Groundwater Characteristics

The UPRR Oakland TOFC Railyard is immediately adjacent to the Oakland Estuary, which is located in the eastern portion of the San Francisco Bay. The close proximity of the Estuary to the site suggests that a direct hydrologic connection may exist between the Estuary and the groundwater beneath the site. Tidal influences from the Estuary may influence water levels in the monitoring wells at the site; however, previous studies in the San Francisco Bay Area suggests that tidal influences are generally minimal and are only detectable in monitoring wells in very close proximity to the Bay (usually within 200 feet) USPCI, 1991). The actual degree of influence is dependent on individual site characteristics. USPCI performed an aquifer stress test at the Oakland TOFC Yard in December 1992, to obtain data on aquifer characteristics which will assist in designing an upgrading of an existing oil recovery system, located near the diesel refueling area approximately 700 feet to the northwest of the present investigation area. Results of the aquifer stress tests are presented in Appendix C.

Five of the soil borings were completed as monitoring wells. Groundwater was typically encountered during drilling operations at depths ranging from 8 to 11 feet BGS. A clay was encountered during drilling at an average depth of 20 feet BGS; however, groundwater generally appears unconfined, with little difference between the depths at which water was first encountered during drilling and the subsequent static

TABLE 3a. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA
USPCI PROJECT NO. 96281

8010

SAMPLE LOCATION	SAMPLE ID	SAMPLE DEPTH feet	TPH 418.1 mg/kg	TPH/D mg/kg	TPH/G mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYL-BENZENE mg/kg	TOTAL XYLENES mg/kg	TOTAL BTEX mg/kg	Cd mg/kg	Cr mg/kg	Pb mg/kg	Zn mg/kg	CHLORO-BENZENE mg/kg	CHLORO-FORM mg/kg
OKUS-W1	OKS-1	6' - 8'	370	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKS-2a	8' - 10'	80	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKS-2b	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	1.70	16.70	580	381	ND	ND
OKUS-W2	OKS-3	2' - 4'	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKS-4a	10' - 12'	71	ND	ND	ND	ND	0.1	ND	0.1	NA	NA	NA	NA	NA	NA
"	OKS-4b	10' - 12'	NA	NA	NA	NA	NA	NA	NA	NA	ND	29.00	23.00	39.90	0.11	0.11
"	OKS-5	14' - 16'	ND	ND	ND	ND	ND	0.01	ND	0.01	NA	NA	NA	NA	NA	NA
OKUS-W3	OKS-6	6' - 8'	580	0.10	ND	0.011	ND	ND	ND	0.011	NA	NA	NA	NA	NA	NA
"	OKS-7a	10' - 12'	ND	ND	ND	0.007	ND	0.022	ND	0.029	NA	NA	NA	NA	NA	NA
"	OKS-7b	10' - 12'	NA	NA	NA	NA	NA	NA	NA	NA	ND	21.00	38.00	21.80	ND	ND
"	OKS-8	18' - 20'	ND	ND	2.1	0.059	0.016	0.67	ND	0.745	NA	NA	NA	NA	NA	NA
OKUS-B1	OKS-9	8' - 9'	ND	ND	ND	0.006	ND	0.032	ND	0.038	NA	NA	NA	NA	NA	NA
OKUS-W4	OKS-10a	8' - 9'	45	19	ND	[illegible]	0.006	0.35	0.019	0.401	NA	NA	NA	NA	NA	NA
"	OKS-10b	8' - 9'	NA	NA	NA	NA	NA	NA	NA	NA	ND	17.40	9.00	26.20	ND	ND
OKUS-B2	OKS-11	4' - 5'	32	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKS-12	7' - 8'	45	ND	ND	ND	ND	ND	0.016	0.016	NA	NA	NA	NA	NA	NA
OKUS-W5	OKS-13a	8' - 10'	19000	15000	194	ND	0.42	0.30	1.5	2.22	NA	NA	NA	NA	NA	NA
"	OKS-13b	8' - 10'	14000	NA	NA	NA	NA	NA	NA	NA	1.55	41.20	[illegible]	1090	NA	NA
"	OKS-14	7'	NA	1400	8.6	0.014	0.009	ND	0.036	0.059	NA	NA	NA	NA	NA	NA
OKUS-B3	OKS-15	8' - 10'	19	ND	ND	ND	ND	0.028	ND	0.028	NA	NA	NA	NA	NA	NA
OKUS-B4	OKS-16a	8' - 9'	NA	47000	194	ND	0.28	0.34	0.76	1.38	NA	NA	NA	NA	NA	NA
"	OKS-16b	8' - 9'	17000	NA	NA	NA	NA	NA	NA	NA	7.15	27.40	[illegible]	1440	NA	NA
OKUS-B5	OKS-B17	2' - 4'	4800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-B18	8' - 10'	SAMPLE BROKEN DURING SHIPMENT TO THE LABORATORY													
"	OKS-B19	11' - 13'	74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B6	OKS-20	10' - 11'	SAMPLE BROKEN DURING SHIPMENT TO THE LABORATORY													
OKUS-B7	OKS-21	6' - 8'	510	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKS-22*	6' - 8'	9300	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKS-23	8' - 10'	750	NA	NA	NA	NA	NA	NA	NA	[illegible]	1.55	[illegible]	373	NA	NA

ND - Not Detected
NA - Not Analyzed
TPH - Total Petroleum Hydrocarbons
MG/KG - milligram per kilogram
Soil samples were collected by USPCI Remedial Services, Spring, TX.
Soil samples were analyzed by National Environmental Testing, Inc., Burbank, CA.

TPH 418.1 - analyzed using Method 418.1
TPH/D - anaylzed using Method 8015 Mod.
TPH/G - anaylzed using Method 8015 Mod.
BTEX - analyzed using Method 8020
CHLOROBENZENE - analyzed using Method 8010
CHLOROFORM - analyzed using Method 8010

Cadmium (Cd) - anaylzed by Method 7130
Chromium (Cr) - anaylzed by Method 6010
Lead (Pb) - analyzed by Method 7421
Zinc (Zn) - analyzed by Method 6010

* - MS/MSDS sample from OKS-21

8270

TABLE 3b. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA

USPCI PROJECT NO. 96281

8010 8270

SAMPLE LOCATION	SAMPLE ID	SAMPLE DEPTH feet	cis-1,3-DICHLORO-PROPENE mg/kg	TETRACHL-OROETHENE mg/kg	ACENAP-HTYLENE mg/kg	BENZO (a) ANTHRACENE mg/kg	BENZO (b) FLU-ORATHENE mg/kg	BENZO (a) PYRENE mg/kg	BENZO (g,h,i) PERYLENE mg/kg	CHRY-SENE mg/kg	INDENO-PYRENE mg/kg	NAPHT-HALENE mg/kg	PHENAN-THRENE mg/kg	PYRENE mg/kg
OKUS-W1	OKS-1	6' - 8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-2a	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-2b	8' - 10'	ND	ND	1.90	4.00	3.80	4.10	5.60	4.60	4.20	1.80	11.00	18.00
OKUS-W2	OKS-3	2' - 4'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-4a	10' - 12'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-4b	10' - 12'	0.028	0.028	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.48
"	OKS-5	14' - 16'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-W3	OKS-6	6' - 8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-7a	10' - 12'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-7b	10' - 12'	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
"	OKS-8	18' - 20'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B1	OKS-9	8' - 9'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-W4	OKS-10a	8' - 9'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-10b	8' - 9'	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OKUS-B2	OKS-11	4' - 5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-12	7' - 8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-W5	OKS-13a	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-13b	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-14	7'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B3	OKS-15	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B4	OKS-16a	8' - 9'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-16b	8' - 9'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B5	OKS-B17	2' - 4'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-B18	8' - 10'	SAMPLE BROKEN DURING SHIPMENT TO THE LABORATORY											
"	OKS-B19	11' - 13'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B6	OKS-20	10' - 11'	SAMPLE BROKEN DURING SHIPMENT TO THE LABORATORY											
OKUS-B7	OKS-21	6' - 8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-22*	6' - 8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKS-23	8' - 10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

ND - Not Detected
NA - Not Analyzed
MG/KG - milligram per kilogram

* MS/MSDS sample from OKS-21

cis-1,3-DICHLOROPROPANE - analyzed using Method 8010
TERTACHLOROETHENE - analyzed using Mehtod 8010

All remaining parameters were anaylzed using Method 8270

Soil samples were collected by USPCI Remedial Services, Spring, TX.
Soil samples were analyzed by National Environmental Testing, Inc., Burbank, CA.

water levels recorded in the monitoring wells. The groundwater level was observed to be near or below the contact between overlying fill material and well graded sandy material.

Well completion diagrams are shown in detail in Appendix E. The static water levels measured in January 1993 in wells completed within the borings ranged from 6.43 to 9.39 feet BGS.

4.2.2 Results of Laboratory Analysis of Groundwater Samples

Analytical results indicate elevated TPH/G and BTEX concentrations in groundwater at the site (Figure 8 and Table 4a). Total BTEX concentrations ranged from 0.244 mg/L in the sample from monitoring well OKUS-W1 to 9.07 mg/L in sample OKUS-W2. Benzene concentrations were above the MCL (0.001 mg/L) in samples from all five monitoring wells. Ethylbenzene concentrations were above the MCL (680 mg/L) in samples from three of the five monitoring wells. TPH/G concentrations ranged from 0.410 mg/L in OKUS-W1 to 14.0 mg/L in sample OKUS-W2. TPH/D concentrations ranged from below MDL in sample OKUS-W1 to 5.40 mg/L in samples OKUS-W2 and OKUS-W4. Motor oil was detected in sample OKUS-W1 with a concentration of 1.40 mg/L. TPH 418.1 concentrations ranged from below the MDL in samples OKUS-W1 and -W5 to 4.50 mg/L in sample OKUS-W3.

One sample from OKUS-W5 was analyzed for dissolved lead using EPA Method 7421. The dissolved Pb concentration was below the MDL (0.004 mg/L).

4.2.3 Additional Groundwater Sampling Results

Due to the elevated concentrations of metals, semivolatiles and purgeable halocarbons in some of the soil samples, groundwater monitoring wells were sampled for these parameters using EPA Methods 6000/7000 series, 610 and 625, respectively. Groundwater samples were also analyzed for total dissolved solids, total suspended solids, pH/conductivity and alkalinity to determine water quality in the investigation area.

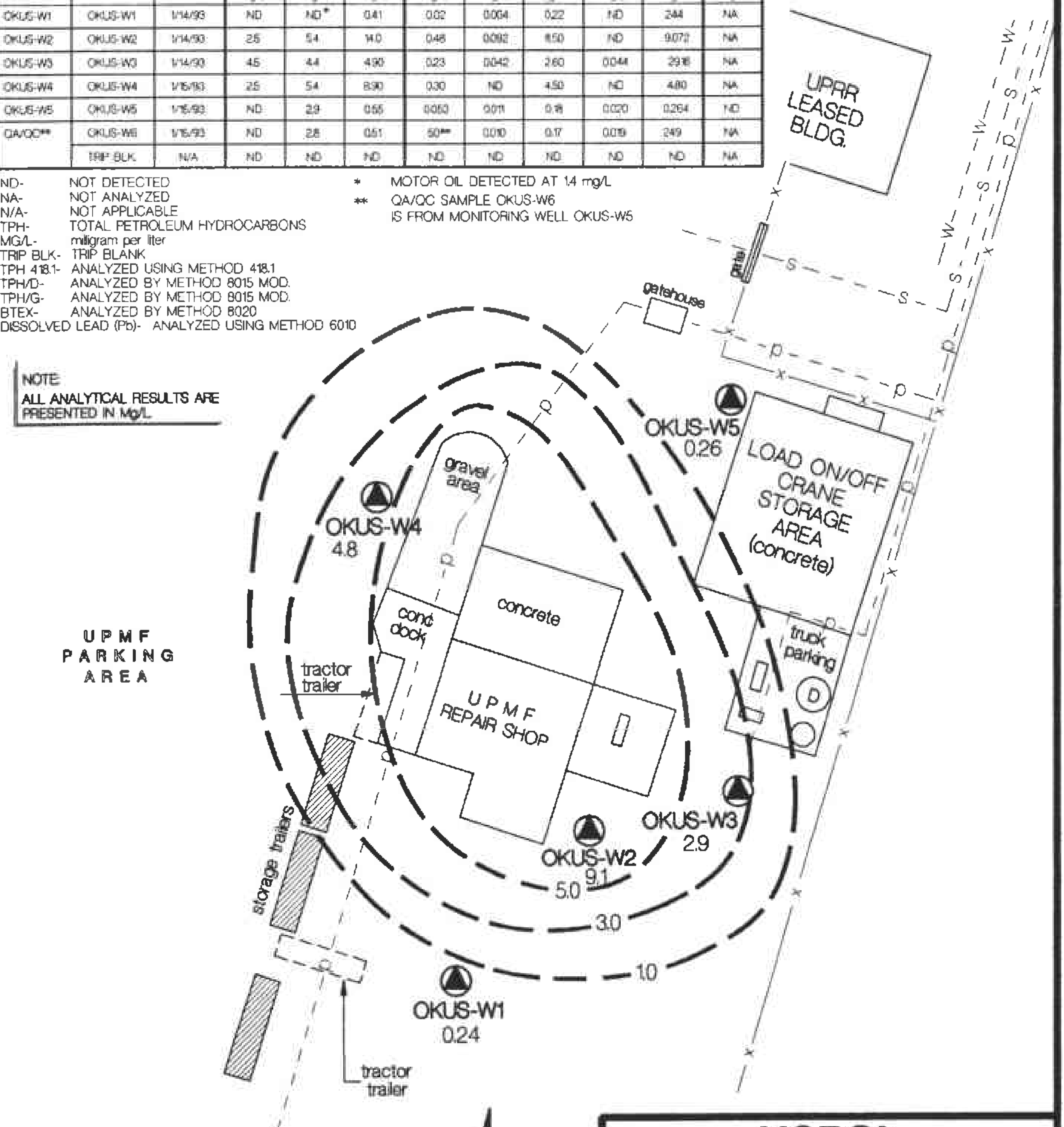
MONITORING WELL NO.	SAMPLE ID	DATE SAMPLED	TPH 418.1 mg/L	TPH/D mg/L	TPH/G mg/L	BENZENE mg/L	TOLUENE mg/L	ETHYL BENZENE mg/L	XYLENE mg/L	TOTAL BTEX mg/L	DISLV Pb mg/L
OKUS-W1	OKUS-W1	1/14/93	ND	ND*	0.41	0.02	0.004	0.22	ND	244	NA
OKUS-W2	OKUS-W2	1/14/93	2.5	5.4	14.0	0.48	0.092	8.50	ND	9.072	NA
OKUS-W3	OKUS-W3	1/14/93	4.5	4.4	4.90	0.23	0.042	2.60	0.044	2.916	NA
OKUS-W4	OKUS-W4	1/15/93	2.5	5.4	8.90	0.30	ND	4.50	ND	4.80	NA
OKUS-W5	OKUS-W5	1/15/93	ND	2.9	0.55	0.050	0.011	0.18	0.020	0.264	ND
QA/QC**	OKUS-W6	1/15/93	ND	2.8	0.51	50**	0.010	0.17	0.019	249	NA
	TRIP BLK	N/A	ND	ND	ND	ND	ND	ND	ND	ND	NA

ND-	NOT DETECTED
NA-	NOT ANALYZED
N/A-	NOT APPLICABLE
TPH-	TOTAL PETROLEUM HYDROCARBONS
MG/L-	milligram per liter
TRIP BLK-	TRIP BLANK
TPH 418.1-	ANALYZED USING METHOD 418.1
TPH/D-	ANALYZED BY METHOD 8015 MOD.
TPH/G-	ANALYZED BY METHOD 8015 MOD.
BTEX-	ANALYZED BY METHOD 8020
DISSOLVED LEAD (Pb)-	ANALYZED USING METHOD 6010

* MOTOR OIL DETECTED AT 1.4 mg/L

** QA/QC SAMPLE OKUS-W6 IS FROM MONITORING WELL OKUS-W5

NOTE:
ALL ANALYTICAL RESULTS ARE PRESENTED IN Mg/L.



LEGEND

OKUS- ▲ MONITORING WELL

5.0 total BTEX CONTOUR (ppm)

North

0 60
FEET

USPCI
A Subsidiary of Union Pacific Corporation

UPRR TOFC RAILYARD
UPMF REPAIR SHOP, OAKLAND, CALIFORNIA

FIGURE 8
DISSOLVED PHASE BTEX DISTRIBUTION MAP

SCALE:	DRAWN/DATE	APPROVED
1"=60'	3/93	

96281-06

The analytical results from the additional groundwater sampling event in February 1993 indicated dissolved arsenic in samples from four of the five monitoring wells. The detected concentrations of dissolved arsenic in groundwater samples ranged from 0.036 mg/L in OKUS-W2 to 0.470 mg/L in OKUS-W5. Three groundwater samples contained concentrations of dissolved arsenic exceeding the MCL of 0.050 mg/L (Table 4b).

Chloroform was detected in groundwater water samples from four of the five monitoring wells. Detected chloroform concentrations in groundwater samples ranged from 0.006 mg/L in OKUS-W5 to 0.290 mg/L in OKUS-W2. Two groundwater samples contained chloroform above the MCL of 0.100 mg/L. A complete listing of these analytical results are in Table 4b.

The only semivolatile compounds detected were bis-(2-Ethylhexyl) phthalate and naphthalene. Phthalate concentrations ranged from 0.057 mg/L to 0.190 mg/L. Naphthalene (0.010 mg/L) was detected in sample OKUS-W3. There are no MCLs established for these compounds.

4.2.4 Background Water Quality

Groundwater samples from the five existing monitoring wells were analyzed for alkalinity, specific conductance, pH, total dissolved solids (TDS) and total suspended solids (TSS) to determine the local groundwater quality. Alkalinity ranged from 592 mg/L in the sample from well OKUS-W1 to 1110 mg/L in the sample from well -W2. Specific conductance ranged from 1178 umhos/cm in the sample from well the sample from well -W1 to 4200 umhos/cm in the sample from well -W2. The pH values ranged from 6.9 in the sample from well -W2 to 7.4 in the sample from well -W5. [redacted] ranged from 1160 mg/L in the sample from well -W1 [redacted] in the sample from well -W2. TSS concentrations ranged from 117 mg/L in the sample from well -W1 to 326 mg/L in the sample from well -W2. The Specific conductance in groundwater samples exceeded the Secondary MCL established for human health and welfare. The remaining parameters are within the MCLs where established. A complete listing of these analytical results are in Table 5.

TABLE 4a
CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
USPCI PROJECT NO. 96281

PARAMETER	**Monitoring Well No.**		OKUS-W1	OKUS-W2	OKUS-W3	OKUS-W4	OKUS-W5	QA/QC	TRIP
	Sample ID No.		OKUS-W1	OKUS-W2	OKUS-W3	OKUS-W4	OKUS-W5	OKUS-W6	BLANK
	Date Sample		1/14/93	1/14/93	1/14/93	1/15/93	1/15/93	1/15/93	N/A
	EPA Method	**Units**							
Total Petroleum Hydrocarbons									
TPH - IR	418.1	ug/l mg/L	ND	2,500 2.5	4,500 4.5	2,500 2.5	ND	ND	NA
TPH - Diesel	8015 Mod.	ug/l mg/L	ND*	5,400 5.4	4,400 4.4	5,400 5.4	2,900 2.9	2,800 2.8	NA
TPH - Gasoline	8015 Mod.	ug/L	410	14000	4900	8900	550	510	NA
BTEX									
Benzene	8020	ug/L	20**	480**	230**	300**	53**	50**	ND
Toluene	8020	ug/L	4	92	42	ND	11	10	ND
Ethylbenzene	8020	ug/L	220	8500***	2600***	4500***	180	170	ND
Xylenes	8020	ug/L	ND	ND	44	ND	20	19	ND
Total BTEX	8020	ug/L	244	9072	2916	4800	264	249	ND
Dissolved Metal									
Lead (Pb)^	7421	ug/L	NA	NA	NA	NA	ND	NA	NA

* Motor oil was detected at 1.4 mg/L.

** Concentrations exceeding the Maximum Contaminant Limit for benzene.

***Concentrations exceeding the Maximum Contaminant Limit for ethylbenzene.

^Dissolved Pb sample was filtered and preserved in the laboratory

ND - Not Detected
NA - Not Analyzed
N/A - Not Available
MG/L - milligram per liter
UG/L - microgram per liter

Groundwater samples were collected by USPCI Remedial Services, Spring, TX.
Groundwater samples were analyzed by National Environmental Testing, Inc., Burbank, CA.

TABLE 4b
CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES
UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
USPCI PROJECT NO. 96281

PARAMETER	Monitoring Well No.		OKUS-W1	OKUS-W2	OKUS-W3	OKUS-W4	OKUS-W5
	Sample ID No.		OKUS-W1	OKUS-W2	OKUS-W3	OKUS-W4	OKUS-W5
	Date Sample		2/18/93	2/18/93	2/18/93	2/18/93	2/18/93
	EPA Method	Units					
Dissolved Metals							
Arsenic (As)	7060	mg/L	ND	0.036	0.092*	0.084*	0.47*
Cadmium (Cd)	6010	mg/L	ND	ND	ND	ND	ND
Chromium (Cr)	6010	mg/L	ND	ND	ND	ND	ND
Lead (Pb)	7421	mg/L	ND	ND	ND	ND	ND
Mercury (Hg)	7470	mg/L	ND	ND	ND	ND	ND
Selenium (Se)	7740	mg/L	ND	ND	ND	ND	ND
Zinc (Zn)	6010	mg/L	ND	ND	ND	ND	ND
Purgeable Halocarbons 8010							
Bromoform	601	ug/L	ND	ND	ND	ND	5.9
Chlorobenzene	601	ug/L	ND	14	15	ND	ND
2-Chloroethyvinyl ether	601	ug/L	ND	15	ND	ND	ND
Chloroform	601	ug/L	ND	290**	140**	75	5.9
1,2-Dichloropropane	601	ug/L	ND	ND	ND	6.4	ND
cis 1,3-Dichloropropene	601	ug/L	ND	9	ND	9.4	0.7
1,1,2,2-Tetrachloroethane	601	ug/L	ND	18	11	16	4.2
1,1,1-Trichloroethane	601	ug/L	ND	5	ND	ND	ND
Trichlorofluoromethane	601	ug/L	ND	52	24	15	13
Semivolatiles 8270							
bis (2-Ethylhexyl) phthalate	625	ug/L	57	130	190	190	150
Naphthalene	625	ug/L	ND	ND	10	ND	ND

All metals were filtered and preserved in the laboratory

* Concentrations exceeding the Maximum Contaminant Limit for Arsenic.
** Concentrations exceeding the Maximum Contaminant Limit for Chloroform.

ND - Not Detected
MG/L - milligram per liter
UG/L - microgram per liter

Groundwater samples were collected by USPCI Remedial Services, Ontario, CA.
Groundwater samples were analyzed by National Environmental Testing, Inc., Burbank, CA.

TABLE 5

CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER QUALITY SAMPLES

UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY

OAKLAND, CALIFORNIA

USPCI PROJECT NO. 96281

MONITORING WELL NO.	SAMPLE ID	DATE SAMPLED	ALKALINITY mg/L	TDS mg/L	TSS mg/L	SPC. COND. umhos/cm	pH units
OKUS-W1	OKUS-W1	2/18/93	592	1160	117	1178	7.0
OKUS-W2	OKUS-W2	2/18/93	1110	2510	326	4200	6.9
OKUS-W3	OKUS-W3	2/18/93	1010	2280	231	4020	7.0
OKUS-W4	OKUS-W4	2/18/93	750	1550	171	2830	7.3
OKUS-W5	OKUS-W5	2/18/93	940	1830	174	3260	7.4

ND - Not Detected
MG/L - milligram per liter

Groundwater samples were collected by USPCI Remedial Services, Ontario, CA.
Groundwater samples were analyzed by National Environmental Testing, Inc., Burbank, CA.

ALKALINITY - analyzed using method 310.1
TDS - analyzed using method 160.1
TSS- analyzed using method 310.1
SPC. CONDUCTANCE - analyzed using Method 120.1
pH - analyzed using Method 150.1

4.2.5 Groundwater Gradient

After installation of monitoring wells at the site, Brian-Kangas-Foulk Inc., licensed surveyor of Hayward, California, was contracted to establish the mouth-of-casing to mean sea level (MSL) elevations for the monitoring wells. The water level in each well was measured on January 14, 1993 and again on January 15, 1993. The data from the water level measurements and mouth-of-casing elevations was used to calculate a local groundwater gradient of approximately 0.006 foot per foot to the southeast, toward the Oakland Estuary. The data from the measurements and measuring point elevations (Table 6) were used to prepare the potentiometric surface map (Figure 9).

5.0 CONTAMINANT CHARACTERIZATION

5.1 Contaminant Source

The presence of petroleum hydrocarbons in groundwater near the truck repair shop was apparently caused by overfilling or spilling from UST system operations; except for the tightness test failure of the engine oil line, no holes, leaks, or other evidence of tank system failure was observed during tank removal operations. There were no holes or notable damage to the waste oil USTs during removal. The gasoline and diesel USTs were destroyed during removal. Hydrocarbons were not observed until after the tanks were removed, therefore, it is not possible to ascertain when or how the hydrocarbons were lost or the volume of hydrocarbons lost. There were hydrocarbons in both USTs prior to removal.

The source of other contaminants (metals, semivolatile compounds) in soil and groundwater cannot be determined based on the results of the PSA.

5.2 Location of Contaminant

The locations discovered to be impacted by petroleum hydrocarbons were not limited to the areas surrounding the former UST tankholds (Figures 5 and 6). The distribution of soil contaminants indicates that the former USTs were probably not the source of hydrocarbon compounds in soils. The hydrocarbons detected in groundwater were mainly concentrated around the UST site and truck repair shop, indicating that the UST system was probably the source of those hydrocarbons.

TABLE 6
CUMULATIVE FLUID LEVEL MEASUREMENT DATA
UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
USPCI PROJECT NO. 96281

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT ELEVATION	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEV. (UNCORRECTED)	WATER ELEV. (CORRECTED)
OKUS-W1	9.17	1/14/93	N/A	N/A	NP	8.42	0.75	0.75
	9.17	1/15/93	N/A	N/A	NP	8.45	0.72	0.72
	9.17	2/18/93	N/A	N/A	NP	7.79	1.38	1.38
OKUS-W2	9.71	1/14/93	N/A	N/A	NP	9.08	0.63	0.63
	9.71	1/15/93	N/A	N/A	NP	9.12	0.59	0.59
	9.71	2/18/93	N/A	N/A	NP	8.70	1.01	1.01
OKUS-W3	9.8	1/14/93	N/A	N/A	NP	9.39	0.41	0.41
	9.8	1/15/93	N/A	N/A	NP	9.33	0.47	0.47
	9.8	2/18/93	N/A	N/A	NP	8.85	0.95	0.95
OKUS-W4	7.35	1/14/93	N/A	N/A	NP	6.43	0.92	0.92
	7.35	1/15/93	N/A	N/A	NP	6.44	0.91	0.91
	7.35	2/18/93	N/A	N/A	NP	5.77	1.58	1.58
OKUS-W5	9.25	1/14/93	N/A	N/A	NP	9.13	0.12	0.12
	9.25	1/15/93	N/A	N/A	NP	9.15	0.10	0.10
	9.25	2/18/93	N/A	N/A	NP	8.85	0.40	0.40

* All well casings measured to mean sea level (MSL).

N/A - Not Applicable
NP - No Product

6.0 SUMMARY AND CONCLUSIONS

6.1 Nature and Extent of Contamination

The analytical results from the January 1993 PSA and the February 1993 groundwater sampling event indicate a dissolved plume of BTEX and TPH/G that appears to be localized in the immediate area surrounding the UPMF facility (Figure 8 and Tables 4a and 4b). Other contaminants not clearly associated with the UST system were also detected in groundwater beneath the site. The lateral extent of groundwater impacted either by hydrocarbons or other contaminants has not yet been defined. However, the lateral extent of groundwater contaminants to the north and west of the truck repair shop can be estimated by using data collected from USPCI's 1991 assessment of the diesel refueling area to the [illegible]th of the UPMF site (Figure 3 and Table 7). A copy of this report is in Appendix C.

The lateral extent of soil contamination was not determined in the PSA except to the east in the location of OKUS-B1. The highest concentrations of hydrocarbons were detected in soil samples from borings located up to several hundred feet from the truck repair shop/former UST site. Metals were detected in samples from widely separated areas, suggesting a non-point source for these contaminants.

6.2 Conclusions

during UST removal?

Soil samples collected from the former fuel and waste oil UST tankholds did not contain concentrations of hydrocarbons exceeding regulatory limits. One water sample collected from the excavation contained benzene, toluene, and xylenes. The benzene concentration exceeded the MCL of 0.001 mg/L. The water sample did not contain ethylbenzene or TPH above MDLs.

OKUS-B4

boring OKUS W3

Soil samples collected during USPCI's January 1993 assessment contained TPH concentrations as high as 47,000 mg/kg. The highest TPH and BTEX concentrations were detected in a soil sample from a boring located approximately 270 feet north of the former engine and waste oil USTs and approximately 300 feet northwest of the former diesel and gasoline USTs. Metals were detected in soil samples from widely separated areas. The lateral extent of hydrocarbon- and metal-impacted soils have not yet been delineated. The distribution of contaminants in soils indicates that the UST system is not likely to have been the source of the contaminants.

TPH/G and BTEX concentrations were detected in groundwater samples from wells in the vicinity of the truck repair shop/UST system. Benzene concentrations were above the MCL (0.001 mg/L) in samples from all five monitoring wells. Ethylbenzene concentrations were above the MCL (680 mg/L) in samples from three of the five monitoring wells. TPH/G concentrations in groundwater samples were as high as 14.0 mg/L. The UST system appears to have been the source for petroleum hydrocarbons detected in groundwater samples.

The only semivolatile compounds detected were bis-(2-Ethylhexyl) phthalate and naphthalene. There are no MCLs established for these compounds.

The concentrations of dissolved arsenic exceeded the MCL of 0.050 mg/L in groundwater samples from three of five wells. Chloroform was detected in groundwater water samples in four of the five monitoring wells. Chloroform concentrations exceeded the MCL of 0.100 mg/L in two of the samples. Because the lateral extent of these non-hydrocarbon contaminants has not been delineated, the source of arsenic and chloroform cannot yet be reliably defined. However, the UST system is not believed to have been the source of these contaminants, based on historical use of the tanks and on interpretation of the incompletely-defined distribution of these compounds in groundwater.

TABLE 7
CUMULATIVE ANALYTICAL RESULTS OF SOIL AND GROUNDWATER SAMPLES
UNION PACIFIC RAILROAD TOFC FACILITY
OAKLAND, CALIFORNIA
USPCI PROJECT NO. 96199

PARAMETER	Sample ID No.		B-5	B-6	OMW-5	OMW-6
	Sample Depth		4.5'	3.5'	5.5'	11.0'
	Date Sample		4/8/91	4/8/91	4/5/91	4/5/91
SOIL SAMPLES	**EPA Method**	**Units**				
Total Petroleum Hydrocarbons						
TPH - Diesel	8015 Mod.	mg/kg	ND	ND	19	ND
BTEX						
Benzene	8020	mg/kg	NA	NA	NA	0.033
Toluene	8020	mg/kg	NA	NA	NA	0.005
Ethylbenzene	8020	mg/kg	NA	NA	NA	ND
Xylenes	8020	mg/kg	NA	NA	NA	ND
GROUNDWATER SAMPLES	**EPA Method**	**Units**				
Total Petroleum Hydrocarbons						
TPH - Diesel	8015 Mod.	mg/L	NA	NA	ND	0.08
BTEX						
Benzene	8020	mg/L	NA	NA	ND	ND
Toluene	8020	mg/L	NA	NA	ND	0.004
Ethylbenzene	8020	mg/L	NA	NA	ND	ND
Xylenes	8020	mg/L	NA	NA	ND	0.005

ND - Not Detected
NA - Not Analyzed
MG/KG - milligram per kilogram
MG/L - milligram per liter

Groundwater samples were collected by USPCI Remedial Services, Boulder, CO.
Groundwater samples were analyzed by Superior Analytical Laboratories, Inc., Martinez, CA.

7.0 RECOMMENDATIONS

Analytical results from the January 1993 PSA of the 1750 Ferro Street, UPMF site by USPCI indicated the presence of elevated TPH values in soil samples from widely scattered borings. The TPH was derived from light to heavy hydrocarbon sources according to the analytical laboratory. The former USTs contained gasoline, diesel fuel, engine oil, and waste oil. Several soil samples, also from widely scattered borings, contained elevated concentrations of lead and zinc along with minor concentrations of cadmium and chromium. There were also minor concentrations of semivolatile organics and purgeable hydrocarbons in two soil samples.

The groundwater in the area surrounding the UPMF Facility and former UST system has been impacted by petroleum hydrocarbons. The groundwater surrounding the site area as also been impacted by dissolved arsenic and chloroform; however, these parameters are apparently not related to the contents of the former USTs.

Based on these conclusions, USPCI recommends the following steps.

- Conduct a quarterly monitoring program, starting in the second quarter 1993 (April 1993). The data gathered during the quarterly monitoring program will be utilized for development of a remediation plan for hydrocarbon-impacted groundwater in the vicinity of the truck repair shop.

- Initiate a Phase II assessment to define the lateral extent of soil and groundwater that have been impacted by petroleum hydrocarbons.

8.0 WASTE MANAGEMENT AND DISPOSAL

8.1 Transportation and Disposal

During the 1990 UST removals a total volume of 42.0 cubic yards of petroleum contaminated, non-hazardous soil, broken-up fiberglass USTs, and concrete were transported by Union Pacific Railroad gondolas to USPCI's Grassy Mountain Facility in Clive, Utah on March 5, 1990 for treatment. Total amount of backfill material used was 222 tons. Copies of the load receipts are presented in Appendix F.

Drill cuttings and purge/decon water from the January 1993 assessment by USPCI were placed in DOT-approved steel drums and labeled as to origin and date. A composite sample from both the drummed water and soil are in the process of being transported to USPCI's Solvent Services Inc., (SSI) for waste profiling. SSI was contracted to remove and transport the drums to their facility in San Jose, California. SSI will treat the contaminated water and send the drummed soil cuttings to USPCI's Grassy Mountain Facility for proper treatment. Copies of the disposal and recycling manifests will be kept on file at USPCI's Remedial Services office in Spring, Texas.

No PSH or treatment wastes were generated during assessment activities.

9.0 REGULATORY NOTIFICATION

9.1 Regulatory

An amended Notification for Underground Storage Tanks form was submitted to the City of Oakland (Port of Oakland) and Alameda Count Health Care Services Agency (ACHCSA) from USPCI in December 1989. The form served to notify the County and Port of the existence of the USTs in UPRR railyard in the Port of Oakland area. A copy of the notification appears in Appendix C.

9.2 30 Day Notification Date

A letter dated December 1, 1989 notified the ACHCSA of UPRR's intent to close two USTs at 1750 Ferro Street. A copy of the notification of removal letter appears in Appendix C.

9.3 LUST Notification Date

The ACHCSA was notified by telephone upon USPCI's receipt of the February 1990, analytical results which indicated a TPH and BTEX release.

9.4 Other Notification/Permits

A permit was required and granted by the City of Oakland Fire Prevention Bureau. Mr. G.M. Johnson from the Oakland Fire Prevention Bureau observed the tank closures. A copy of this permit appears in Appendix C. on January 7, 1993, USPCI requested and received ticket numbers from UPRR Fiber Optics (# 672732) and Underground Service Alert (# 4997). Underground Service Alert was to notify all utilities that have underground lines in the area to be marked by 8:00 AM, January 12, 1993. USPCI also informed Ms. Jennifer Eberle of the ACDEH that the PSA was to commence on January 12, 1993.

10.0 REFERENCES CITED

California Division of Mines and Geology. January 1982. Maps of Special Studies Zones for Oakland East and San Leandro Quadrangles, California.

Helley, E. S., K.R. Lajoie, W. E. Spangle, and M. L. Blair. 1979. Flatland Deposits of the San Francisco Bay Region, California. U.S. Geological Survey Professional Paper No. 943.

Herd, D. G. 1978. Map of Quaternary faulting along the northern Hayward Fault Zone. Mare Island, Richmond, Briones Valley, Oakland West, Oakland East, San Leandro, Hayward, and Newark quadrangles, California. U.S. Geological Survey Open File Report 78-308.

Hickenbottom, Kelvin, and Kenneth Muir. June 1988. Geohydrology and Groundwater-Quality Overview of the East Plain Area, Alameda County, California. Alameda County Flood Control and Water Conservation District Report No. 205(J).

Lawson, A. C. 1914. Geologic Description of the San Francisco district; San Francisco, Concord, San Mateo, and Hayward quadrangles. U. S. Geological Survey Geologic Atlas, No. 193, San Francisco folio.

Radbruch, Dorothy H. 1969. Areal and Engineering Geology of the Oakland East Quadrangle, California. U.S. Geological Survey Geologic Quadrangle Map GQ-769.

USPCI, 1991, Hydrocarbon Investigation and Remedial Design at Union Pacific Railroad's Oakland, California TOFC Yard.

USPCI, 1991, Union Pacific Railroad's Oakland, California TOFC Yard Aquifer Stress Test Results.

USPCI, 1992, Site Investigation Workplan at the Union Pacific Motor Freight Facility at 1750 Ferro Street, Oakland, California.

Hunter Environmental Services, Inc., 1988, Initial Remedial Measures at Union Pacific Motor Freight Facility located at 1750 Ferro Street, Oakland, California.

J. B. Marshack, 1989, The Designated Level Methodology for Waste Classification and Cleanup Level Determination. California Regional Water Quality Control Board-Central Valley Region, Sacramento, California.

Genium Publishing Corporation, 1981, Automotive Gasoline, Leaded.

Genium Publishing Corporation, 1981, Automotive Gasoline, Lead-Free.

Genium Publishing Corporation, 1981, Diesel Fuel Oil No. 2.

USPCI

QUALITY ASSURANCE / QUALITY CONTROL PLAN

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USPCI
Quality Assurance /Quality Control Plan

INTRODUCTION

The USPCI quality assurance/quality control program (QA/QC) is intended to facilitate the acquisition of accurate and reliable data for environmental assessments.

The Quality Assurance Program is a totally integrated program for assuring the reliability of laboratory data, including quality planning, quality assessment and quality improvement efforts to meet project requirements at an economical level. Quality Assurance incorporates procedures for field sampling, sample handling and storage, analytical quality control and document preparation and review.

The Quality Control Program is a routine application of procedures such as blanks, spikes and spike duplicates for obtaining prescribed standards of performance in the measuring process. Quality Control is an audit of the overall Quality Assurance Program. Both programs are necessary to provide accurate data and documentation for investigations and laboratory analyses. The following personnel requirements and field and laboratory procedures will be implemented to ensure that QA/QC objectives are met on all USPCI projects.

1.0 FIELD PERSONNEL

All USPCI Project management personnel are formally educated and, at minimum, hold bachelor's degrees in their fields of technical expertise. In addition, many have advanced degrees in their technical disciplines. Where applicable, USPCI professionals are State Registered or Certified in their fields of expertise. Experience levels will vary depending on job responsibilities. Project Managers have at least five years experience in conducting and managing environmental drilling and sampling programs. Field personnel are experienced in conducting field activities involving monitoring well installation, water sampling, aquifer testing, core description, field program management, and data analysis.

Due to the importance of protecting the health of USPCI employees, subcontractor personnel and others, all on-site workers involved in USPCI projects must have Occupational Safety and Health Administration (OSHA) 40-hour Health and Safety Training Certification. Additionally, USPCI personnel receive periodic training in the use of special equipment for air monitoring and contaminant detection, excavation and shoring, and computerized project management systems.

2.0 FIELD TECHNIQUES

2.1 Recording of Field Data

All information pertinent to the field investigation will be documented on field forms. Information to be documented includes at least the following:

- ○ Sample numbers
- ○ Locations of sample collection
- ○ Soil boring or well numbers, as applicable
- ○ Depths at which samples were obtained
- ○ Names of sample collectors
- ○ Dates and times of collection
- ○ Purpose of sample
- ○ Sample distribution (e.g., laboratory, archive, etc.)
- ○ Field observations
- ○ Field measurements (e.g., PID readings, Ph, conductivity, water levels).
- ○ Other data records (e.g., development log, soil sampling report, well log, etc.)

2.2 Field Equipment Calibration and Maintenance

The following measurement or monitoring equipment may be used during environmental assessments. Equipment is grouped by field activity. Calibration procedures and frequency are listed for each piece.

<u>Soil Borings and Well dimensions</u>- Steel and coated cloth tape. Calibration: none.

Water Level Measurements in Wells- Steel surveyors tape. Calibration: manufacturer supplied temperature correction will be applied as applicable for field conditions. Electrical well sounders. Calibration: check against steel surveyor's tape.

Organic Vapors- Photoionization detector. Calibration: daily field calibration using an isobutylene standard as per manufacturers instructions.

Groundwater pH Measurement- Digital pH meter. Calibration: standard pH solutions of 4, 7, and 10 will be utilized for daily field calibration according to manufacturers instructions.

Electrical Conductivity- Electrical conductivity meter. Calibration: factory-calibrated annually and periodically calibrated against laboratory prepared standard calibration solution.

Water Temperature- Mercury or digital thermometers. Calibration: factory-calibrated once.

Combustible Gas/Oxygen- Combustible gas/oxygen meter calibration: Factory calibrated, field calibrated monthly, zeroed daily according to manufacturers instructions.

Miscellaneous Measuring Devices- Calibration procedures for any other measuring device used will be documented at the request of the regulatory authority.

All equipment will be checked daily and replaced as necessary. Instrument manuals and an instrument log book will accompany all equipment into the field. Any calibration, repairs or related information will be recorded in the log book.

3.0 SOIL SAMPLING METHODOLOGY

3.1 Soil Sampling and Drilling Equipment Decontamination

All equipment used for drilling and sampling during USPCI environmental assessments will be decontaminated using a steam cleaner or high pressure washer prior to use. In addition, the equipment will be decontaminated subsequent to completion of each boring/monitoring well. All equipment used for collection of more than one sample, such as split-spoon soil samplers, will be decontaminated between each use to prevent cross contamination between samples. The sampling equipment decontamination procedure for pesticides and organic analysis will consist of a low phosphate detergent (Alconox or equivalent) bath followed by tap water, and deionized water rinses. Nylon brushes will be used to scrub sediment from the equipment. If the equipment is used to sample for metals, the initial rinse will be conducted with 0.1 N nitric acid followed by tap water and deionized water. Clean equipment will be placed on a rack and allowed to air dry. Bath and rinse water will be replaced as necessary to ensure adequate cleaning. The water used in the decontamination procedure will be stored in containers certified for hazardous materials storage by U.S. Department of Transportation (DOT). The drums will be secured on-site.

3.2 Soil Sample Collection During Drilling Activities

A proposal will be submitted to the lead Regulatory Authority with proposed boring/sampling locations. The exact location and number of borings at each site will be determined in the field by the Project Geologist/Engineer.

Drilling will be conducted by a State Certified Well Driller under the supervision of the USPCI field representative. Soil borings will be advanced with a continuous flight, hollow stem auger drill rig. No petroleum hydrocarbon based lubricants will be allowed on the drill string and associated connections. Soil cores will be collected with either a split-spoon sampler or a continuous coring device.

3.2.1 Split-Spoon Sampler

A California modified split-spoon sampler consists of a thin-walled steel cylinder, held together on each end by threaded steel end pieces, which separates longitudinally into two halves allowing the removal of brass or stainless steel liners which are used to contain the sampled soil interval. The sampler is 18 to 24 inches long and typically contains 3 to 4, six inch long, 2 to 2.5 inch diameter liners. The sampler will be driven ahead of the hollow stem auger by a 140 pound hammer with a 30 inch drop in accordance with the American Society for Testing and Materials (ASTM) Methods D 1586-84 for split barrel sampling of soil and D 1587-83 for thin-walled tube sampling of soils. The blows required to drive the sampler each six inch interval will be recorded on the boring log. The sampler will be removed from the boring and opened to reveal the liners. Latex gloves will be worn to prevent cross-contamination with other samples. The disposable gloves will be discarded after collection of samples from each sample drive.

Whenever possible, the bottom liner will be selected for laboratory analysis.

The liner will be sealed on each end with aluminum foil, plastic end caps and duct tape. Samples selected for laboratory analysis will be preserved, stored and transported in accordance with USPCI sample processing protocol (see Section 6).

Soil in the other liners and sampler shoe will be described by the USPCI field representative according to ASTM Standard Practice for Description and Identification of Soils, Visual-Manual Procedure (ASTM D-2488-90). Stratigraphic, genetic and other data/interpretations will also be recorded. Alternatively, one of the other sample liners may be used for the preparation of a duplicate sample. Field observations and selected sample intervals for laboratory analysis will be noted on the log prepared for each soil boring/ monitoring well. An explanation of the ASTM soil classification system will be included with the soil boring/well logs in an appendix of the assessment report.

3.2.2 Continuous Coring Devices

A variety of continuous coring devices may be employed for core collection. During coring operations, samples selected for laboratory analysis will be contained in glass jars and processed in accordance with the above mentioned USPCI sample processing protocol.

At a minimum, soil samples will be collected at five foot intervals, at significant changes in lithology and at intervals of obvious contamination in order to develop a complete profile of soil contamination.

3.3 Soil Sampling by Hand Auger and Coring Hammer

Hand tools will be utilized to collect soil samples from areas which are inaccessible to drilling rigs or do not require one. A hand auger will be used to advance the soil boring to the interval of interest. A hand held sliding hammer soil coring device will be utilized to drive a steel liner to obtain a undisturbed sample. Latex gloves will be worn to prevent cross-contamination with other samples. The disposable gloves will be discarded after sample collection from each interval. The steel liner containing the collected sample will be sealed on each end with aluminum foil, plastic end caps and duct tape. Samples selected for laboratory analysis will be preserved, stored and transported in accordance with USPCI sample processing protocol (See Section 6).

Soil description and sample collection intervals will follow methods discussed in Section 3.2.

3.4 Sampling from Soil Piles or Shallow Soil Pits

Soil samples will be collected and transported from excavated material or shallow pits in the manner described in the previous section except that a backhoe will not be utilized. If composite samples are collected, four metal liners (brass or stainless steel) will be filled for every 50 cubic yards of material to be sampled unless otherwise specified by the regulatory agency. The samples will be composited in a State Certified laboratory prior to analysis.

3.5 Sample Collection During Underground Tank Removal

Soil samples will be collected as soon as possible after removal of the tank. Where feasible, all preparations for soil sampling will be made prior to tank removal. Soil samples collected from a backhoe bucket or directly from the excavation floor will be collected in thin-walled stainless steel or brass liners at least three inches long by one inch in diameter. From 3 to 24 inches of soil will be removed from the immediate surface area where the sample is to be taken and the cylinder then pounded into the soil with a wooden mallet, bulk density driver, or other decontaminated driving device. No head space will be present in the cylinder once the sample is collected. Care will be taken to avoid contamination of both the inside and outside of the cylinder as well as its contents. During sampling, latex gloves will be worn to prevent cross contamination with other samples. The disposable gloves will be discarded after collection of each sample.

Once the sample is collected, the liner will be sealed on each end with aluminum foil or teflon tape, polyethylene lids, and duct tape. The sample will be stored and transported to the laboratory in accordance with USPCI Sample Processing Protocol (Section 6).

4.0 SOIL BORING ABANDONMENT AND DRILL CUTTINGS DISPOSAL

4.1 Soil Boring Abandonment

Upon completion of sampling activities, all USPCI soil borings will be abandoned with neat cement in order to prevent development of any preferential pathways from the surface to subsurface. The neat cement shall be composed of one sack of Portland cement (94 pounds or 43 kilograms) to 4.5 to 6.5 (depending on cement type and additives used) gallons (17 to 25 liters) of clean water. The borings will be backfilled in one continuous operation from the bottom up either through the drilling augers or via tremie pipe.

4.2 Disposal of Drill Cuttings

All soil cuttings generated during drilling activities will be contained in DOT approved, labeled steel drums certified for the storage of hazardous materials. The drums will be secured on-site.

5.0 GROUNDWATER MONITORING WELLS/ INSTALLATION, DEVELOPMENT, SURVEY, MONITORING, AND SAMPLING

5.1 Monitoring Well Installation

If a soil boring is converted to a groundwater monitoring well, all well screen and casing, centralizers and casing handling equipment will be decontaminated with a steam cleaner or high pressure, hot water washer utilizing potable water immediately prior to installation. Well construction material decontamination will be conducted on impermeable surfaces and all decontamination effluent will be contained and transferred to DOT approved plastic or steel drums. The drums will be secured on-site.

Well casing will be selected based on the chemical compounds targeted for laboratory analysis, anticipated lifetime of the monitoring program, well depth and geochemistry. In most cases, polyvinyl chloride (PVC) well casing and screen will be utilized. Site specific conditions may, in some cases, require the use of other well construction materials. The casing/screen will be flush threaded. Unless site-specific conditions warrant otherwise, 0.020 inch slotted screen will be installed. All appropriate measures will be taken to ensure that the well casing is centrally located in the boring. The screened interval will extend up to 15 feet below the water table. Five feet of screen will extend above the saturated zone in unconfined conditions in order to allow for monitoring of free product under conditions of a rising water table. Screened intervals completed in confined aquifers will not extend above the saturated zone. In order to prevent potential dilution of target chemical compounds in water samples, no more than 20 feet of screen will be installed in any monitoring well.

A coarse-grained sand filter pack (e.g. #2/12 Lonestar, #3 Monterey) will usually be utilized to mitigate siltation of the well by fine-grained sediments in the surrounding aquifer (grain size of the filter pack will be of appropriate size to ensure hydraulic connection between the well bore and the adjacent water-bearing formation). The sand will be introduced through the drilling augers in order to ensure the integrity of the filter pack. A minimum 3 inch differential between the outer diameter of the well screen and the inner diameter of the augers will be maintained in order to ensure effective placement of filter pack. In some instances, saturated fine-grained sand (flowing sand) may enter the drill string during well completion. Although every effort will be made to prevent entry of native materials into the drill string during well completion (e.g. loading the augers with water), it may sometimes be necessary to utilize native material for filter pack. Information regarding filter pack condition will be included on the well log. The filter pack will extend to at least one foot but no more than two feet above the top of the screened interval to allow for filter pack settling during well development.

Subsequent to introduction of the filter pack, the surface sanitary seal will be completed. At least a two foot thick interval of sodium bentonite pellets will be deposited directly above the filter pack. The pellets will then be hydrated with potable water. A neat cement grout seal will be placed via tremie pipe from the bentonite pellet seal to just below the frost line. The neat cement grout seal will be composed of one sack of Portland cement (94 pounds or 43 kilograms) to 4.5 to 6.5 (depending on cement type and additives used) gallons (17 to 25 liters) of clean water.

Soundings will be made by the USPCI field representative during all stages of well construction to ensure proper placement of filter pack and sealant materials. Moreover, the volume of filter pack and sealant required will be calculated to establish the correct subsurface distribution of the materials. The actual volume of materials used will be recorded during well construction. Discrepancies between calculated volumes and actual volumes will be noted and explained on the monitoring well construction log.

A subgrade traffic-rated well box, or aboveground steel casing imbedded in concrete will be installed to protect the wellhead. The concrete cap will extend from below the frost line to the surface and blend into a four-inch thick apron at least two feet in diameter. The annulus between the well casing and the steel casing will be filled with bentonite pellets or chips from below the frost line to the surface. The bentonite sealant material will then be hydrated with potable water. This non-bonding surface seal will serve to protect the well casing from damage during periods of frost heaving. The wellhead will be locked to provide monitoring well security.

A typical monitoring well completion is diagramed in Figure A. All well completion information will be included in the well log.

5.2 Well Development Protocol

Groundwater monitoring wells will be surged and developed subsequent to well completion. Flow reversals or surges will be created by using surge blocks, bailers or pumps. Formation water will be used to surge the well. In low yielding water bearing formations, an outside source of water may be introduced into the well to facilitate development. In such cases this water will be chemically analyzed beforehand to evaluate its potential impact on in-situ water quality. At no time will air be used to develop a well. Approximately 4 to 10 times the volume of water in the casing and pores of the filter pack will be withdrawn, if possible. Development volumes will be calculated in the following manner:

Volume of Schedule 40 PVC Pipe

Diameter (inches)	I.D. (inches)	Volume Gal/linear ft.
2	2.067	0.17
4	4.026	0.66

Volume of Open Borehole and Annular Space
Between Casing and Hole

Hole Diameter (inches)	Volume/linear ft. of hole		Normal Casing Diameter (inches)	Volume/ linear ft. of* Annular Space	
	Gal.	Cu. Ft.		Gal.	Cu. ft.
7.25	2.14	0.29	2	1.91	0.26
8.25	2.78	0.37	2	2.55	0.34
10.25	4.29	0.57	2	4.06	0.54
10.25	4.29	0.57	4	3.46	0.46
12.25	6.13	0.82	4	5.30	0.71

*Note: Annular volumes will be multiplied by 30% to account for porosity of filter pack.

If the aquifer is slow to recharge, development will continue until recharge is too slow to practically continue. The volume of water produced versus time will be recorded on the well log.

All withdrawn groundwater will be stored on-site in DOT approved containers for hazardous material storage unless prior permission is granted by the appropriate regulatory agency to discharge the water to the ground surface or sanitary sewer. Contained water will be labeled with the source of the water to help ensure appropriate disposal based on contamination levels.

5.3 Elevation Survey of Monitoring Wells

All monitoring wells at USPCI project sites will be surveyed to a common datum by a qualified surveyor. Where required by regulatory agencies, the wells will be surveyed to mean sea level datum (MSLD) by a Registered land surveyor to an accuracy of 0.01 foot. The surveyor's report will be included as an appendix to the report. For consistency, the wells will be surveyed from the north side of the top of the monitoring well casing.

5.4 Documentation of Well Design, Construction and Development

The following well design and construction details for each monitoring well will be included on the boring log, well construction log, purge log, or surveyor' report:

1) Date/time of construction
2) Drilling method and drilling fluid used
3) Well location (within 0.5 ft.)
4) Bore hole diameter and well casing diameter
5) Well depth (within 0.1 ft.)
6) Drilling and lithologic logs
7) Casing materials
8) Screen materials and design
9) Casing and screen joint type
10) Screen slot size /length
11) Filter pack material/size
12) Filter pack volume calculations
13) Filter pack placement method
14) Sealant materials (percent bentonite)
15) Sealant volume (lbs/gallon of cement)
16) Sealant placement method
17) Surface seal design/construction
18) Well development procedure
19) Type of protective well cap
20) Ground surface elevation (within 0.01 ft.)
21) Top of monitoring well casing elevation (within 0.01 ft.)
22) Detailed drawing of well (including dimensions)

5.5 Groundwater Monitoring Protocol

During a sampling event the depth to standing water and total depth of the well (bottom of screened interval) well be measured to an accuracy of 0.01 foot. For consistency, all measurements will be taken from the north side of the wellhead at the survey mark. These measurements are required to calculate the volume of stagnant water in the well and provide a check of the integrity of the well (e.g., identify siltation problems). The devices used to detect the water level surface and calibration methods have been discussed previously (Section 2.2).

To reduce the potential for cross contamination between wells, well monitorings will proceed in order from the least to most contaminated wells, if known. Wells containing free product will be monitored last.

Between each well monitoring the equipment will be decontaminated following the procedure detailed in Section 3.1.

Water elevations will be collected during each subsequent sampling event in order to determine if horizontal and vertical flow gradients have changed since initial site characterization. A change in hydrologic conditions may necessitate modification to the design of the site groundwater monitoring system.

5.5.1 Detection of Immiscible Layers

The thickness of immiscible layers (i.e., "floaters" and/or "sinkers") within a monitoring well, if present, will be determined during each sampling event. "Floaters" are those relatively insoluble organic liquids that are less dense than water and which spread across the potentiometric surface. "Sinkers" are those relatively insoluble organic liquids that are more dense than water and tend to migrate vertically through sand and gravel aquifers to the underlying confining layer.

The following procedures will be utilized for detecting the presence of light and/or dense phase immiscible organic layers. These procedures will be conducted prior to well evacuation for conventional sampling:

1) Remove the locking and protective well caps.

2) Sample the air in the wellhead for organic vapors using either a photoionization analyzer or an organic vapor analyzer, and record measurements. The air above the wellhead will be monitored in order to determine the potential for fire, explosion, and/or toxic effects on workers.

3) Determine, using an interface probe, the static liquid level and thickness, if present, of any floating immiscible organic layers.

4) Determine the presence of dense phase immiscible layers by lowering an interface probe to the bottom of the well.

5.5.2 Collection of immiscible solutions

The approach to collecting light phase immiscibles is dependent upon the depth to the surface of the floating layer and the thickness of that layer. If the thickness of the phase is 2 feet or greater, a bottom valve bailer will be used. The bailer will be lowered slowly until contact is made with the surface of the immiscible phase, then lowered to a depth less than that of the immiscible/water interface depth as determined by preliminary measure with the interface probe.

A double check valve bailer will be used to collect dense phase immiscibles. The bailer will be slowly lowered and raised for sample collection.

Floating product thickness is calculated by subtracting the depth to product from the depth to water. In addition, water elevations are adjusted for the presence of fuel with the following calculation:

$$\text{(Product Thickness) (.8)} + \text{(Water Elevation)} = \text{Corrected Water Elevation}$$

Note: The factor of 0.8 accounts for the density difference between water and petroleum hydrocarbons.

Newly installed wells will be allowed to stabilize for 24 hours after development prior to free product inspection.

A transparent surface sampler will be used for visual inspection of the groundwater in order to note sheens (difficult to detect with an Interface Probe), odors, microbial action and sediments.

If free product is detected, laboratory analysis of groundwater at the interface for dissolved product will not be conducted. A product sample will be collected for source identification.

5.6 Groundwater Sampling Protocol

5.6.1 Sampling Equipment Decontamination

Prior to arriving at the sampling site, all groundwater sampling equipment except pre-cleaned disposable materials, and laboratory prepared sampling containers will be washed with a low phosphate detergent (Alconox or equivalent), rinsed twice with tap water, and once with deionized water. If more than one monitoring well is on-site, this procedure will be carried out prior to sampling of each of the other monitoring wells.

Latex gloves will be worn at each sampling location to prevent cross-contamination with other samples. The disposable gloves will be discarded after collection of samples from each well.

5.6.2 Well Purging

The water standing in a well prior to sample collection may not be representative of in-situ ground-water quality. Prior to sample collection, the well will be purged with a bailer, WaTerra pump, or positive-gas-displacement pump until indicator parameters (temperature, conductivity and pH) stabilize. This generally requires the removal of at least three well casing volumes by bailing or pumping. The water will be drawn from the uppermost part of the water column in high-yield formations to ensure that fresh water from the formation will move upward in the screen. In low-yield formations, water will be purged so that it is removed from the bottom of the screened interval.

The criteria for determining well casing volumes and disposition of purged water is outlined in Section 5.3 (Well Development Protocol). The indicator parameter measurements will be taken both before and after purging of each well casing volume. Once indicator parameters have stabilized, a sample will be collected after the water level approaches 80 percent of its initial elevation. Where water level recovery is slow (exceeding 2 hours), the sample will be collected after stabilization is achieved and enough water is present to collect an adequate amount of sample for analysis. At no time will a well be pumped dry if the recharge rate causes the formation water to vigorously cascade down the sides of the screen and cause an accelerated loss of volatiles. All well development and purging information will be noted on purge logs and included as an appendix of the report.

5.6.4 Sample Collection

Observations made during to groundwater sample collection will include a description of the area surrounding the well, possible impacts by surface-water runoff, ambient weather conditions and other factors which could affect the final data analysis. This documentation will be recorded on the well purge log.

Sampling will proceed from the least contaminated to the most contaminated well, if that information is available before sample collection, or if such information can be determined by field evidence. Where several types of analysis will be performed for a given well, individual samples will be collected in order of decreasing volatility as follows:

1. Volatile organics
2. Purgeable organic carbon
3. Purgeable organic halogens
4. Total organic carbon
5. Total organic halogens
6. Extractable organics
7. Total metals
8. Dissolved metals
9. Phenols
10. Cyanide
11. Sulfate and chloride
12. Turbidity
13. Nitrate and ammonia

The specific analytical methods to be utilized for the various analyses are shown on Table 2.

All sampling procedures will conform with the following:

1) Water samples will be collected with a teflon bailer equipped with a bottom emptying device, a WaTerra pump, or a positive gas displacement bladder pump.

2) All sampling equipment introduced to the well will be constructed of inert materials (i.e. teflon or stainless steel).

3) Positive gas displacement bladder pumps will be operated in a continuous manner so that they do not produce pulsating samples that are aerated in the return tube or upon discharge.

4) Check valves will be designed and inspected to assure that fouling problems do not reduce delivery capabilities or result in aeration of the sample.

5) Sampling equipment (e.g., especially bailers) will never be dropped into the well, which causes degassing of the water upon impact. When using a bailer, the device will be lowered slowly into

the well to mitigate agitation (causing turbidity) of the water. The bailer will be retrieved gently but quickly and the sample then poured slowly into the sample container in order to minimize agitation, turbulence and exposure to air.

6) Clean sampling equipment will not be placed directly on the ground or other contaminated surfaces prior to insertion into the well.

7) Duplicate samples will be transferred to vials or containers that meet Regulatory specifications (Table 1). When filling 40 ml vials, groundwater will be transferred from the sampling device to the sample container by allowing the fluid to flow slowly along the sides of the vessel. All containers will be filled above the top of the opening to form a positive meniscus. No head space should be present in the sample container once it is sealed. After the vial is capped, it will be inverted to check for air bubbles. If bubbles are present, the sample will be discarded and replaced. If it is not possible to collect a sample without head space, the problem will be noted on the field technician's sampling log.

8) Immediately following sample collection, sample containers will be stored and transferred to the laboratory in accordance with USPCI sample processing protocol (Section 6).

9) If a positive gas displacement bladder pump is used for sample collection, pumping rates will not exceed 100 milliliters/minute. Higher rates can increase the loss of volatile constituents and can cause fluctuation in pH and pH-sensitive analytes. Once the portions of the sample reserved for the analysis of volatile components have been collected, higher pumping rates may be utilized for sample collection for other analyses. However, the sampling flow rate will not exceed the flow rate used while purging.

6.0 SAMPLE PROCESSING

6.1 Sample Containers

Soil and Groundwater samples will be placed in the proper containers for the desired analysis. Table 1 summarizes the required sample containers. All sample containers will be verified clean in the laboratory prior to shipment to a sampling site.

6.2 Sample Preservation

Samples will be preserved in order to : 1) retard biological activity, 2) retard hydrolysis, and 3) reduce sorption effects. Soil and groundwater samples will be preserved as indicated on Table 1 and placed in an ice chest immediately after collection. Chemical ice (blue ice), dry ice, or, where allowed, regular ice, sealed in plastic bags will be used to cool and maintain samples at a temperature of 4°C.

Samples requiring analysis for organics will not be filtered. Samples will not be transferred from one container to another which could result in loss of organic material onto the walls of the container or through aeration.

Metallic ions that migrate through the unsaturated (vadose) and saturated zones and arrive at a ground-water monitoring well may be present in the well. Particles (e.g., silt, clay), which may be present in the well even after well evacuation procedures, may absorb or adsorb various ionic species to effectively lower the dissolved metal content in the well water. Ground-water samples on which metals analysis will be conducted will be split into two portions. One portion will be filtered through a 0.45 micron membrane filter, transferred to a bottle, preserved with nitric acid to a pH less than 2 (Table 1), and analyzed for dissolved metals. Dissolved metals content is utilized to determine hydrochemical conditions. The remaining portion will be transferred to a bottle, preserved with nitric acid, and analyzed for total metals. Total metals content is used to determine worst case contaminant concentrations. Any difference in concentration between the total and dissolved fractions may be attributed to the original metallic ion content of the particles and any sorption of ions to the particles. Disposable filters will be dedicated to individual wells to prevent cross-contamination of other samples.

6.3 Sample Labeling

Each sample container will be labeled to prevent misidentification. The label will contain at least the following information:

- Sample number which uniquely identifies the sample

- Project title or number

- Location of sample collection
- Soil boring or well number, as applicable
- Name of collector
- Date and time of collection
- Type of analysis requested.

Table 1
Sample Containers, Holding Times and Preservation

Matrix	Container	Holding Time	Preservation
Soil	3" stainless steel or brass cylinder	14 days^1/ 40 days^2/	4°C
Water	40 ml glass vial, teflon-faced silicon septum	14 days^1/ 20 days^2/	4°C HCl to pH * 2 (except CaCO$_3$ water)
Water	1 amber bottles, teflon seal/silicon septum	14 days^1/ 40 days^2/	4°C
Soil	3" stainless steel or brass cylinder	14 days^1/	4°C
Water	40 ml glass vial, teflon seal/silicon septum	7 days^1/ 14 days^3/	4°C HCl to pH * 2 (except CaCO$_3$ water)
Soil	3" stainless steel or brass cylinder	14 days^1/	4°C
Water	500 ml glass vial, teflon seal/silicon septum	14 days^1/	
Soil	3" stainless steel or brass cylinder	14 days^1/	4°C
Water	40 ml glass vial, teflon seal/silicon septum	14 days^1/	4°C
Soil	3" stainless steel or brass cylinder	14 days^2/	4°C
Water	40 ml glass vial, teflon faced silicon septum	14 days^1/	4°C
Soil	8 oz. wide mouth glass with teflon seal	14 days^1/ 40 days^2/	4°C
Water	1000 m. amber glass with teflon seal	7 days^1/ 40 days^2/	4°C

Table 1
Sample Containers, Holding Times and Preservation

Parameter	Matrix	Container	Holding Time	Preservation
Poly-Chlorinated Biphenyls	Soil	8 oz. wide mouth glass with teflon seal	7 days[1]/ 40 days[2]/	4°C
	Water	1000 ml amber glass with teflon seal	7 days[1]/ 40 days[2]/	4°C
Total Metals	Soil	3" stainless steel or brass cylinder	6 months	
	Water	1000 ml plastic	6 months	pH<2
Dissolved Metals	Water	1000 ml plastic	6 months	pH<2 0.45 micron filtration
Pesticides	Soil	3" stainless steel or brass cylinder	14 days[2]/	4°C
	Water	1000 ml glass	7 days[2]/	4°C

Note:

[1]/ - Maximum holding time for sample (extract within this time or analyze if extraction is not required).

[2]/ - Maximum holding time for extract (analyze within this time).

[3]/ - Maximum holding time for sample when pH adjusted with HCl.

6.4 Chain-of-Custody Record and Sample Analysis Request Form

A chain-of-custody record for each container or sample will be used to track possession of the samples from collection in the field until arrival at the laboratory.

The chain-of-custody record will contain the following information:

1. Site name
2. Signature of collector
3. Date and time of collection
4. Sample identification number(s)
5. Number of containers in sample set
6. Description of sample and container(s)
7. Name and signature of persons, and the companies or agencies they represent, who are involved in the chain of possession
8. Inclusive dates and times of possession
9. Requested analysis for each sample

6.5 Delivery of Samples to Laboratory

Samples will be delivered to the laboratory within 48 hours when possible. Delivered samples will be accompanied by a chain-of-custody record. The laboratory shall note sample condition on the chain-of-custody (e.g. chilled, presence or absence of head space) upon arrival. Samples will be transported either by USPCI personnel or by private carrier. Analytical holding times will be considered in determining sampling and shipping schedules. Friday shipment/ Saturday laboratory receipt of samples will be coordinated in advance with the laboratory.

6.6 Quality Control Field Samples

A QC program independent from the laboratory's program will be instituted. The program entails "blind" submittals to the laboratory of blank and duplicate samples. No spiked samples will be supplied from the field for these investigations. All QC samples will be assigned independent sample numbers and made indistinguishable from non QC samples.

When submitting groundwater samples, travel blanks will be used to detect the introduction of contaminants during sample handling or transportation from the field to the laboratory. The travel blanks, provided by the analytical laboratory, will remain sealed in the field and accompany the collected groundwater samples to the laboratory for analysis. The blanks will consist of deionized, analytically confirmed organic-free water. The blanks will be numbered, packaged, and sealed in the same manner as the other samples. Each blank will carry the appropriate preservative for the analytes of concern. A minimum of one trip blank per sampling event will be collected.

Field or Equipment blanks will be collected in order to detect introduction (if any) of cross-contamination into environmental matrices from nondedicated sampling devices that have been cleaned in the laboratory or field. Laboratory prepared analyte-free water, brought to the field in sealed containers, will be poured over decontaminated sampling equipment, collected in basins and transferred to appropriate sample jars for shipment to the laboratory. Each Equipment blank will carry the appropriate preservative for the analyte of concern. These blanks will be numbered, packaged, and sealed in the same manner as the groundwater samples. A minimum of one equipment blank will be processed during each day of well sampling activity.

Analytical results for travel and equipment blanks will not be used to correct groundwater data. If contaminants are found in the blanks, the source of the contamination will be identified and corrective action, including resampling, will be initiated.

Ten percent of groundwater samples submitted to the laboratory for analysis will be duplicates. Water sample duplicates will be collected by filling two sample bottles from the one bailer volume. If more than one bailer volume is required, each bailer volume will be split between containers.

6.7 Laboratory QA/QC Plan

Soil and groundwater samples will be submitted to a State Certified Hazardous Waste Laboratory for chemical analysis of hazardous constituents. Established QA/QC procedures for analytical laboratory operations will include sample custody procedures, standards of analytical accuracy, analysis of matrix spikes and method blanks, data reduction, verification of raw analytical data, and maintenance of control charts to monitor analytical performance. These QA/QC procedures are outlined in the laboratory QA/QC Plan which is available upon request. Chemical analyses will be performed in accordance with standard procedures established by the United States Environmental Protection Agency (EPA) in "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act" (40 CFR Part 136, October 1984). Analytical laboratories are periodically evaluated through external performance audits conducted by EPA and State agencies through government QC labs. The specific analytical methods to be utilized for purgeable and semivolatile hydrocarbons analyses are shown on Table 2.

Provided the data base is of sufficient size, statistical techniques may be employed for data validation.

Table 2
Laboratory Test Methodology
Underground Tank Sites

Hydrocarbon Leak	Soil Analysis		Water Analysis	
Unknown Fuel	TPH G	GCFID(5030)	TPH G	GCFID(5030)
	TPH D	GCFID(3550)	TPH D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Leaded Gas	TPH G	GCFID(5030)	TPH G	GCFID(5030)
	BTX&E	8020 or 8240	BTX&E	602 or 624
	---Optional---		TEL	DHS-LUFT
	TEL	DHS-LUFT	EDB	DHS-AB1803
	EDB	DHS-AB1803		
Unleaded Gas	TPH G	GCFID(5030)	TPH G	GCFID(5030)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Diesel TPH D	GCFID(3550)		TPH D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Jet Fuel	TPH D	GCFID(3550)	TPH D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 OR 624
Kerosene	TPH D	GCFID(3550)	TPH D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Fuel Oil	TPH D	GCFID(3550)	TPH D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Chlorinated Solvents	CL HC	8010 or 8240	CL HC	601 or 624
	BTX&E	8020 or 8240	BTX&E	602 or 624
Non Chlorinated Solvents	TPH D	GCFID(3550)	TPH D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Waste Oil or Unknown	TPH G	GCFID(5030)	TPH G	GCFID(5030)
	TPH D	GCFID(3550)	TPH D	GCFID(3510)
	O & G	503D&E	O & G	503A&E
	BTX&E	8020 or 8240	BTX&E	602 or 624
	CL HC	8010 or 8240	CL HC	601 or 624

ICAP or AA to Detect Metals: Cd, Cr, Pb, Zn

Method 8270 for Soil or Water to Detect:

PCB*		PCB*
PCP*		PCP*
PNA		PNA
Creosote	Creosote	

* If found, analyze for dibenzofurans (PCBs) or dioxins (PCP)

PRELIMINARY SITE ASSESSMENT
WORKPLAN

UNION PACIFIC RAILROAD FACILITY
1750 Ferro Street
OAKLAND, CA

prepared for

UNION PACIFIC RAILROAD
1416 DODGE STREET, ROOM 930
OMAHA, NEBRASKA 68179

prepared for

Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Rm. 200
Oakland, CA 94621

prepared by:

USPCI - Remedial Services
Boulder, Colorado

Eric Taylor for Curtis Hull

Curtis G. Hull
Program Manager, Environmental Assessments

F. Erickson Taylor

F. Erickson Taylor
CA Registered Geologist No. 4710

18 June 1992

F. ERICKSON TAYLOR
No. 4710
EXP. 6-30-94

1.0 INTRODUCTION

1.1 Scope of Work/Site Location/Background/Site History

This Preliminary Site Assessment (PSA) has been prepared for Union Pacific Railroad (UPRR) by USPCI in response to a 29 April 1992, Alameda County Department of Environmental Health, Hazardous Materials Division (ACDEH) request for site characterization at the UPRR Ferro Street facility in Oakland, CA. The facility was the site of an unauthorized release of petroleum hydrocarbons from underground storage tanks.

The UPRR facility is located at 1750 Ferro Street, Oakland, CA.

1.2 Tank Removal

One (1) underground storage tank (UST) was removed from the site in December 1987. Two (2) USTs were removed in May 1988 and two (2) USTs were removed in February 1990.

High concentrations of petroleum hydrocarbons were detected in the tank excavations during the December 1987 and May 1988 removals. Detectable concentrations of petroleum hydrocarbons were recorded from soil samples collected during the 1990 tank removals.

1.6 Regulatory Response

Subsequent to review of the existing technical information regarding the tank removals at the project site, the ACDEH, in a letter dated 29 April 1992, requested a workplan for a Preliminary Site Assessment of the Ferro Street facility.

2.0 BACKGROUND TECHNICAL DATA

2.1 Name and Address of Contact Person

Contact Person: Mr. Harry Patterson
Union Pacific Railroad
1416 Dodge Street, Room 930
Omaha, Nebraska 68179
(402) 271-4078

2.2 Geology

The site is located along the eastern margin of San Francisco Bay with in the East Bay Plain (Hickenbottom and Muir, 1988). The East Bay Plain lies within the Coast Range Geomorphic province and is characterized by broad alluvial fan margins sloping westward into San Francisco Bay. The eastern side of the plain in the Oakland area is marked by the active Hayward Fault, along the base of the Diablo Range escarpment (Heard, 1978). Branches of the Hayward Fault, typical of the right-later strike-slip faults found in the

Bay Area, are present within 5 miles of the site (Radbruch, 1969, California Division of Mines and Geology, 1982).

Helley, et.al. (1979) mapped the sediments underlying the site area as Holocene to late Pleistocene age alluvial deposits composed of unconsolidated to weakly consolidated, moderately to poorly sorted, irregularly interbedded to well-bedded sand, silt, clay, and minor gravel. Radbruch (1969) and Lawson (1914) mapped the sediments underlying the site area as late Pleistocene-age alluvial deposits derived from the Berkeley Hills to the east, and known locally as the Temescal Formation.

2.3 Hydrology

Alameda County uses ground water as part of its domestic water supply. The remainder of the water supply is derived from surface reservoirs and from imported water that is transported in from the Mokelumne Aqueduct, the State Water Project, and the Hetch Hetchy Aqueduct (Hickenbottom and Muir, 1988).

The site area is located within the Oakland Upland and Alluvial Plain, a groundwater subarea of the East Bay Plain. Groundwater quality in the water-bearing units of the Oakland Upland and Alluvial Plain is generally good (meets recommended primary and secondary standards for drinking water). The most productive water wells in the Oakland Upland and Alluvial Plain are those completed with in the older alluvium units. Smaller amounts of groundwater occur in the younger alluvium, fluvial deposits, interfluvial basin deposits, and Bay Mud estaurine deposits. These deposits generally are relatively thin (less than 120 feet thick), and generally yield only small amounts of groundwater to wells.

The site ins mapped by Hickenbottom and Muir (1988) as being immediately underlain by shallow fluvial deposits characterized by unconsolidated, moderately sorted fine sand and silt. These deposits are permeable, and generally yield only small amounts of groundwater to wells. Well log data in the area from the CAPWA indicate that the maximum thickness of the fluvial deposits is approximately 15 feet. Beneath the surficial fluvial deposits in the site area, the older alluvium units are encountered. These units contain appreciable quantities of groundwater and are therefore considered to be the principal groundwater reservoir in the East Bay Plain area. Data from the CAPWA well logs indicate that the thickness of the older alluvium deposits is approximately 500 to 600 feet thick in the site area.

2.4 Proximity of Private, Municipal, and Irrigation Wells

A survey of water wells located within a one-half mile radius of the project site will be completed based on information obtained from the California Department of Water Resources (DWR) and the County of Alameda Public Works Agency (CAPWA). Well locations, types, and status (i.e., active, inactive, destroyed) will be included in the survey.

3.0 PRELIMINARY SITE ASSESSMENT WORKPLAN

3.1 Workscope

In order to characterize soil and groundwater conditions at the Ferro Street facility, USPCI proposes to drill and sample soil borings and install groundwater monitoring wells near the former tank pit. A minimum of three groundwater monitoring wells will be installed near the former tank pit. One well will be installed up-gradient of each tank pit and two wells will be installed down-gradient of each tank pit. Analytical results obtained from the soil samples will be utilized to define the lateral and vertical extent of petroleum hydrocarbon impacted soils at the project site. Laboratory results for the groundwater samples will be used to evaluate the lateral extent of petroleum hydrocarbon impacted groundwater beneath the site.

3.2 Methodology

The USPCI workscope will be completed using the following methodology:

Drilling will be conducted by a CA State Licensed C57 contractor utilizing a hollow stem auger drill rig. All USPCI field activities, including data recording procedures, decontamination methods, soil classification, sample collection, boring abandonment, well construction, and drill cuttings and purge water disposal, will be conducted in accordance with USPCI's Quality Assurance/Quality Control (QA/QC) Plan (Appendix I, Sections 2.0, 3.0 & 5.0).

Soil samples collected from the intervals of interest will be analyzed by a California State Certified laboratory for benzene, toluene, ethylbenzene, xylenes (BTEX) and total petroleum hydrocarbons as gasoline and diesel (TPH/G&D) in accordance with USPCI's QA/QC Plan (Appendix I, Section 6.0).

All site activities involving potential contact with hazardous materials (i.e. gasoline impacted soils) will be conducted in accordance with USPCI's Health and Safety Plan (Appendix II).

A Preliminary Assessment Report will be prepared according to Regional Board guidelines summarizing the findings of the investigation and presenting options for site remediation. Copies of this report will be submitted to the ACDEH and the Regional Water Quality Control Board, Oakland, CA.

The field investigation and will be conducted under the direct supervision of F. Erickson Taylor, California Registered Geologist #4710. Mr. Taylor has 6 years of experience in CA LUST site characterization work.

6.0 REFERENCES CITED

California Division of Mines and Geology. January 1982. Maps of Special Studies Zones for Oakland East and San Leandro Quadrangles, California.

Helley, E. S., K.R. Lajoie, W. E. Spangle, and M. L. Blair. 1979. Flatland Deposits of the San Francisco Bay Region, California. U.S. Geological Survey Professional Paper No. 943.

Herd, D. G. 1978. Map of Quaternary faulting along the northern Hayward Fault Zone. Mare Island, Richmond, Briones Valley, Oakland West, Oakland East, San Leandro, Hayward, and Newark quadrangles, California. U.S. Geological Survey Open File Report 78-308.

Hickenbottom, Kelvin, and Kenneth Muir. June 1988. Geohydrology and Groundwater-Quality Overview of the East Plain Area, Alameda County, California. Alameda County Flood Control and Water Conservation District Report No. 205(J).

Lawson, A. C. 1914. Geologic Description of the San Francisco district; San Francisco, Concord, San Mateo, and Hayward quadrangles. U. S. Geological Survey Geologic Atlas, No. 193, San Francisco folio.

Radbruch, Dorothy H. 1969. Areal and Engineering Geology of the Oakland East Quadrangle, California. U.S. Geological Survey Geologic Quadrangle Map GQ-769.

2.0 SCOPE OF WORK

Client's Business

Union Pacific Railroad (UPRR) in an active railroad company with approximately 23,000 route miles of track west of the Missouri River. The company's business is dedicated to the receiving, handling, shipping, and delivering of hugh quantities of freight of all types on its track system for a wide spectrum of customers. Support facilities for the business include operation and maintenance of rail and rail-related equipment, maintenance and operation of automotive equipment of many types, refueling facilities, etc.

History of Site

The Ferro Street yard in Oakland, CA is a equipment maintenance facility.

USPCI closed five underground storage tanks (UST's) in the yard by removal between December, 1987 and February, 1990 for UPRR.

Results from chemical analyses of soil samples collected at the time of closure indicated the presence of elevated hydrocarbon concentrations near the former tank pits.

Site Description

The former tank pit sites within the yard are very flat. Numerous shop buildings of various kinds are present as is abundant track. Most of the track in the area is still intact, however there is no active track in the immediate work areas.

Surrounding Area/Use

The area surrounding the Ferro Street yard is dedicated to light commerce, parks and residential areas.

Time Frame/Start Date

The Ferro Street yard project should take approximately 10 working days to complete. Anticipated startup date is August 15, 1992. All work will be conducted during daylight hours.

General Scope of Work

The general scope of work performed in connection with the site assessment will consist of the installation of a presently undetermined number of soil borings and monitoring wells to define the vertical and horizontal extent of petroleum hydrocarbon contamination in soil and groundwater at the site. Installation of borings and monitor wells will be performed by trained employees of a USPCI approved subcontractor.

USPCI personnel will be on-site to direct all phases of the operation. Specific activities performed by USPCI personnel, in addition to those of supervision and direction, will be the collection of soil samples from soil borings at on-site determined intervals as the borings progress. These soil samples will be scanned with photoionization detection (PID) equipment prior to preparation for shipment. The soil samples will be stored in chilled ice chests for shipment to a State Certified analytical laboratory.

Groundwater samples will be collected by USPCI personnel from monitoring wells after the wells have been properly developed. The groundwater samples will also be stored in chilled ice chests for shipment to the analytical laboratory.

Specific Tasks

1. Project supervision and management.

2. Operation of subcontractor equipment (auger drill, steam cleaning equipment, etc.).

3. Monitoring work environment and sample scanning with the PID.

4. Collecting soil samples from on-site determined intervals, placing samples in sample jars or containers, and storing containers in chilled ice chests for shipment.

5. Installation of monitoring wells by subcontractor employees using approved and properly cleaned or decontaminated well supplies (PVC casing, silica sand, hydrated bentonite, concrete, and well protectors).

6. Proper monitoring well development by either USPCI personnel or subcontractor employees depending on site specific conditions and equipment available (hand bailing, mechanical water pumping equipment, etc.).

7. Measuring static water level and/or free-phase product level in monitoring wells using oil/water interface probe.

8. Collection and proper storage of ground water samples from monitoring wells by USPCI personnel (appropriate sample containers, chilled ice chests, etc.).

9. Decontamination of subcontractor equipment using steam cleaners or pressure washing equipment by subcontractor employees.

10. Decontamination of USPCI sampling equipment and tools by USPCI personnel.

11. Implementation and monitoring of USPCI's site specific Health and Safety Plan by USPCI personnel.

12. Locating boring and monitor well site with respect to permanent objects (buildings, signal towers, power line or telephone poles, etc.) at the site to serve as basis for site map which will accompany final report for the assessment.

Personnel

One Project Manager/Supervisor, one geologist and sub-contractor employees will required for this project. Key personnel are:

Project Manager/Supervisor - Eric Taylor

Responsibilities include overall responsibility for all activities, personnel, health and safety.

Specific responsibilities include: client interface; acquisition, dispersal and maintenance of all supplies and equipment, maintenance of project records; compliance with all legal standards, policies and procedures; receipt and competed documentation for all contractors and subcontractors such training, insurance, supplies and other services; communicating the hazards of the site to all; maintaining communications with all parties involved with the site; observing all policies and procedures and complying with all applicable laws; receiving and acting on reports of injury and/or illness; observing a timely and safe progression of the project; recommending proper PPE and ensuring its use; using or managing the use of monitoring equipment; oversee maintenance of equipment; ensure adequate supplies, tool and equipment are available on site; ensure that the integrity of the various zones is observed and maintained; conduct daily health and safety meetings.

Geologist - Chris Byerman

Responsibilities include supervision of drilling and sample collection program, maintaining chain of custody (COC) documentation, equipment maintenance and calibration, activities of subordinate personnel, health and safety.

Health and Safety Designee - Eric Taylor

Responsibilities include: revising the Health and Safety Plan when there are changes in the scope, duration or activity of the job; identifying actual and potential risks to health and safety; communicating all risk assessment results to the Project Manager/Supervisor; maintaining supplies of PPE; providing "stand-by" status when an observer is needed; maintaining and managing the decontamination area; monitoring environmental; conditions that pose risks (temperature, airborne contaminants, etc.); acquiring and organizing health and safety information (MSDS's, analytical results, emergency information, etc.).

Instrument Qualified Person - Chris Byerman

Responsible for PID (OVM) and interface probe operation, maintenance, calibration results interpretation and documentation.

Subcontractor Employees (2 to 3 required)

Responsibilities include operation and maintenance of subcontractor equipment at direction of USPCI personnel, decontamination of contractor equipment, health and safety.

Tools and Equipment

Subcontractor Equipment

1. Hard hat, safety glasses with side-shields, nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, full-face respirator with organic vapor/acid/ gas/HEPA cartridge available in the immediate area.
2. CME-55 or CME-75 auger drill
3. Steam cleaner/pressure washer
4. Other subcontractor equipment (hand tools, shovels, trucks, trailers, water truck, etc.)

USPCI Equipment

1. Hard hat, safety glasses with side-shields, nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, full-face respirator with organic vapor/acid/ gas/HEPA cartridge available in the immediate area.

2. Photoionization detector (PID) - Model 580B OVM (organic vapor monitor)

3. Oil/water interface probe

4. Appropriate soil and ground water sample containers

5. Soil sample collection and storage equipment (stainless steel spatulas, protective wrappers for sample containers, water-proof labeling materials, sealing tape, ice chests, "blue ice" or ice, "zip-lock" bags, plastic trash bags, distilled water, Tri-sodium phosphate soap for decon of sample tools, spray bottle, measuring rule, etc.)

6. Ground water sampling equipment (disposable or PVC bailers, protective wrappers for sample containers, water-proof labeling materials, sealing tape, ice chests, "blue ice" or ice, distilled water, Tri-sodium phosphate soap, spray bottle, etc.)

7. Ph meter

8. Conductance meter

9. Measuring chain (for locating drill sites with reference to permanent objects)

3.0 HAZARDS

Every attempt has been made to produce a project design that provides for the maximum health and safety of site personnel, the community, and the environment. However, because of he nature of the work to be performed, potential chemical and physical hazards will be eliminated or reduced through the use of engineering controls and personnel protective equipment (PPE). The PPE required for this project is discussed in the PPE Section of this Health and Safety Plan.

The potential hazards associated with each task within the respective zone are presented in Table of Tasks, Potential Hazards and Controls which follows.

4.0 CONTROLS

Engineering controls or work practices that minimize or eliminate the potential hazards associated with a particular task are presented in Table of Tasks, Potential Hazards and Controls which follows.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The proper PPE for each respective task performed in the established zones is presented in the following table.

Zone	Task	PPE Required
EZ	soil borings/ monitor wells	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.
	monitor work env. w/ OVM	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.
	collect soil/ water samples	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.

EZ	measure water levels	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.
DZ	decon	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.
SZ	locate drill sites	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.
SZ	store drill supplies	Hard hat, safety glasses with side-shields, Nitrile gloves when contaminant is present (according to OVM, visual observations or smell), leather outer gloves, steel-toed safety boots, a fullface respirator with organic vapor/acid gas/HEPA cartridge available in the immediate area.

6.0 INSTRUMENT MONITORING

Instrument	Location of Sampling	Frequency	Action Level/Action
580B OVM	Mouth of boring/well, breathing zone (approx. 5' AGS)	Continuous while drill in operation	≥50 ppm for more than 15 minutes, suspend field operations until source identified and mitigated.

Calibration will be performed in accordance with the manufacturer's specifications, using the procedures detailed by the manufacturer.

Calibrations will be done only by those USPCI employees qualified by education and training. Calibration will be done in a clean environment which is similar to the actual work environment in terms of temperature, pressure, humidity, and "background noise". Prior to actual use each instrument will be allowed sufficient time to warm up and will be "zeroed" as applicable. Calibration and maintenance log book will be maintained on-site for each instrument.

All readings will be recorded in the project's general log book or the project's instrumentation log book. Results, sample locations, environmental conditions, dates, times nd the instrument operator's initials shall be logged.

Dust and excessive particulate matter in the air will not be a problem at the work site. No special monitoring for this problem is warranted.

7.0 SITE CONTROL MEASURES

The following zones will be established at the site:

1. <u>Exclusion Zone (EZ)</u> - a zone consisting of a 35-foot radius around each soil boring or monitoring well location at the site.

   No one may enter the EZ who is not properly protected, using the required PPE, and who has not: 1) completed the required training; 2) completed the field supervised training; and 3) been medically evaluated and found to be "medically fit" to work at a hazardous waste site.

   Smoking, drinking and eating are prohibited in the EZ.

2. Decontamination Zone (DZ) - an area, of sufficient size depending on site specific conditions, so designated at the site where decon of dirty and/or contaminated drilling equipment can be accomplished. Visqueen sheeting and diking will be used to contain decon refuse (drill cuttings, cleanup water, etc.). The decon refuse will be collected and stored at the site in DOT approved 55-gallon steel drums pending final disposal.

   Wastes generated by USPCI personnel in the course of sampling soils and ground water will also remain in the decon area pending final disposal.

3. Support Zone (SZ) - essentially the remainder of the site, as needed, for use storing drilling and well completion supplies (PVC casing, well protectors, cement, bentonite, guard posts, unused steel storage drums, etc.)

   This zone will not be restricted and will function as the area in which all non-hazardous activities can be located.

Site security will be the responsibility of the USPCI Project Manager/Supervisor and Geologist. Visitors and spectators not concerned with the project will not be permitted on site.

8.0 DECONTAMINATION PROCEDURES

Personnel decon will consist of washing with soap and rinsing with clean water available at the DZ. The Project Supervisor/ geologist will have 5-gallon buckets of Alconox-soap solution and rinse water available at the drill site in case of a need for emergency or immediate cleanup. Distilled water in a spray bottle is also available at the geologist's work area. After removal, used PPE will be stored in 55-gallon steel drum pending final disposal. Respirators will be cleaned with sterilized wipes daily.

Decon water will be stored in a DOT approved 55-gallon steel drum at the site pending final disposal.

Equipment will consist of washing with a steam cleaner/ pressure washer at the DZ. Refuse generated in the DZ will be stored in DOT-approved 55-gallon steel drums which will be stored at the site pending final disposal.

9.0 TRAINING

All USPCI personnel on site will have completed 40-hour OSHA training, 3-day supervised field training, 8-hour instrumentation training, be current with annual refresher training, and respirator-fit testing. Supervisory personnel will have completed 8 additional hours of supervisory training.

Employees of subcontractors on the approved USPCI subcontractor list will be permitted to perform activities at this site commensurate with their training as equipment operators. All subcontractors must provide the necessary documentation pertaining to employee training and medical monitoring prior to beginning operations at the site.

A pre-job conference and daily safety meetings will be held.

10.0 MEDICAL MONITORING

All USPCI employees involved on-site will have received a pre-employment and annual physical and are certified to be capable of working on a hazardous waste site, to wear respiratory protection and to operate equipment as applicable.

All subcontractor documentation supporting employee medical monitoring and training will be kept on file at the USPCI office in Boulder, Colorado.

This project does not warrant special monitoring of any kind.

11.0 EMERGENCY PLAN

In case of any emergency, the on-site supervisor is responsible for verbally alerting all personnel and providing instructions for response or evacuation.

Employees who become minimally contaminated will immediately flush the affected area with soap and water available at the Project Supervisor's work location. Gross decontamination will be performed with the water hose used for equipment decontamination. After decon, the Project Supervisor will determine in medical attention is needed.

A fire extinguisher, first aid kit and an eye wash will be available on site. The Project Supervisor will have an emergency site map and emergency telephone numbers on site at all times.

Should an injury occur, the immediate well-being of he injured part is the prime responsibility. In the event of an emergency, the expedient care of field personnel supersedes the above-referenced procedures. Emergency numbers and the route to the nearest emergency medical service will available on site. Unnecessary people must be kept away, the area isolated, and entry denied. If fumes or vapors are a potential hazard, workers must stay upwind and keep out of low area. After caring for the injured person, the most immediate supervisor available will be notified of the situation.

In case of small spills, soil berms and dirt will be used to contain and cleanup liquids. A broom and shovel will be used to cleanup spills of dry material.

Emergency telephone numbers are listed below. Direction to the nearest medical facility also follows. Reportable spills will be brought to the attention of the project supervisor.

Client Contact- Harry Patterson (UPRR) 402-271-4078
USPCI Proj. Mgr.-Eric Taylor 713-350-7266
USPCI Regional Mgr.-T. C. Hobbs 713-350-7244
USPCI Health and Safety-Mary A. Heaney 303-938-5512
Fire-911
Ambulance-911
National Spill Center (Spill Reporting) 1-800-424-8802

12.0 ACKNOWLEDGEMENT AND SIGN-OFF

All persons entering the work area, (USPCI employees, subcontractors, visitors, clients, regulatory agency personnel, etc.) must read the Health and Safety Plan and acknowledge by their signature that they have understood the plan and will abide by the requirements therein.

> "I acknowledge that I have read and understand the preceding Health and Safety Plan and will abide by the requirements specified in it."

Signature	Name	Date

SITE CHARACTERIZATION INFORMATION

BBL

ENVIRONMENTAL RECORD SEARCH

for the site

UNION PACIFIC RAILROAD YARD
1750 FERRO STREET, OAKLAND

performed for

USPCI

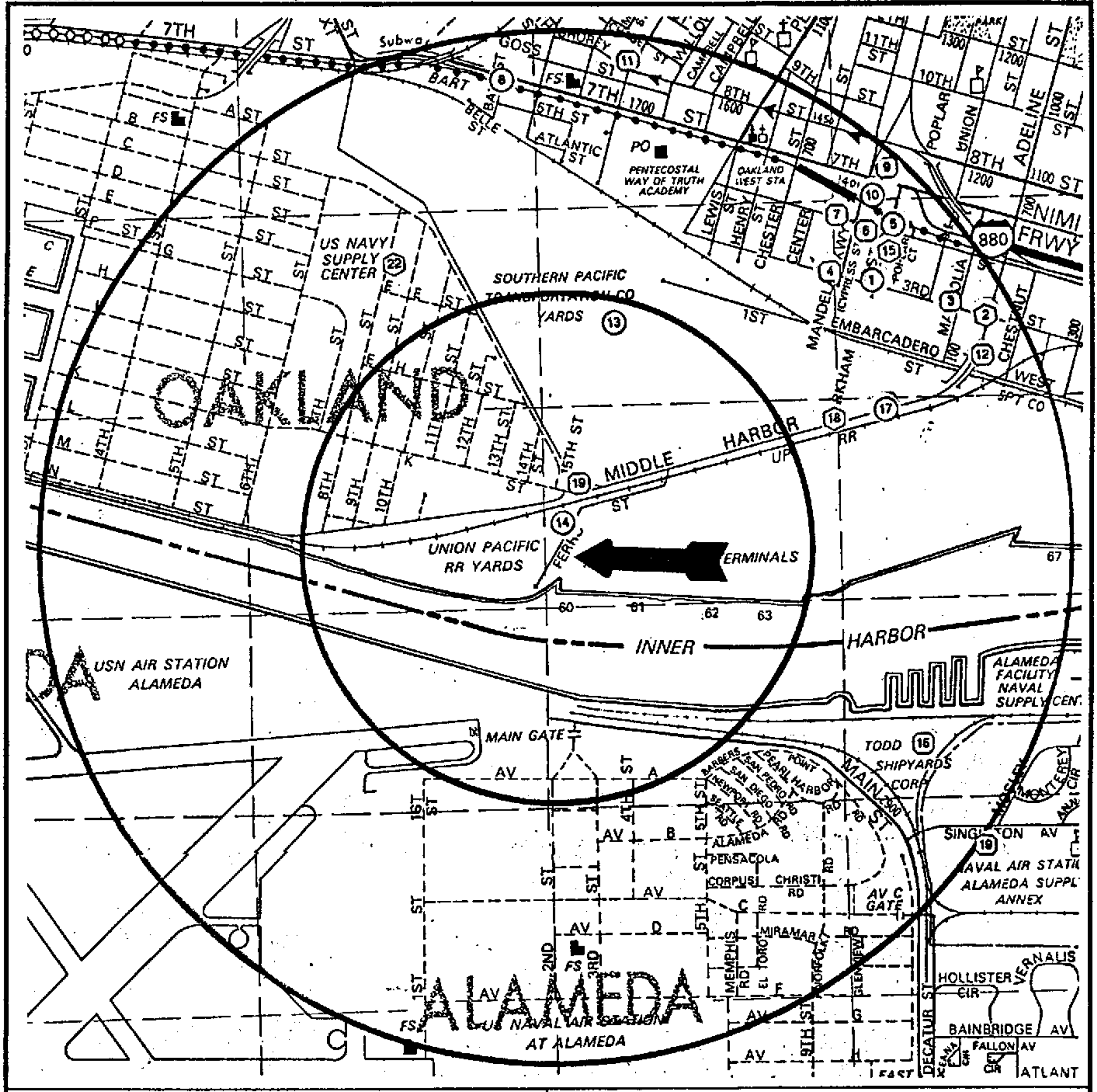
03-04-1993

444 South Cedros Ave, Suite 200 Solana Beach CA 92075 619 793-0641

INTRODUCTION

This document, prepared on the request of Uspci, reports the findings of BBL's investigation of environmental concerns in the vicinity of 1750 Ferro Street, Oakland. It is divided in the following segments:

- ♦ Map - showing the location of the identified sites relative to the subject site.
- ♦ Summary - listing the identified sites by street names.
- ♦ Final Report - describing the sources investigated and the resulting findings:
  - Federal sources
  - State sources
  - Regional sources



⬡ ENVIRONMENTAL CONCERNS - HIGH PRIORITY WITHIN 1 MILE

○ ENVIRONMENTAL CONCERNS WITHIN 1 MILE

▢ ENVIRONMENTAL CONCERNS - WITH A 'NO FURTHER ACTION' STATUS WITHIN 1 MILE

2.75 inches to 1 mile

Map reproduced under license from Thomas Bros. (AA 07D6)

APPROXIMATE LOCATION OF IDENTIFIED SITES IN THE VICINITY OF 1750 FERRO STREET, OAKLAND

1.	ROBO'S JUNKYARD		3RD & KIRKHAM
2.	NOR-CAL METAL FABRICATORS	1121	3RD ST
3.	PACIFIC WESTERN SHIPPING	1221	3RD ST
4.	DON CHERRY SCRAP METAL	1448	3RD ST
5.	SOUTHERN PACIFIC TRANSPORATION		5TH & KIRKHAM
6.	RED STAR YEAST	1384	5TH ST
7.	HARRY P ROBARTS COMPANY	1403	5TH ST
8.	SOUTHERN PACIFIC OAKLAND		7TH & BAY ST
9.	BADANIC	1380	7TH ST
10.	CHEVRON	1395	7TH ST
11.	DICAR COMPANY	1846	8TH ST
12.	SKIPS TRUCKING COMPANY	112	ADELINE ST
13.	SOUTHERN PACIFIC	721	CEDAR ST
13.	SOUTHERN PACIFIC RAILROAD	W	OAKLAND YARD
14.	UNION PACIFIC MOTOR FREIGHT	1750	FERRO ST
15.	SMILO CHEMICAL CO	500	KIRKHAM ST
16.	TODD SHIPYARDS CORPORATION		MAIN ST, FOOT OF
16.	NCPA/TODD SHIPYARD		TODD SHIPYARDS
17.	PORT OF OAKLAND/APL CONATINER	1395	MIDDLE HARBOR RD
18.	SHEREX CHEM CO	1401	MIDDLE HARBOR RD
19.	SOUTHERN PACIFIC	1726	MIDDLE HARBOR RD
19.	NAVAL SUPPLY CENTER-ALAM ANNEX		NAS ALAMEDA ANNEX
22.	NAVAL SUPPLY CENTER OAKLAND		USN SUPPLY CENTER, CODE 6 BUILDING 322

UNKNOWN LOCATIONS

ALAMEDA NAVAL AIR STATION	1ST ST
ALAMEDA NAVAL AIR STATION	NAS ALAMEDA
NAVAL SUPPLY CTR LOT '710	8TH ST
SCHNITZER STEEL PRODUCTS CO	ADELINE ST, BOX #747

TABLE 2

ENVIRONMENTAL CONCERNED AREAS

INDEX OF SITES LISTED BY MAP NUMBERS

ENVIRONMENTAL RECORDS SEARCH

SUMMARY

LISTED BY STREET

ENVIRONMENTAL RECORDS SEARCH FOR
UNION PACIFIC RAILROAD YARD
1750 FERRO STREET, OAKLAND

Page: 1
Job : USPC2201
Date: 03-05-1993

LOCATION	ADDRESS		CITY	MAP LOC	SOU-RCE	STATUS
ALAMEDA NAVAL AIR STATION		1ST ST	ALAMEDA		LR	0
US NAVY ALAMEDA AIR STATION		1ST ST	ALAMEDA		LR	0
ALAMEDA NAVAL AIR STATION		1ST ST	ALAMEDA		LT	0
US NAVY ALAMEDA AIR STATION		1ST ST	ALAMEDA		LT	0
ROBO'S JUNKYARD		3RD & KIRKHAM	OAKLAND	1	LR	0
ROBO'S JUNKYARD		3RD & KIRKHAM	OAKLAND	1	LT	0
NOR-CAL METAL FABRICATORS	1121	3RD ST	OAKLAND	2	CC	
NOR-CAL METAL FABRICATORS	1121	3RD ST	OAKLAND	2	AS	NFA
PACIFIC WESTERN SHIPPING	1221	3RD ST	OAKLAND	3	Cs	WCRBT
DON CHERRY SCRAP METAL	1448	3RD ST	OAKLAND	4	AS	NFA
SOUTHERN PACIFIC TRANSPORATION		5TH & KIRKHAM	OAKLAND	5	AS	PEARM
SOUTHERN PACIFIC TRANS CO		5TH & KIRKHAM	OAKLAND	5	LR	3B
SOUTHERN PACIFIC TRANS CO		5TH & KIRKHAM	OAKLAND	5	LT	3B
RED STAR YEAST	1384	5TH ST	OAKLAND	6	AS	NFA
HARRY P ROBARTS COMPANY	1403	5TH ST	OAKLAND	7	AS	NFA
SOUTHERN PACIFIC OAKLAND		7TH & BAY ST	OAKLAND	8	AS	SSR
BADANIC	1380	7TH ST	OAKLAND	9	AS	NFA
CHEVRON	1395	7TH ST	OAKLAND	10	LR	3B
CHEVRON	1395	7TH ST	OAKLAND	10	LT	3B
CHEVRON	1395	7TH ST	OAKLAND	10	Cs	WCRBT
NAVAL SUPPLY CTR LOT '710		8TH ST	OAKLAND		CC	
DICAR COMPANY	1846	8TH ST	ALAMEDA	11	AS	NFA
SCHNITZER STEEL PRODUCTS CO		ADELINE ST, BOX #747	OAKLAND		NT	
SKIPS TRUCKING COMPANY	112	ADELINE ST	OAKLAND	12	AS	NFA
SOUTHERN PACIFIC	721	CEDAR ST	OAKLAND	13	LR	0
SOUTHERN PACIFIC	721	CEDAR ST	OAKLAND	13	LT	0
A & W E, WESTERN DIVISION	721	CEDAR ST	OAKLAND	13	AS	NFA
SOUTHERN PACIFIC	721	CEDAR ST	OAKLAND	13	Cs	WCRBT
UNION PACIFIC MOTOR FREIGHT	1750	FERRO ST	OAKLAND	14	LR	3B
UNION PACIFIC MOTOR FREIGHT	1750	FERRO ST	OAKLAND	14	LT	3B
UNION PACIFIC MOTOR FREIGHT	1750	FERRO ST	OAKLAND	14	Cs	WCRBT
SMILO CHEMICAL CO	500	KIRKHAM ST	OAKLAND	15	CC	
SMILO CHEMICAL COMPANY	500	KIRKHAM ST	OAKLAND	15	Cs	DHS1
SMILO CHEMICAL COMPANY	500	KIRKHAM ST	OAKLAND	15	AS	NFA
TODD SHIPYARDS CORPORATION		MAIN ST, FOOT OF	ALAMEDA	16	AS	NFA
PORT OF OAKLAND/APL CONATINER	1395	MIDDLE HARBOR RD	OAKLAND	17	LR	0
PORT OF OAKLAND/APL CONATINER	1395	MIDDLE HARBOR RD	OAKLAND	17	LT	0
SHEREX CHEM CO	1401	MIDDLE HARBOR RD	OAKLAND	18	CC	
SHEREX CHEMICAL COMPANY (MIDDL	1401	MIDDLE HARBOR RD	OAKLAND	18	AS	PEARL
SHEREX CHEMICAL COMPANY (MIDDL	1401	MIDDLE HARBOR RD	OAKLAND	18	AS	PEARL
SHEREX CHEMICAL COMPANY	1401	MIDDLE HARBOR RD	OAKLAND	18	Cs	DHS1
SHEREX CHEMICAL CO	1401	MIDDLE HARBOR RD	OAKLAND	18	NT	
SHEREX CHEMICAL COMPANY, INC.	1401	MIDDLE HARBOR RD	OAKLAND	18	Cs	WCRBT
SOUTHERN PACIFIC	1726	MIDDLE HARBOR RD	OAKLAND	19	Cs	WCRBT
ALAMEDA NAVAL AIR STATION		NAS ALAMEDA	ALAMEDA		BP	AWP

LOCATION	ADDRESS	CITY	MAP LOC	SOU-RCE	STATUS
US NAVY-NAS W BEACH SAN LDFL	NAS ALAMEDA, 02S/04W	ALAMEDA		SR	2
US NAVY-NAS WEST BCH SANITARY	NAS ALAMEDA, 02S/04W	ALAMEDA		SR	2
WEST BEACH SANITARY LANDFILL	NAS ALAMEDA, 02S/04W	ALAMEDA		SS	CLOSE
US NAVY-NAS WEST BCH SANITARY	NAS ALAMEDA, 02S/04W	ALAMEDA		ST	2
US NAVY-NAS W BEACH SAN LDFL	NAS ALAMEDA, 02S/04W	ALAMEDA		ST	2
WEST BEACH SANITARY LANDFILL	NAS ALAMEDA	ALAMEDA		AS	SSR
ALAMEDA NAVAL AIR STATION	NAS ALAMEDA	ALAMEDA		Cs	DHS5
WEST BEACH SANITARY LANDFILL	NAS ALAMEDA	ALAMEDA		Cs	DHS1
ALAMEDA NAS	NAS ALAMEDA	ALAMEDA		NT	
US NAVY ALAMEDA AIR STATION	NAS ALAMEDA	ALAMEDA		Cs	WCRBT
ALAMEDA NAVAL AIR STATION	NAS ALAMEDA	ALAMEDA		Cs	WCRBT
NAVAL SUPPLY CENTER-ALAM ANNEX	NAS ALAMEDA ANNEX	ALAMEDA	19	NT	
SOUTHERN PACIFIC RAILROAD	W OAKLAND YARD	OAKLAND	13	SR	4
SOUTHERN PACIFIC RAILROAD	W OAKLAND YARD	OAKLAND	13	ST	4
SOUTHERN PACIFIC	PINE ST	OAKLAND	13	Cs	WCRBT
NCPA/TODD SHIPYARD	TODD SHIPYARDS	ALAMEDA	16	LR	3B
NCPA/TODD SHIPYARD	TODD SHIPYARDS	ALAMEDA	16	LT	3B
NCPA/TODD SHIPYARD	TODD SHIPYARDS	ALAMEDA	16	Cs	WCRBT
NAVAL SUPPLY CENTER OAKLAND	USN SUPPLY CENTER, CODE 8 BUILDING 322	OAKLAND	22	BP	AWP
NAVY PUBLIC WORKS CENTER SAN F	USN SUPPLY CENTER	OAKLAND	22	CC	
NAVY PUBLIC WORKS CENTER SAN F	USN SUPPLY CENTER	OAKLAND	22	FF	

REFERENCED SOURCES

FEDERAL SOURCES

NL National Priority List (01/17/93)

CC Comprehensive Environmental Response, Compensation, and Liability System CERCLIS (01/17/93)

NFA	No Further Action

FF Federal Facilities (01/17/93)

LI Superfund Liens - LIENS (09/13/92)

CALIFORNIA STATE SOURCES

BP Annual Work Plan (formerly BEP) (10/26/92)

AWP	Active Annual Work Plan site
BKLG	Backlog, potential AWP site
COM	Certified, but in Operation & Maintenance mode
CERT	Certified, site has been remediated
DLIST	Delisted
REFRC	Former AWP site, referred to RCRA
REFRW	Former AWP site, referred to RWQCB

AS CALSITES (formerly ASPIS) (10/26/92)

PEAR	Preliminary Endangerment Assessment
SSR	Site Screening Required
HRR	Hazard Ranking Required
PRPR	Potential Responsible Party search Required
NFA	No Further Action
EPA	Federal EPA lead
RCRA	RECRA permitting program lead
RWQC	Regional Water Quality Board lead
CNTY	County lead
OAL	Other Agency lead

(Suffixes L,M or H indicates Low, Medium or High Priority)

CS Office of Planning and Research, State of California - CORTESE

WCRBT	Tank leaks.
DHS1	Abandoned hazardous waste site.
DHS2	Contaminated public drinking wells serving less than 200 connections.
DHS3	Contaminated public drinking wells serving more than 200 connections.
DHS5	Sites pusuant to section 25356 of the Health and Safety Code (see BEP)
WMB	Solid waste disposal sites with known migration of hazardous waste.

ST Solid Waste Assessment Test, California State - SWAT(S) (11/6/91)

Facilities or sites are ranked within each region on a scale 1-15 according to priority.

SS Solid Waste Information System - SWIS (9/92)

LT Leaking Underground Storage Tanks, California State - LUST(S) (May 92)

0	No action
1	Leak being confirmed
3A	Prel site assessment workplan submitted
3B	Prel site assessment underway
5C	Pollution characterization
5R	Remediation plan
7	Remedial action underway
8	Post remedial action monitoring
9	Case closed

REGIONAL SOURCES (updated quarterly)

LR Leaking Underground Storage Tanks, Regional - LUST(R)

0	No action
1	Leak being confirmed
3A	Prel site assessment workplan submitted
3B	Prel site assessment underway
5C	Pollution characterization
5R	Remediation plan
7	Remedial action underway
8	Post remedial action monitoring
9	Case closed

NT Non-Tank or Unauthorized Releases

1	Leak being confirmed
2	Spill Response
3	Preliminary Assessment
3A	Prel Site Assessment plan submitted
3B	Prel Site Assessment underway
5	Remedial Investigation
6A	Remediation Plan Submitted
6B	Remediation Underway
7	Post Remedial Monitoring
9	Case Closed

TP Toxic Pits, Regional

SR Solid Waste Assessment Test, Regional - SWAT(R)

Priority Ranking 1-15

WP Well Investigation Program

1A	Organics exceeding action levels
1B	Organics with set action levels
2	Inorganics exceeding action level

OPERATING PERMITS

HW Hazardous Waste Information System - HWIS (11/1990)

EPA Permit number

UT Underground Storage Tank Permits (1987)

Reference to tank permit

SA SARA Title III

ENVIRONMENTAL RECORDS SEARCH

LISTED BY SOURCE

INTRODUCTION

The following government sources have been searched for sites within one mile radius, unless otherwise stated, of the subject location.

BBL has used its best effort but makes no claims as to the completeness or accuracy of the referenced government sources or the completeness of the search. Our records are frequently updated but only as current as their publishing date and may not represent the entire field of known or potential hazardous waste or contaminated sites. To ensure complete coverage of the subject property and surrounding area, sites may be included in the list if there was any doubt as to the location because of discrepancies in map location, zip code, address, or other information in our sources.

FEDERAL SOURCES

NPL National Priority List

EPA has prioritized sites with significant risk to human health and the environment. These sites receive remedial funding under the Comprehensive Environmental Response Conservation and Liability Act (CERCLA).

No listings within the specified range.

CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS is a data base used by the EPA to track activities conducted under the Comprehensive Environmental Response, and Liability Act CERCLA (1980) and the amendment the Superfund A and Reauthorization Act, SARA (1986).

Sites to be included are identified primarily by the reporting requirements of hazardous substances Treatment, Storage and Disposal (TSD) facilities and releases larger than specific Reportable Quantaties (RQ), established by EPA.

Using the National Oil and Hazardous Substance Pollution Contingency Plan (National Contingency Plan) EPA set priorities for cleanup.

EPA rates National Contingency Plan sites according to a quantitive Hazard Ranking System (HRS) based on the potential health risk via any one or more potential pathways; groundwater, surface water, air, direct contact, and fire /explosion.

EPA and state agencies seek to identify potentially responsible parties (PRP) and ultimately

Responsible Parties (RP) who can be required to finance cleanup activities, either directly or through reimbursement of federal Superfund expenditures.

Status Codes: *NFA - No Further Action*

Site: NOR-CAL METAL FABRICATORS
Address: 1121 3RD ST
City: OAKLAND
Map Loc: 2
Status: *EPA ID#: CAD009148669*

Site: NAVAL SUPPLY CTR LOT '710
Address: 8TH ST
City: OAKLAND
Status: *EPA ID#: CA4170090027*

Site: SMILO CHEMICAL CO
Address: 500 KIRKHAM ST
City: OAKLAND
Map Loc: 15
Status: *EPA ID#: CAD029247319*

Site: SHEREX CHEM CO
Address: 1401 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 18
Status: *EPA ID#: CAD990788168*

Site: NAVY PUBLIC WORKS CENTER SAN F
Address: USN SUPPLY CENTER
City: OAKLAND
Map Loc: 22
Status: *EPA ID#: CA0170090112*

FEDFAC Federal Facilities

As part of the CERCLIS program, federal facilities with known or suspected environmental problems, Federal Facilities Hazardous Waste Compliance Docket, are tracked separately to comply with a Federal Court order.

Site: NAVY PUBLIC WORKS CENTER SAN F
Address: USN SUPPLY CENTER
City: OAKLAND
Map Loc: 22
Status:

LIENS Superfund Liens

A current list of Federal Superfund Liens as compiled by the Office of Enforcement and Compliance Monitoring (OECM), EPA, Washington, D.C. based upon information submitted by EPA's ten Regional Offices. The EPA and the OECM make no representations regarding the accuracy or completeness of the list.

No listings within the specified range.

CALIFORNIA STATE SOURCES

AW Annual Work Plan (previously known as Bond Expenditure Plan)

The California Health and Safety code, as amended by AB 129, requires the California Environmental Protection Agency to develop a site-specific expenditure plan as the basis for an appropriation of California Hazardous Substance Cleanup Bond Act of 1984 funds.

The Agency is also required to update the report annually and report any significant adjustments to the Legislature on an ongoing basis. The plan identifies California hazardous waste sites targeted for cleanup by responsible parties, the California and the Federal Environmental Protection Agencies over the next five years.

Status Codes:	*BKLG*	*Backlog, Potential Annual Work Plan Site*
	AWP	*Active Annual Work Plan site*
	COM	*Certified, but still in Operation & Maintenence mode*
	CERT	*Certified after remediation*
	DLIST	*Delisted from the AWP*
	REFRC	*Former AWP site referred to RCRA*
	REFRW	*Former AWP site referred to the Regional Water Quality Board*

Site: ALAMEDA NAVAL AIR STATION
Address: NAS ALAMEDA
City: ALAMEDA
Status: *AWP - Active Annual Work Plan Site*

Site: NAVAL SUPPLY CENTER OAKLAND
Address: USN SUPPLY CENTER, CODE 6 BUILDING 322
City: OAKLAND
Map Loc: 22
Status: *AWP - Active Annual Work Plan Site*

CALS CALSITES (previously known as The Abandoned Sites Program Information System ASPIS)

The Historical Abandoned Site Survey Program identified certain potential hazardous waste sites. These sites determinations were generally not made via sampling and site characterization. They were made as a result or file searches and windshield surveys. Some of the sites may have had a site inspection with sampling.

The information has been compiled into this database by California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 253596 of the California Health and Safety Code.

Status Codes:	*PEARL*	*Preliminary Endangerment Assessment Required, Low Priority*
	PEARM	*Preliminary Endangerment Assessment Required, Medium Priority*
	PEARH	*Preliminary Endangerment Assessment Required, High Priority*
	SSR	*Site Screening Required*
	HRR	*Hazard Ranking Required*
	PRPR	*Potential Responsible Party Search Required*
	NFA	*No Further Action for DTSC*
	EPA	*EPA is the lead agency*
	RCRA	*Mitigated under the RCRA permitting program*
	RWQCB	*Mitigated under the lead of the Regional Water Quality Board.*
	CNTY	*County Lead*
	OAL	*Other Agency Lead*

Site: NOR-CAL METAL FABRICATORS
Address: 1121 3RD ST
City: OAKLAND
Map Loc: 2
Status: *NFA - No Further Action for DTSC*

Site: DON CHERRY SCRAP METAL
Address: 1448 3RD ST
City: OAKLAND
Map Loc: 4
Status: *NFA - No Further Action for DTSC*

Site: SOUTHERN PACIFIC TRANSPORATION
Address: 5TH & KIRKHAM
City: OAKLAND
Map Loc: 5
Status: *PEARM - Preliminary Endangerment Assessment Required, Medium Priority*

Site: RED STAR YEAST
Address: 1384 5TH ST
City: OAKLAND
Map Loc: 6
Status: *NFA - No Further Action for DTSC*

Site: HARRY P ROBARTS COMPANY
Address: 1403 5TH ST
City: OAKLAND
Map Loc: 7
Status: *NFA - No Further Action for DTSC*

Site: SOUTHERN PACIFIC OAKLAND
Address: 7TH & BAY ST
City: OAKLAND
Map Loc: 8
Status: *SSR - Site Screening Required*

Site: BADANIC
Address: 1380 7TH ST
City: OAKLAND
Map Loc: 9
Status: *NFA - No Further Action for DTSC*

Site: DICAR COMPANY
Address: 1846 8TH ST
City: ALAMEDA
Map Loc: 11
Status: *NFA - No Further Action for DTSC*

Site: SKIPS TRUCKING COMPANY
Address: 112 ADELINE ST
City: OAKLAND
Map Loc: 12
Status: *NFA - No Further Action for DTSC*

Site: A & W E, WESTERN DIVISION
Address: 721 CEDAR ST
City: OAKLAND
Map Loc: 13
Status: *NFA - No Further Action for DTSC*

Site: SMILO CHEMICAL COMPANY
Address: 500 KIRKHAM ST
City: OAKLAND
Map Loc: 15
Status: *NFA - No Further Action for DTSC*

Site: TODD SHIPYARDS CORPORATION
Address: MAIN ST, FOOT OF
City: ALAMEDA
Map Loc: 16
Status: *NFA - No Further Action for DTSC*

Site: SHEREX CHEMICAL COMPANY (MIDDL
Address: 1401 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 18
Status: *PEARL - Preliminary Endangerment Assessment Required, Low Priority*

Site: SHEREX CHEMICAL COMPANY (MIDDL
Address: 1401 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 18
Status: *PEARL - Preliminary Endangerment Assessment Required, Low Priority*

Site: WEST BEACH SANITARY LANDFILL
Address: NAS ALAMEDA
City: ALAMEDA
Status: *SSR - Site Screening Required*

CORTESE State of California Office of Planning and Research

This database is a consolidation of information from various sources. It is maintained by the State Office of Planning and Research and lists potential and confirmed hazardous waste or substances sites. This source was last updated by the government in November 1990.

Status Codes:	*WRCBT*	*Tank leaks. Compiled by Water Resource Control Board.*
	DHS1	*Abandoned hazardous waste site. Compiled by Toxic Substance Control Div. of DHS.*
	DHS2	*Contaminated public water drinking wells serving less than 200 connections. Compiled by Env. Health Div. of DHS.*
	DHS3	*Contaminated public water drinking wells serving more than 200 connections.*
	DHS5	*Sites pusuant to section 25356 of the Health and Safety Code (see BEP)*
	CWMB	*Solid waste disposal sites with known migration of hazardous waste.*

Site: PACIFIC WESTERN SHIPPING
Address: 1221 3RD ST
City: OAKLAND
Map Loc: 3
Status: *WCRBT - Leaking Tank*

Site: CHEVRON
Address: 1395 7TH ST
City: OAKLAND
Map Loc: 10
Status: *WCRBT - Leaking Tank*

Site: SOUTHERN PACIFIC
Address: 721 CEDAR ST
City: OAKLAND
Map Loc: 13
Status: *WCRBT - Leaking Tank*

Site: UNION PACIFIC MOTOR FREIGHT
Address: 1750 FERRO ST
City: OAKLAND
Map Loc: 14
Status: *WCRBT - Leaking Tank*

Site: SMILO CHEMICAL COMPANY
Address: 500 KIRKHAM ST
City: OAKLAND
Map Loc: 15
Status: *DHS1 - Abandoned Hazardous Waste Site*

Site: SHEREX CHEMICAL COMPANY
Address: 1401 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 18
Status: *DHS1 - Abandoned Hazardous Waste Site*

Site: SHEREX CHEMICAL COMPANY, INC.
Address: 1401 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 18
Status: *WCRBT - Leaking Tank*

Site: SOUTHERN PACIFIC
Address: 1726 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 19
Status: *WCRBT - Leaking Tank*

Site: ALAMEDA NAVAL AIR STATION
Address: NAS ALAMEDA
City: ALAMEDA
Status: *DHS5 -*

Site: WEST BEACH SANITARY LANDFILL
Address: NAS ALAMEDA
City: ALAMEDA
Status: *DHS1 - Abandoned Hazardous Waste Site*

Site: US NAVY ALAMEDA AIR STATION
Address: NAS ALAMEDA
City: ALAMEDA
Status: *WCRBT - Leaking Tank*

Site: ALAMEDA NAVAL AIR STATION
Address: NAS ALAMEDA
City: ALAMEDA
Status: *WCRBT - Leaking Tank*

Site: SOUTHERN PACIFIC
Address: PINE ST
City: OAKLAND
Map Loc: 13
Status: *WCRBT - Leaking Tank*

Site: NCPA/TODD SHIPYARD
Address: TODD SHIPYARDS
City: ALAMEDA
Map Loc: 16
Status: *WCRBT - Leaking Tank*

LUST(S) Leaking Underground Storage Tanks - California State

The Leaking Underground Storage Tanks Information System is maintained by the State Water Resource Board pursuant to Section 25295 of the Health and Safety Code.

Status Codes:	*0*	*No action*
	1	*Leak being confirmed*
	3A	*Prel site assessment workplan submitted*
	3B	*Prel site assessment underway*
	5C	*Pollution characterization*
	5R	*Remediation plan*
	7	*Remedial action underway*
	8	*Post remedial action monitoring*
	9	*Case closed*

Site: ALAMEDA NAVAL AIR STATION
Address: 1ST ST
City: ALAMEDA
Status: *0 - No Action Taken.*

Site: US NAVY ALAMEDA AIR STATION
Address: 1ST ST
City: ALAMEDA
Status: *0 - No Action Taken.*

Site: ROBO'S JUNKYARD
Address: 3RD & KIRKHAM
City: OAKLAND
Map Loc: 1
Status: *0 - No Action Taken.*

Site: SOUTHERN PACIFIC TRANS CO
Address: 5TH & KIRKHAM
City: OAKLAND
Map Loc: 5
Status: *3B - Prelim Site Assessment underway.*

Site: CHEVRON
Address: 1395 7TH ST
City: OAKLAND
Map Loc: 10
Status: *3B - Prelim Site Assessment underway.*

Site: SOUTHERN PACIFIC
Address: 721 CEDAR ST
City: OAKLAND
Map Loc: 13
Status: *0 - No Action Taken.*

Site: UNION PACIFIC MOTOR FREIGHT
Address: 1750 FERRO ST
City: OAKLAND
Map Loc: 14
Status: *3B - Prelim Site Assessment underway.*

Site: PORT OF OAKLAND/APL CONATINER
Address: 1395 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 17
Status: *0 - No Action Taken.*

Site: NCPA/TODD SHIPYARD
Address: TODD SHIPYARDS
City: ALAMEDA
Map Loc: 16
Status: *3B - Prelim Site Assessment underway.*

SWAT(S) Solid Waste Assessment Test - California State

This program, provided for under the Calderon legislation (Section 13273 of the Water Code), requires that disposal sites with more than 50,000 cubic yards of waste provide sufficient information to the regional water quality control board to determine whether or not the site has discharged hazardous substances which will impact the environment.

Site operators are required to file Solid Waste Assessment Test reports on a staggered basis. Operators of the 150 highest ranking (Rank 1) sites were required to submit Solid Waste Assessment Tests by July 1, 1987, Rank 2 in 1988 and so on.

Operators submit water quality tests to the Regional Water Quality Control Board, describing surface and groundwater quality and supply; and the geology within 1 mile of the site. Air quality tests are submitted to the local Air Quality Management District or Air Pollution Control District.

Status Codes: Facilities or sites are ranked within each region on a scale 1-15 according to priority.

Site: US NAVY-NAS WEST BCH SANITARY
Address: NAS ALAMEDA, 02S/04W
City: ALAMEDA
Status: *Priority Rank 2*

Site: US NAVY-NAS W BEACH SAN LDFL
Address: NAS ALAMEDA, 02S/04W
City: ALAMEDA
Status: *Priority Rank 2*

Site: SOUTHERN PACIFIC RAILROAD
Address: W OAKLAND YARD
City: OAKLAND
Map Loc: 13
Status: *Priority Rank 4*

SWIS Solid Waste Information System

As legislated under the Solid Waste Management and Resource Recovery Act of 1972, the California Waste Management Board maintains lists of certain facilities, i.e. Active solid waste disposal sites, Inactive or Closed solid waste disposal sites and Transfer facilities.

Site: WEST BEACH SANITARY LANDFILL
Address: NAS ALAMEDA, 02S/04W
City: ALAMEDA
Status: *CLOSE -*

REGIONAL SOURCES

LUST(R) Leaking Underground Storage Tanks - Regional

Each of the California Regional Water Quality Control Boards RWQCB maintains lists of leaking underground storage tanks.

Status Codes:	*0*	*No action*
	1	*Leak being confirmed*
	3A	*Prel site assessment workplan submitted*
	3B	*Prel site assessment underway*
	5C	*Pollution characterization*
	5R	*Remediation plan*
	7	*Remedial action underway*
	8	*Post remedial action monitoring*
	9	*Case closed*

Site: ALAMEDA NAVAL AIR STATION
Address: 1ST ST
City: ALAMEDA
Status: *0 - No Action Taken.*

Site: US NAVY ALAMEDA AIR STATION
Address: 1ST ST
City: ALAMEDA
Status: *0 - No Action Taken.*

Site: ROBO'S JUNKYARD
Address: 3RD & KIRKHAM
City: OAKLAND
Map Loc: 1
Status: *0 - No Action Taken.*

Site: SOUTHERN PACIFIC TRANS CO
Address: 5TH & KIRKHAM
City: OAKLAND
Map Loc: 5
Status: *3B - Prelim Site Assessment underway.*

Site: CHEVRON
Address: 1395 7TH ST
City: OAKLAND
Map Loc: 10
Status: *3B - Prelim Site Assessment underway.*

Site: SOUTHERN PACIFIC
Address: 721 CEDAR ST
City: OAKLAND
Map Loc: 13
Status: *0 - No Action Taken.*

Site: UNION PACIFIC MOTOR FREIGHT
Address: 1750 FERRO ST
City: OAKLAND
Map Loc: 14
Status: *3B - Prelim Site Assessment underway.*

Site: PORT OF OAKLAND/APL CONATINER
Address: 1395 MIDDLE HARBOR RD
City: OAKLAND
Map Loc: 17
Status: *0 - No Action Taken.*

Site: NCPA/TODD SHIPYARD
Address: TODD SHIPYARDS
City: ALAMEDA
Map Loc: 16
Status: *3B - Prelim Site Assessment underway.*

NT Toxic Releases

The California Regional Water Quality Control Boards or local Department of Health Services keeps track of toxic releases to the environment. These lists are known as Unauthorized Releases, Non-Tank Releases, Toxics List or similar, depending on the local agency.

Site:	SCHNITZER STEEL PRODUCTS CO
Address:	ADELINE ST, BOX #747
City:	OAKLAND
Status:	*- No Action Taken.*

Site:	SHEREX CHEMICAL CO
Address:	1401 MIDDLE HARBOR RD
City:	OAKLAND
Map Loc:	18
Status:	*- No Action Taken.*

Site:	ALAMEDA NAS
Address:	NAS ALAMEDA
City:	ALAMEDA
Status:	*- No Action Taken.*

Site:	NAVAL SUPPLY CENTER-ALAM ANNEX
Address:	NAS ALAMEDA ANNEX
City:	ALAMEDA
Map Loc:	19
Status:	*- No Action Taken.*

TPC Toxic Pits

The Toxic Pits Clean-Up Act (Katz Bill) places strict limitations on the discharge of liquid hazardous wastes into surface impoundments, toxic ponds, pits and lagoons. Regional Water Quality Control Boards are required to inspect all surface impoundments annually, In addition, every facility was required to file a Hydrogeological Assessment Report. Recent legislation allows the Department of Health Services to excempt facilities that closed on or before December 31, 1985, if a showing is made that no significant environmental risk remains (AB1046)

Special exemption provisions have been created for surface impoundments that receive mining wastes.

No listings within the specified range.

SWAT(R) Solid Waste Assessment Test - Regional

The Solid Waste Assessment Test Program targets sites where there is a possible risk of hazardous waste escaping from solid waste disposal sites (landfills), threatening both water and air quality. Threatening sites are required to submit water quality Solid Waste Assessment Tests to their Regional Water Quality Control Board. Air quality Solid Waste

Assessment Tests are submitted to the local Air Quality Management District or Air Pollution Control District.

Site: US NAVY-NAS W BEACH SAN LDFL
Address: NAS ALAMEDA, 02S/04W
City: ALAMEDA
Status: *Priority Rank 2*

Site: US NAVY-NAS WEST BCH SANITARY
Address: NAS ALAMEDA, 02S/04W
City: ALAMEDA
Status: *Priority Rank 2*

Site: SOUTHERN PACIFIC RAILROAD
Address: W OAKLAND YARD
City: OAKLAND
Map Loc: 13
Status: *Priority Rank 4*

WIP Well Investigation Program

The Well Investigation Program (AB1803) identifies groundwater that is already contaminated and empowers the California Department of Health Services and local health officers to order ongoing monitoring programs. The focus of this program is to monitor and protect drinking water.

No listings within the specified range.

UNION PACIFIC RAILROAD'S
OAKLAND, CALIFORNIA TOFC YARD
AQUIFER STRESS TEST
RESULTS

DECEMBER 11, 1992

Prepared for
Union Pacific Railroad
by
USPCI
Job Number 96199

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LIST OF FIGURES

1. INTRODUCTION

A pump test was completed during the week of May 4, 1992 by USPCI for Union Pacific Railroad, (UPRR) on their Oakland, California Trailer On Flat Car (TOFC) Yard. The goal of the pump test was to recover data on aquifer characteristics which will assist in future design and upgrading of the oil recovery system. The existing recovery system consists of three recovery wells and a water treatment plant. The system installation and final start-up were completed on April 13, 1992. As-constructed information pertaining to the system is presented in the "As-Built Construction Report" dated July 20, 1992.

The extent of hydrocarbon contamination, the locations of monitoring wells, the system location, and supporting documentation were presented in the report entitled, "Hydrocarbon Investigation and Remedial Design at Union Pacific Railroad's Oakland, California TOFC Yard" dated June 5, 1991.

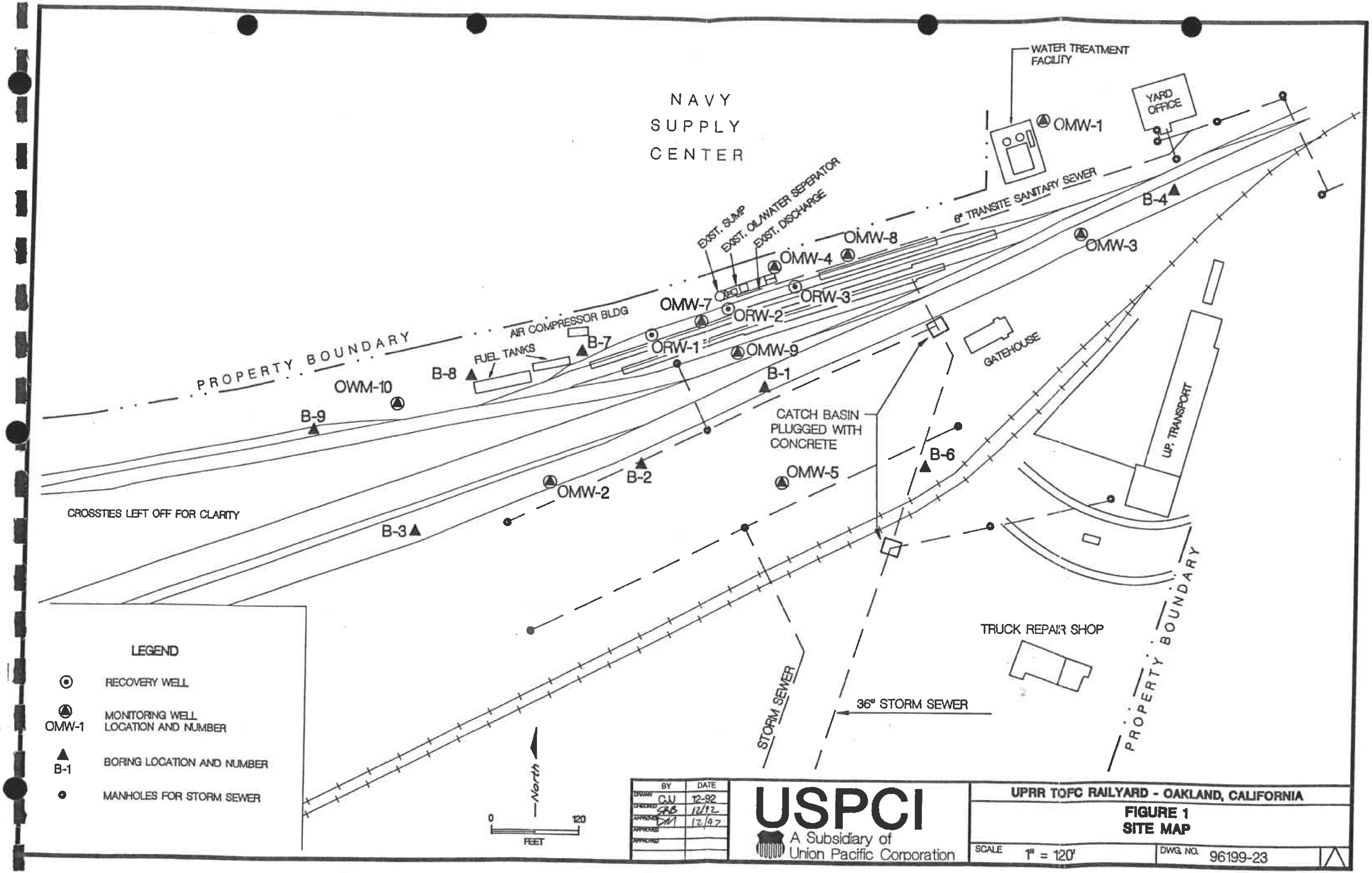
Tracking the performance of the system has been on going since start-up through the analysis of water samples and continued monitoring of groundwater as delineated in the discharge permit. The data base resulting from tracking system performance was used to check the pump test results.

2. AQUIFER STRESS TEST

2.1 HYDROLOGIC TESTING PROCEDURE

To determine the aquifer characteristics necessary for the design of future improvements to the groundwater remediation system, an aquifer pumping test was conducted on recovery well ORW-2. The pump test was conducted prior to start up of the system to ensure the existence of static hydrologic conditions. The groundwater levels in 4 wells (OMW-7, ORW-1, ORW-3, OMW-9) were used to record the effects of pumping on the aquifer. The locations of these wells are shown on Figure 1. These wells were equipped with transducers which recorded water levels continuously for 48 hours prior to starting the pump test. This provided background data to allow quantification of tidal fluctuations or train traffic on water table conditions. Manual measurements were taken before running the pumping test to ensure that the local water level represented static conditions.

The pump test was completed using a drawdown-recovery procedure. ORW-2 was pumped at a continuous rate for 72 hours. The water level in the observation wells stabilized during that time span. During the drawdown and recovery portion of the pumping test, recovery well ORW-2 was monitored for both water level elevations and product thickness changes using a hand-held water/product interface probe.



	BY	DATE
DRAWN	C.U.	12-92
CHECKED	SAB	12/92
APPROVED	DM	12/92
APPROVED		
APPROVED		

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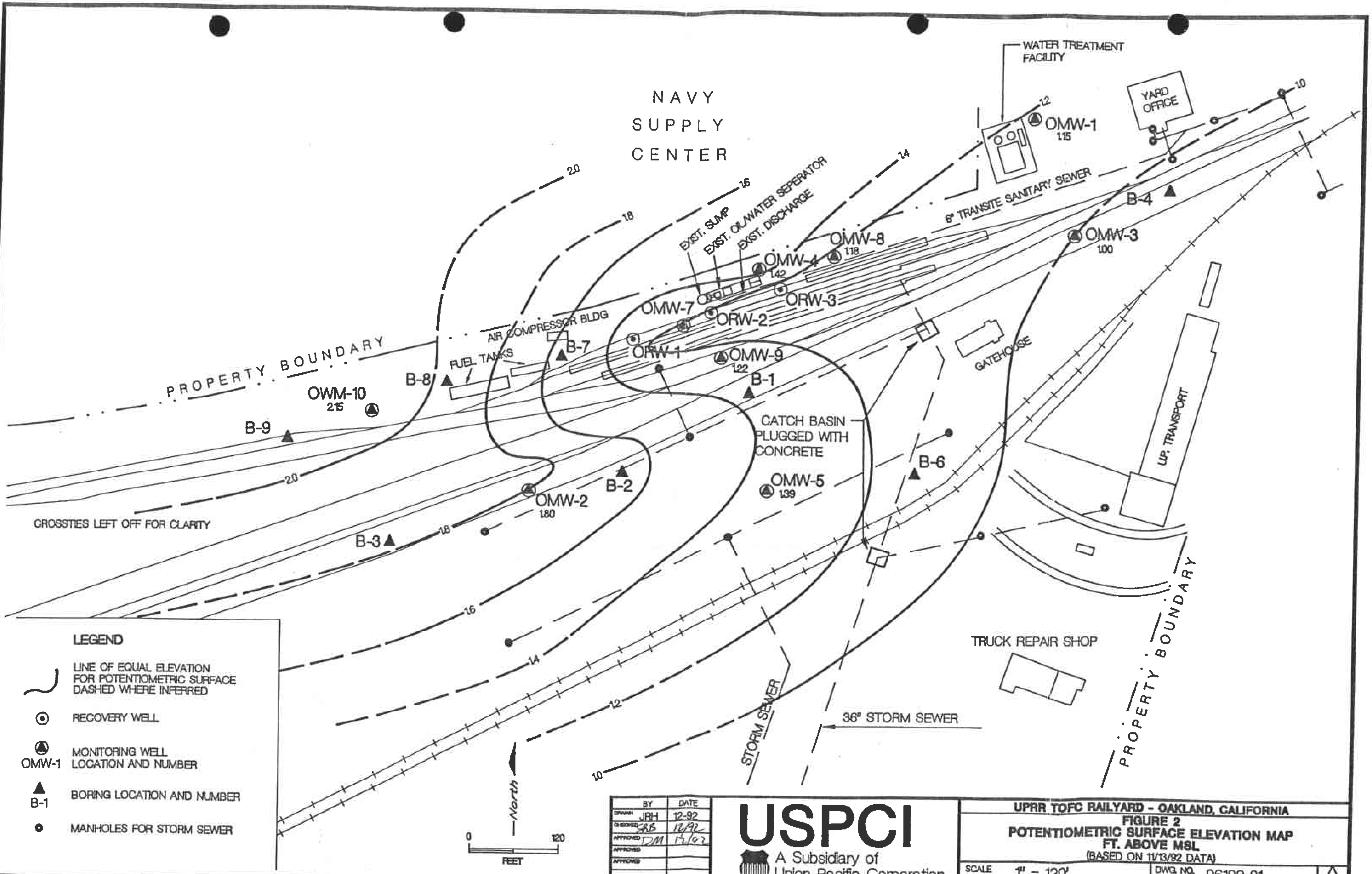
UPRR TOFC RAILYARD - OAKLAND, CALIFORNIA

FIGURE 1
SITE MAP

SCALE 1" = 120'

DWG. NO. 96199-23



	BY	DATE
DRAWN	JRH	12-92
CHECKED	SRB	12/92
APPROVED	DM	12/92
APPROVED		
APPROVED		

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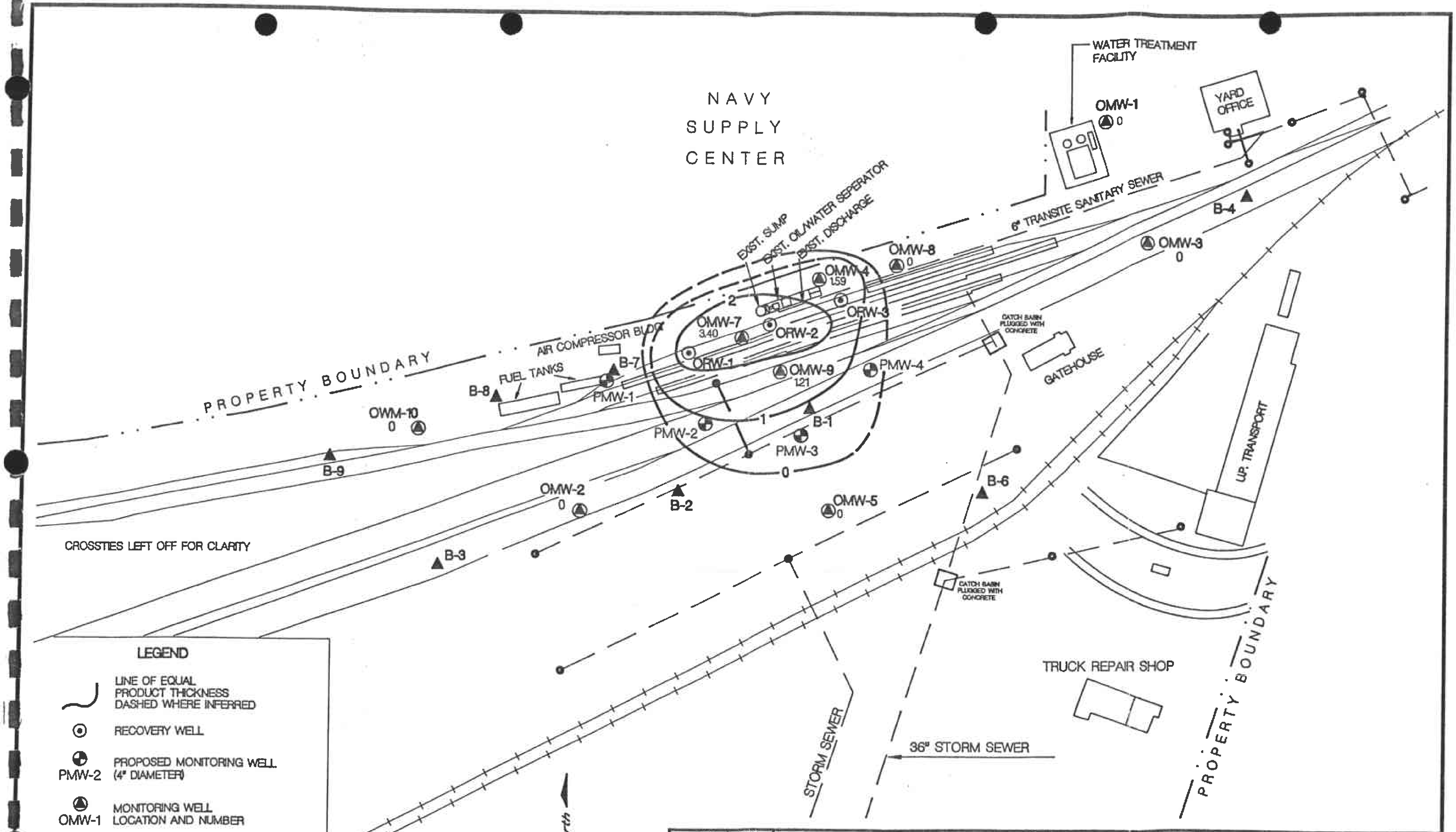
UPRR TOFC RAILYARD - OAKLAND, CALIFORNIA

FIGURE 2
POTENTIOMETRIC SURFACE ELEVATION MAP
FT. ABOVE MSL
(BASED ON 11/13/92 DATA)

SCALE 1" = 120'
DWG. NO. 96199-21



BY	DATE
DRAWN CJJ	12-92
CHECKED SAB	12/92
APPROVED DAM	12/92
APPROVED	
APPROVED	

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UPRR TOFC RAILYARD - OAKLAND, CALIFORNIA

FIGURE 3

PRODUCT THICKNESS MAP

(BASED ON NOVEMBER 13, 1992 DATA)

SCALE 1" = 120'
DWG. NO. 96199-22

At the end of the drawdown portion of the test, the pump in recovery well ORW-2 was turned off, and the recovery portion of the test started. The recovery testing interval ran for approximately six hours. During the recovery period, all wells which were monitored during the pumping period were monitored for recovery to near static levels.

2.2 ANALYSIS OF HYDRAULIC TEST DATA

Data collected during the pump test was analyzed using both the Cooper and Jacob (1946) and Theis (1935) methods. Formation transmissivity and storativity values were estimated using the software package AQTESOLVE (Geraghty & Miller, 1991). This software package provides the option of automatically estimating aquifer properties from aquifer tests with visual curve matching techniques or by non-linear least squares parameter estimation.

Transmissivity is the rate at which water is transmitted through a unit area of an aquifer under a unit hydraulic gradient. Transmissivity values are normally reported in units of length squared (area) per unit time (L^2/t). Storativity is the volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head. Storativity is a dimensionless parameter.

Drawdown data obtained from three observation wells (OMW-3, OMW-7, and OMW-9) was analyzed. As shown on Figure 1, wells OMW-3, OMW-7, and OMW-9 are located approximately 100 feet, 43.5 feet, and 60 feet from the pumping well respectively. Transmissivity values calculated from data obtained from these wells ranged from 73 ft^2/day - 225 ft^2/day. Calculated storativity values ranged from 0.004 - 0.017. Table 1 is provided as a summary of calculated transmissivity and storativity values.

TABLE 1

RESULTS OF AQUIFER TESTING

Well ID	AQUIFER PROPERTIES			
	Cooper and Jacob		Theis	
	T (ft^2/day)	S	T (ft^2/day)	S
OMW-3	105	0.0116	73	0.0171
OMW-7	187	0.004	225	0.0047
OMW-9	173	0.0075	15.8	0.0104

Note: T = Transmissivity
S = Storativity

Determination of transmissivity and storativity values was performed through the AQTESOLVE program using visual curve matching techniques for each well. Data collected from approximately 100 minutes after the pump test began to the end of the pumping period was used in the parameter estimation calculations. The output of the curve matching technique using the AQTESOLVE program is provided as Figures 1 through 6 in Appendix A.

Data obtained within the first 100 minutes of the pump test was not used due to the effects of both the site geology and the free phase hydrocarbon product present during the pump test. The surface formation at the Oakland site consists of stratified sediments containing layers of permeable sand and gravel interspersed with less permeable silt deposits. This type of formation has been known to exhibit a horizontal hydraulic conductivity that is much greater than the vertical hydraulic conductivity. The initial result is an uneven contribution of flow to the well and an increased amount of time required for the drawdown curve to approach its true slope and provide data representative of the formation. In addition, the presence of free phase hydrocarbon product introduces errors associated with the differential migration of the hydrocarbon layer; thereby, producing inaccurate drawdown readings due to density differences between the hydrocarbon layer and water.

With respect to the Oakland site, approximately 100 minutes of pumping was required prior to the drawdown curve approaching a slope which appeared to represent existing aquifer conditions. Analysis of data collected prior to the 100 minute point in the pump test did not appear to properly characterized the hydrogeologic characteristics of the formation.

3. MONITORING WELL GAUGING/SYSTEM PERFORMANCE DATA BASE

The measurement of ground water levels or gauging of site monitoring wells has been completed monthly since system start-up. Gauging of wells consists of collection of depth to product and depth to water measurements. From these measurements the thickness of product and site gradient has been calculated. This data base allows tracking of the system performance, water table drawdown, and product distribution. A map showing the potentiometric surface derived from September, 1992 well gauging data is presented as Figure 2. Product distribution as of September, 1992 is shown on Figure 3.

4. SYSTEM PERFORMANCE\PATHLINE COMPUTER SIMULATION

System performance, as determined by well gaugings and calculations of drawdown for each monitoring well, was used as the basis for the Pathline computer simulation. The pathline computer simulation was written by Shawn Leppert of USPCI as partial completeion of his masters degree from New Mexico Tech. This simulation allows the back-calculation of transmissivity by inputting the drawdown and location for each monitoring well, the water table gradient, gradient direction, and the average system pumping rate. The computer simulation then finds the best fit between the observed drawdowns with drawdowns achieved by various assumed transmissivities. The transmissivity which most closely matches the field data is thought to represent the site hydrologic conditions. This computer simulation determined a transmissivity of 850 feet squared per day (ft^2/day).

5. CALIBRATION OF RESULTS

The values of transmissivity calculated during the analysis of the pump test data ranged from 105 to 220 ft^2/day. These values are consistantly lower than the values calculated from the system performance. Values of transmissivity calculated from the Pathline computer model ranged from 600 to 1000 ft^2/day. For the purpose of system design the higher values of transmissivity were used to provide conservative design parameters.

6. EXISTING CAPTURE ZONES

The capture zones resulting from the three well recovery system pumping at one gallon per minute per well appear to be insufficient to control the hydrologic regime beneath the free product plume. Preliminary calculations of the existing capture zone radius suggest additional wells will need to be installed down gradient from the existing well array to control the hydrology sufficiently to prevent further down gradient migration of the free phase plume. Computer modeling is currently being completed which will provide representative pictures of capture zones for the system as it exists today, and several scenarios for the system with additional recovery wells. The results of this effort will be presented as an Addendum to this report when completed

7. CONCLUSIONS

The following conclusions were drawn from the analysis of the pump test data, the preparation of the Potentiometric Surface Elevation Map, the Product Occurrence Map, and this report.

- o The product distribution and thickness beneath the site is virtually unchanged.
- o The effect of the recovery wells can be observed in the Potentiometric Surface Map. Elsewhere on site, the gradient drops toward the south east at a fairly constant rate.
- o The existing three well recovery system is not completely controlling the hydrologic regime beneath the free product plume.

8. RECOMMENDATIONS

The analysis completed to date of the pump test data suggests the following recommendations for continued remediation of the site. Upon completion of the computer modeling and graphics presentation an addendum to this report will be prepared. The recommendations are:

- o Install additional wells in the areas shown on Figure 3. These wells should be installed as four-inch diameter monitoring wells which, can be used for product recovery if recoverable thickness of product appears in the well and the product recovery rate appears to be sufficient to warrent recovery.
- o Continue the regular monthly gauging and monitoring program.

APPENDIX A

- Cooper-Jacob Method (Figures 1, 3, and 5)
- Theis Method (Figures 2, 4, and 6)

APPENDIX A

- o Cooper-Jacob Method (Figures 1, 3, and 5)
- o Theis Method (Figures 2, 4, and 6)

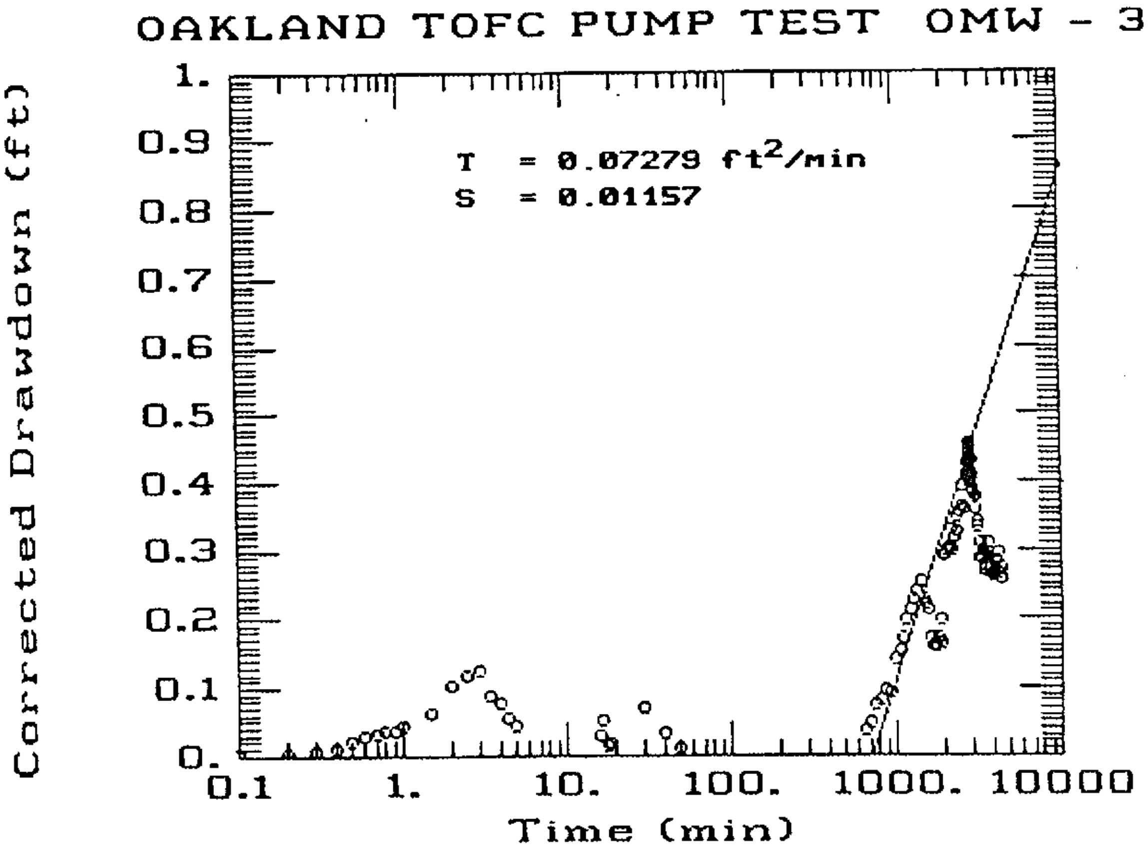
OAKLAND TOFC PUMP TEST OMW - 3
T = 0.07279 ft²/min
S = 0.01157
Corrected Drawdown (ft)
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.1
1.
10.
100.
1000.
10000
Time (min)

Figure 1

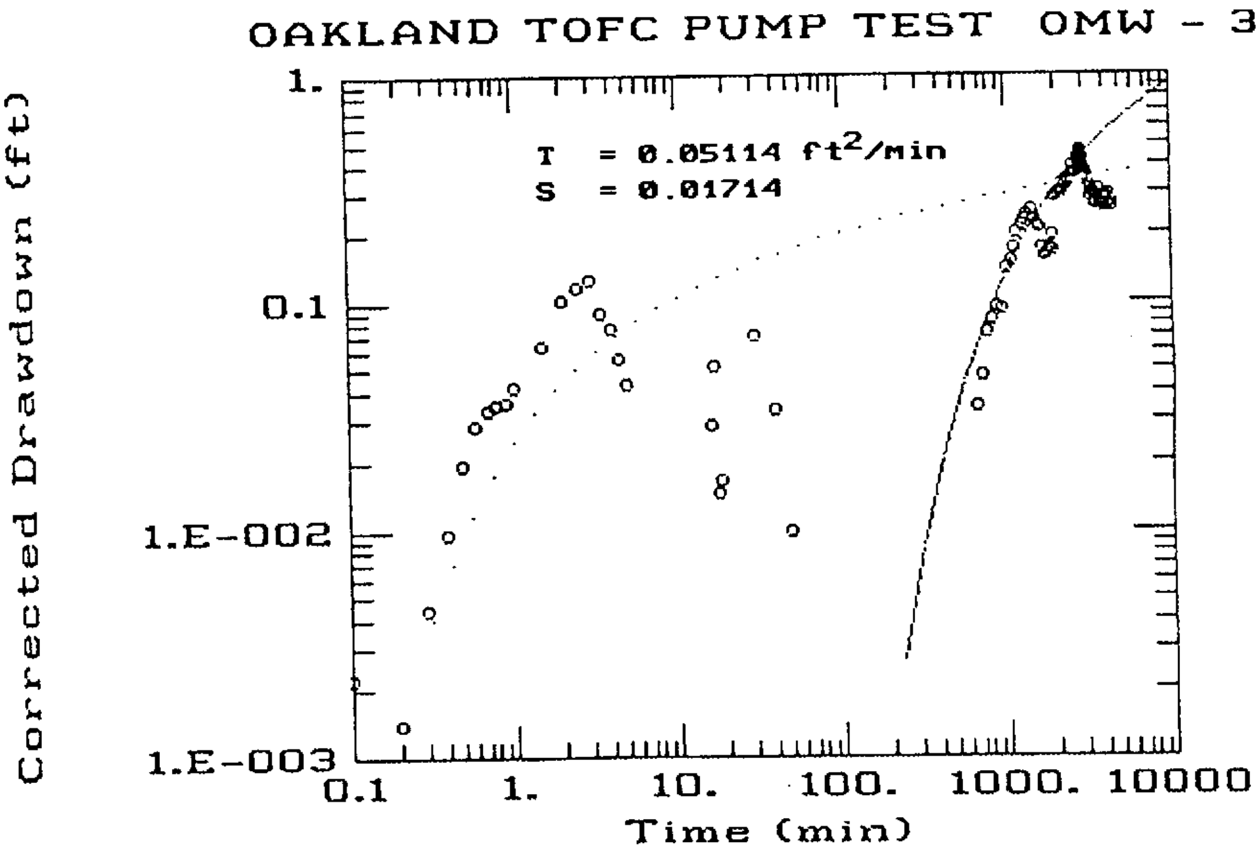
OAKLAND TOFC PUMP TEST OMW - 3
T = 0.05114 ft²/min
S = 0.01714
Corrected Drawdown (ft)
1.
0.1
1.E-002
1.E-003
0.1
1.
10.
100.
1000.
10000
Time (min)

Figure 2

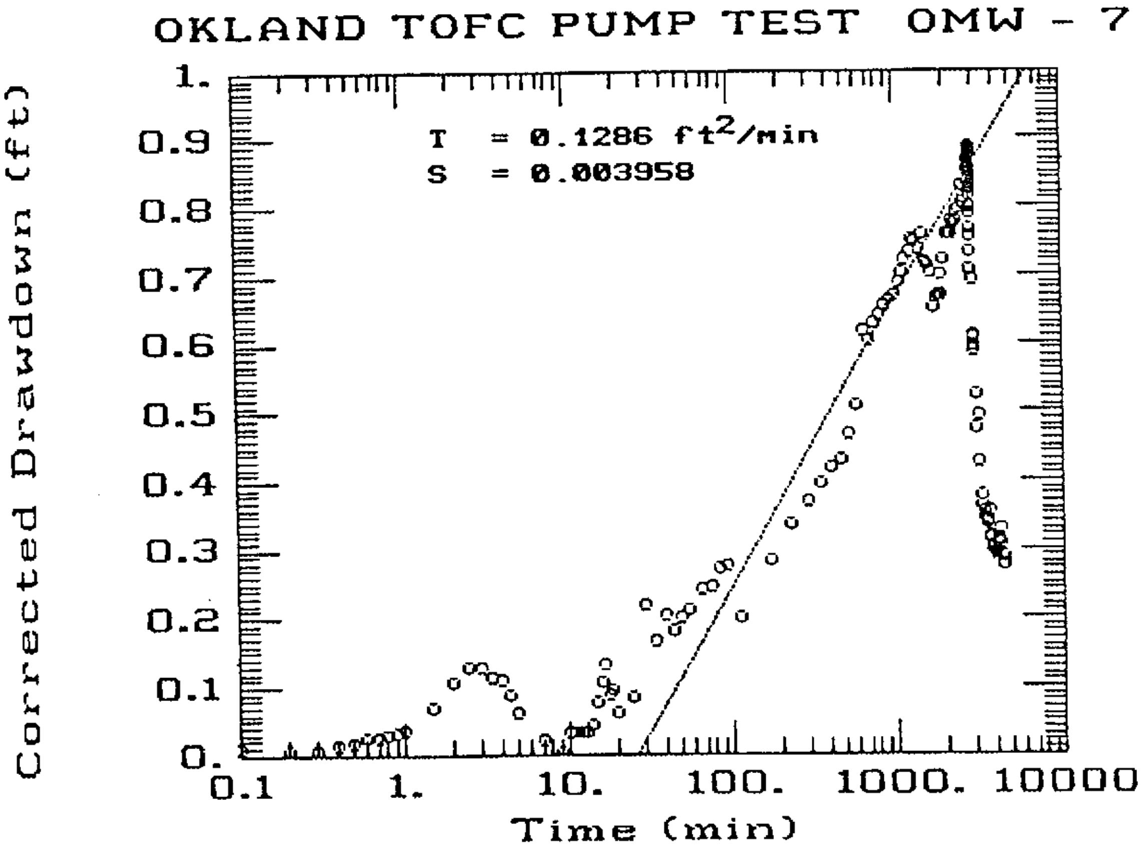
OKLAND TOFC PUMP TEST OMW - 7
T = 0.1286 ft^2/min
S = 0.003958
Corrected Drawdown (ft)
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.1
1.
10.
100.
1000.
10000
Time (min)

Figure 3

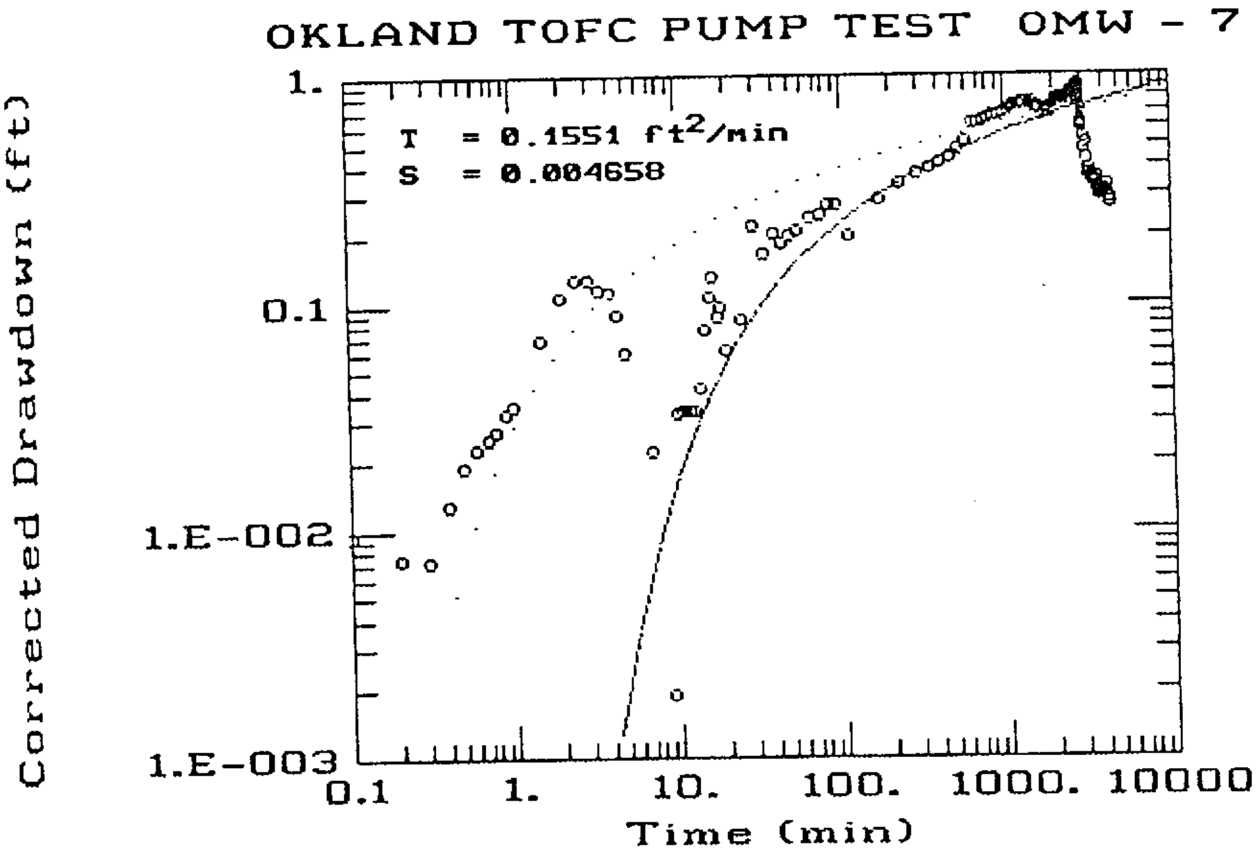
OKLAND TOFC PUMP TEST OMW - 7
T = 0.1551 ft^2/min
S = 0.004658
Corrected Drawdown (ft)
1.
0.1
1.E-002
1.E-003
0.1
1.
10.
100.
1000.
10000
Time (min)

Figure 4

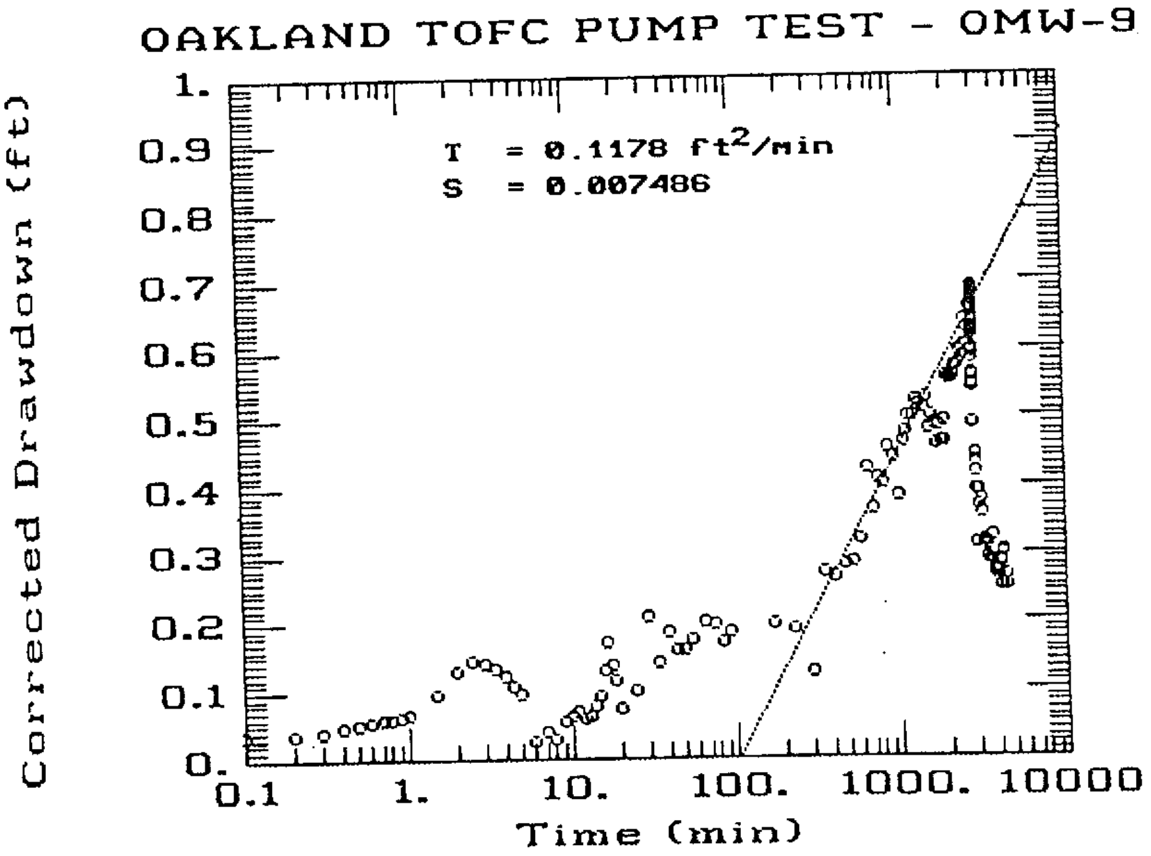
OAKLAND TOFC PUMP TEST - OMW-9
T = 0.1178 ft^2/min
S = 0.007486
Corrected Drawdown (ft)
1.
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.
0.1
1.
10.
100.
1000.
10000
Time (min)

Figure 5

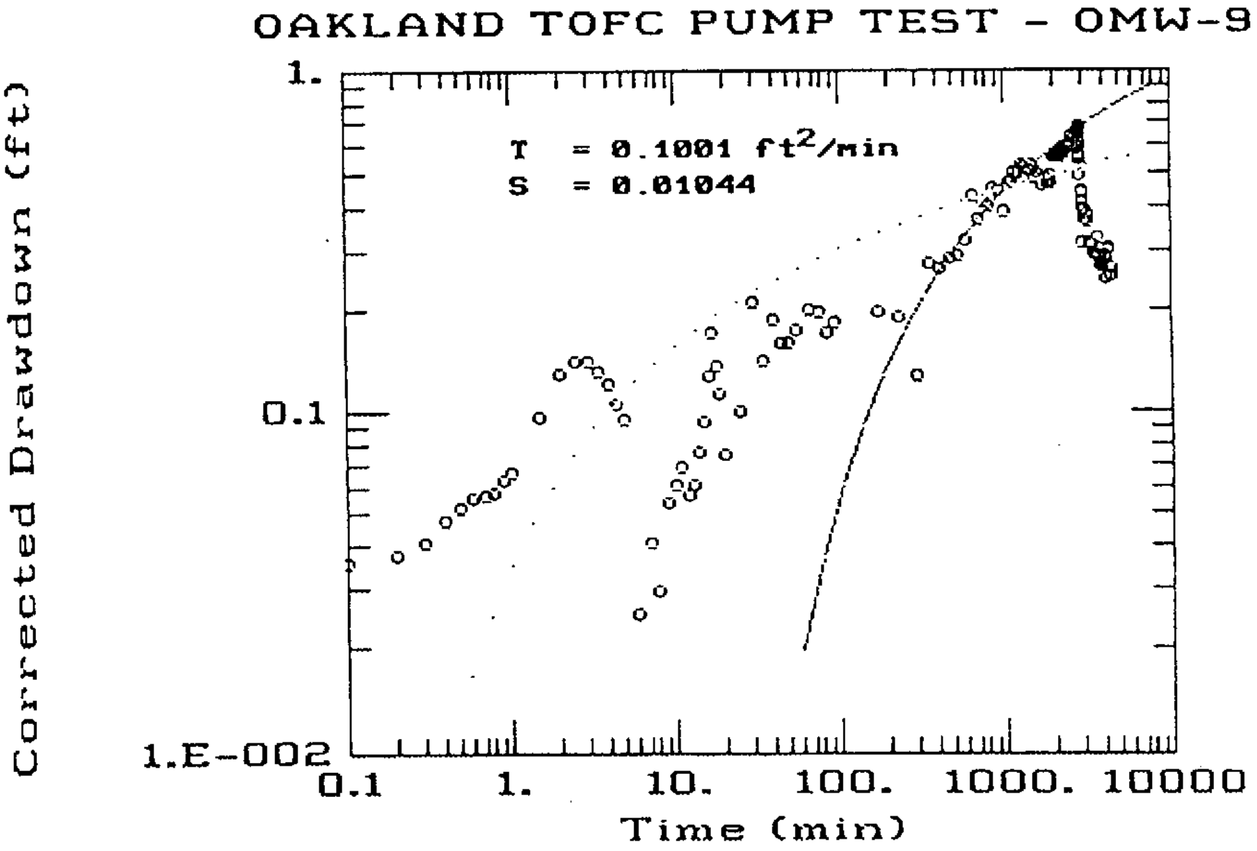
OAKLAND TOFC PUMP TEST - OMW-9
T = 0.1001 ft^2/min
S = 0.01044
1.
0.1
1.E-002
0.1
1.
10.
100.
1000.
10000
Corrected Drawdown (ft)
Time (min)

Figure 6

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HYDROCARBON INVESTIGATION AND REMEDIAL DESIGN AT UNION PACIFIC RAILROAD'S OAKLAND, CALIFORNIA TOFC YARD

June 5, 1991

Prepared For
Union Pacific Railroad
By
USPCI
Job Number 96199

HYDROCARBON INVESTIGATION AND REMEDIAL DESIGN AT UNION PACIFIC RAILROAD'S OAKLAND, CALIFORNIA TOFC YARD

June 5, 1991

Prepared For
Union Pacific Railroad
By
USPCI
Job Number 96199

EXECUTIVE SUMMARY

Union Pacific Railroad's Oakland TOFC (Trailer On Freight Car) Railyard is an active railyard with refueling capabilities located adjacent to the Oakland Estuary. During February, 1991 two incidents were recorded in which diesel oil reached the estuary via storm sewers presumably originating from the refueling area within the railyard. USPCI initiated an investigation of the site designed to recover information necessary to design a remedial system optimally suited for this site.

During the coarse of the investigation it was determined that;

- Groundwater at the site is shallow (2 - 6 feet below ground surface) with a shallow gradient which slopes toward the estuary. During the past few years of drought, groundwater levels may have been lower (6 - 9 feet below ground surface).

- The hydrocarbon contaminate is diesel fuel.

- Hydrocar~~bon (die~~sel) contaminated soil is limited to the area of the fueling rack and fuel storage tanks. USTs ?

- Floating free product on groundwater is limited to the immediate area of the fueling rack.

- The concentration of dissolved hydrocarbon in groundwater is low. TPH values range from non-detect to 3.2 ppm. Low levels of BTXE have been detected below USEPA maximum contaminate levels for drinking water.

- The downgradient limit of the dissolved hydrocarbon plume has been delineated with monitoring wells. The projected 1 ppm TPH boundary is presently 600 hundred feet upgradient of the estuary.

- An active groundwater depression trench, located near the fuel storage tanks, which was installed in the past to prevent groundwater from coming in contact with rail switches has served to recover an indeterminate amount of free diesel product from the groundwater. The active trench will not prevent downgradient migration of dissolved hydrocarbon contaminates in the groundwater.

Based on the above summarized findings USPCI recommends the following remedial action and additional investigation:

- Initiate a program to begin recovery of hydrocarbon contaminated groundwater at the site. The remediation program should be designed to recover free product from the heart of the plume, and prevent further downgradient migration of free and dissolved product toward the Oakland Estuary. The proposed remediation program would initially consist of three recovery wells equipped with total fluids pumps. Groundwater should be discharged to a surface oil/water separator.

- Install two additional monitoring wells to delineate the northern (upgradient) and western limits of the free and dissolved product plumes. And install one additional monitoring well to be used for observation during pumping tests and recovery efforts.

- Conduct hydrologic tests to evaluate aquifer characteristics which may impact the long tern design and operation of a hydrocarbon recovery system.

- Sample select monitoring wells for salinity to assist in determining appropriate cleanup levels for groundwater at the site.

- Prepare an operations and maintenance manual for the groundwater remediation system. Prepare a report summarizing results from the installation of the three additional monitor wells, hydrologic tests, and additional groundwater sampling.

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1.0 INTRODUCTION

This report, prepared by USPCI, was completed at the request of Union Pacific Railroad, (UPRR) on their Oakland, California TOFC (Trailer On Freight Car) Yard. The activities described in this report were completed in accordance with the workplan submitted to UPRR by USPCI on March 2, 1990. The workplan was designed to evaluate the extent and distribution of petroleum hydrocarbon contamination, while providing an assessment of the shallow aquifer characteristics. The investigation concentrated on the locomotive fueling facility located in the northern portion of the site. The collection and analysis of this data is required for the optimal design of a remedial action plan.

The Oakland TOFC Yard is located at 1717 Middle Harbor Road in Oakland California. UPRR operations at this facility consist of loading and unloading over-the-road trailers on flatcars (TOFC) for rail transport. The facility also includes a small re-fueling rack for diesel locomotives. The site is bounded on the south and west by the Oakland Estuary and on the north by the Navy Supply Center (see Figure 1).

The hydrocarbon investigation involved the completion of 17 soil borings, eight of which were completed as shallow monitoring wells. The subsurface investigation was concentrated in the area of the re-fueling racks located adjacent to the Navy Supply Center (See Figure 2). Through the collection and analysis of soil and water samples from the soil borings and monitoring wells, free phase and dissolved hydrocarbon plumes were identified and partially delineated beneath the site.

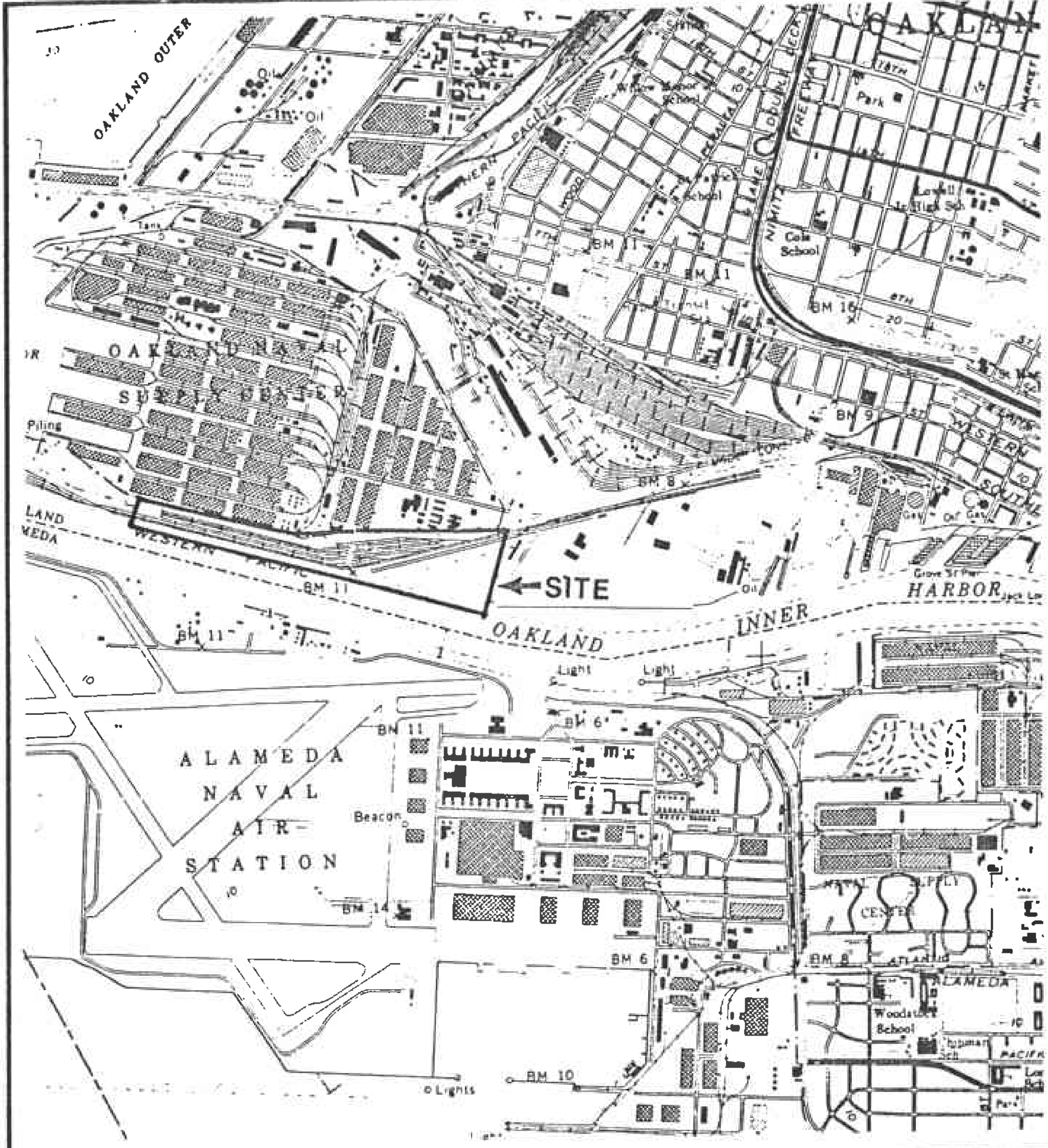

FIGURE 1

N

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Union Pacific Corporation

OAKLAND WEST, CA

USGS 7 1/2 MINUTE QUAD
1959 PHOTOREVISED 1980

SCALE: 1"=24000'	APPROVED/DATE

2.0 SITE HISTORY

This investigation was requested after two incidents on February 4 and February 7, 1991 at the Oakland Yard. Both incidents were observed by the U. S. Coast Guard as releases of diesel/oil to the Oakland Estuary. The original incident may have been the result of overland flow from the railyard to the estuary. The second incident was caused by storm sewer clean-out operations.

The UPRR took immediate actions to contain and cleanup the releases as well as to prevent additional releases to the Oakland Estuary. Initial observations at the railyard revealed diesel product in two catch basins feeding a storm sewer that empties into the estuary at the point of release. This source along with possible overland flow from the drip pans (spill containment devices in the refueling area) during a storm event of the previous week, appeared to have caused the original release.

The storm sewers were cleaned out and the sewer that was the source of the release was plugged with concrete at the two catch basins and at its out-fall to the estuary. The upstream end of this sewer ends in the refueling area, beneath the refueling rack. The sewer was observed to have holes and perforations allowing the possible influx of diesel from beneath the refueling area. The sewer abandonment completed by UPRR should prevent any future repeat of the diesel release.

3.0 SITE INVESTIGATION

Since the suspected source of the diesel fuel release to the estuary is the locomotive refueling facility, USPCI recommended the following tasks be completed in the area of the refueling facility to define the nature and extent of soil and groundwater contamination. Results of the investigation would be used in the design and implementation of a remedial action plan.

- Drilling of 17 soil borings to delineate the extent of hydrocarbon contamination in subsurface soils. This included the screening of soils encountered for organic vapors with an organic vapor monitor (OVM).

- Installation of 8 groundwater monitoring wells in selected borings to define the groundwater environment and evaluate the extent of free and dissolved product contamination.

- Collection of soil and groundwater samples from all borings and wells as appropriate. Analysis of all samples by a certified laboratory for Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Xylene, and Ethyl-benzene (BTXE) employing EPA methods 8015 and 8020.

- Review, interpretation and presentation of data collected in an interim report (presented here).

Field activities completed as part of this investigation were conducted between April 4 and April 8, 1991. Details of the methods used during drilling, installation of monitor wells, and collection of soil and groundwater samples are reviewed in Appendix A. Boring logs and well completion forms are included in Appendix B. Copies of original laboratory reports are included in Appendix C.

4.0 SITE GEOLOGY

The stratigraphy underlying the site consists of surficial fill of variable thickness and composition, overlying a sequence of naturally deposited bay sediments. The fill material generally consists of either asphalt with a sandy sub-grade base (1 to 3.5 ft thick), or railroad ballast with a clastic sub-grade base (2.5 to 4.5 ft thick). In some instances an additional fill layer can be distinguished between the surficial fill layer and the natural sediments. This unit is distinguished by the presence of brick fragments as in boring B-4.

The natural bay sediments underlying the fill appear to be laterally continuous and fairly homogeneous. Layers of different lithology were distinguished on the basis of silt content and degree of sorting (see cross sections Figures 3A, 3B). Lithologies range from silty sand of variable grain size to fairly clean sand of a uniform grain size. The sand units extend from the fill contact, usually 4 to 5 feet BGS, to a depth of 12 feet to greater than 15 feet. The sands represent the uppermost unit of the natural bay sediments, and are completely saturated with groundwater.

A basal silty/clayey unit was encountered beneath the sand in two of the monitoring well borings (OMW-2, and OMW-3). Because of the fine grained nature of this basal unit, it may act to retard vertical migration of groundwater in the vicinity of the railyard.

5.0 SITE HYDROLOGY

5 7

Groundwater was typically encountered during drilling at depths ranging from 3 to 7 feet below the ground surface (BGS). Groundwater generally appears to be unconfined, with little difference between the depths at which water was first encountered during drilling and the subsequent static water level recorded in the monitoring well. Groundwater was observed near or below the contact between the poorly sorted sandy bay material and the fill or asphalt sub-grade.

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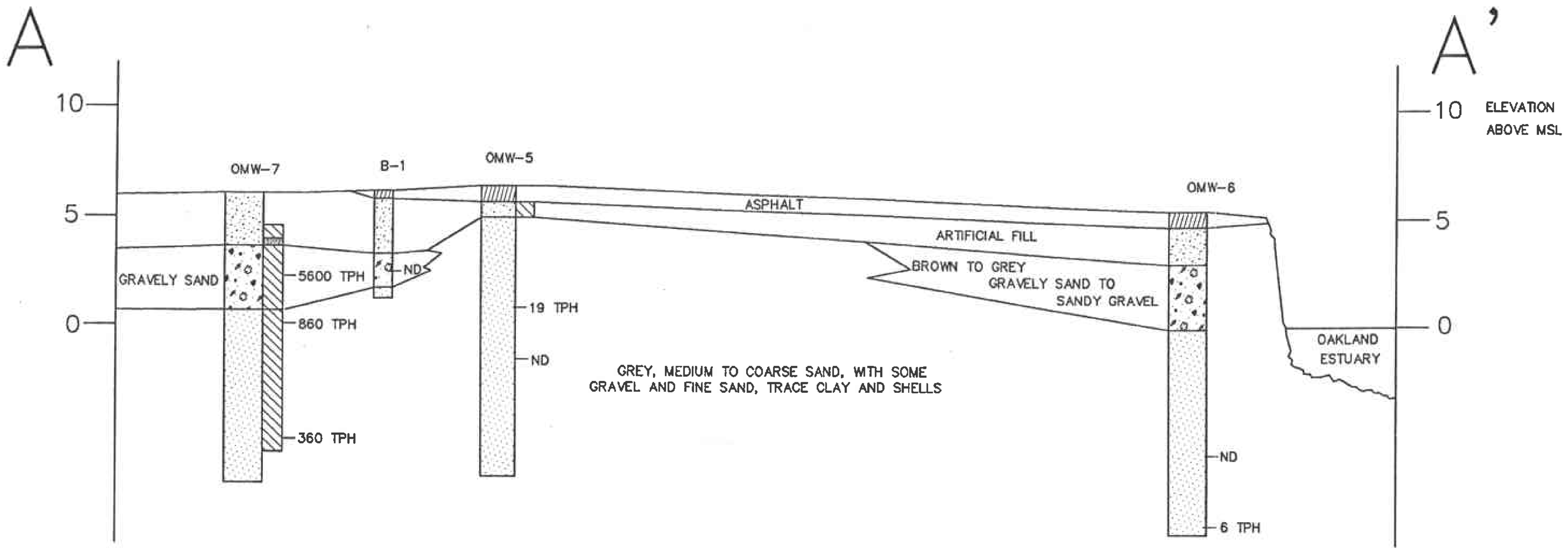

FIGURE 3A
GEOLOGIC CROSS SECTION A-A'

UPRR
OAKLAND TOFC YARD

▨ DIESEL ODOR
▤ FREE PRODUCT

VERTICAL SCALE 1" = 5'
HORIZONTAL SCALE 1" = 100'
TPH IN PPM

DWG NO:	SIGNED	DATE
96199-06		

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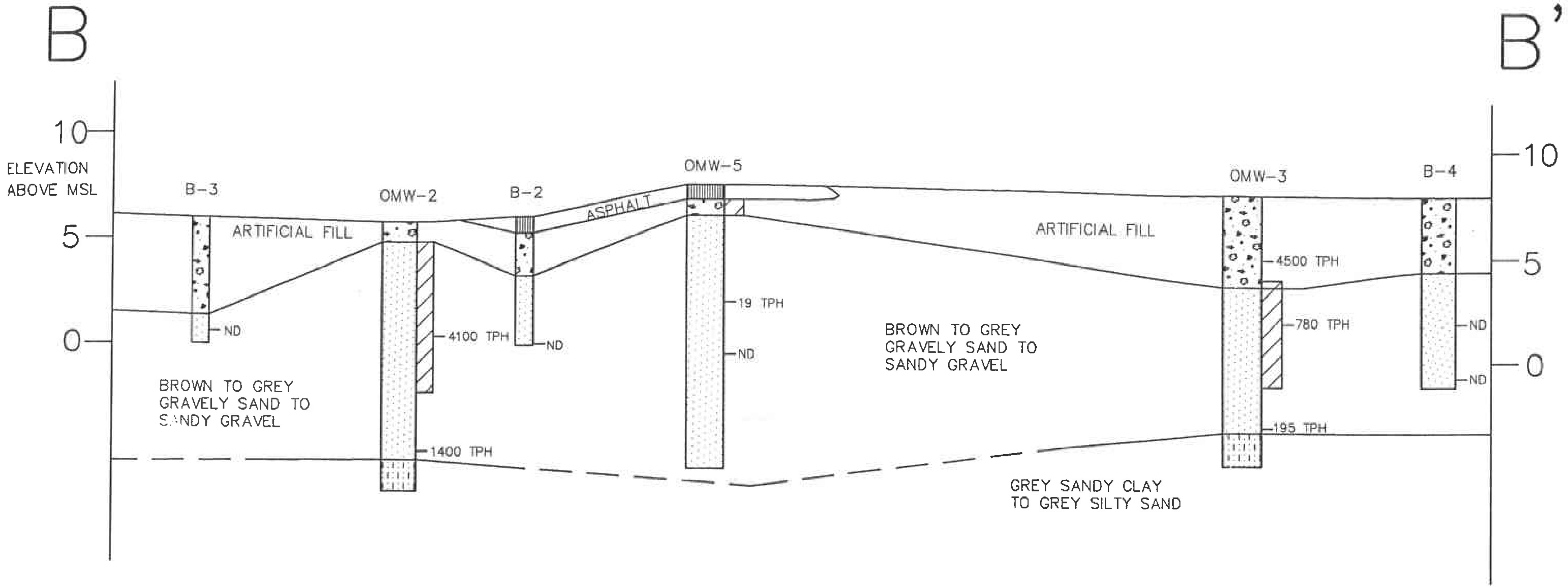


FIGURE 3B
GEOLOGIC CROSS SECTION B-B'

UPRR
OAKLAND TOFC YARD

▨ ← DIESEL ODOR
▤ ← FREE PRODUCT

VERTICAL SCALE 1" = 5'
HORIZONTAL SCALE 1" = 100'
TPH IN PPM

DWG NO:	SIGNED	DATE
96199-05		

Depth to groundwater as measured in the monitoring wells is summarized in Table 1. The local groundwater gradient dips gently to the south towards the Oakland Estuary. A groundwater potentiometric surface map based on water levels recorded on April 9, 1991 is presented in Figure 2.

The UPRR Oakland Railyard is immediately adjacent to the Oakland Estuary, which is located in the northern portion of the San Francisco Bay. The close proximity of the Estuary to the site suggests a direct hydrologic connection may exist between the Estuary and groundwater beneath the site. Tidal influences from the Estuary may influence water levels in monitor wells at the railyard and impact future remediation efforts. Previous studies in the San Francisco Bay Area, however, suggests that tidal influences are generally minimal and are only detectable in monitor wells in very close proximity to the bay (less than 100 to 200 feet). The actual degree of influence is dependent on individual site characteristics. The magnitude of the tidal influence on groundwater at the Oakland TOFC Yard should be investigated to determine its impact on groundwater remediation.

6.0 HYDROCARBON CONTAMINATION

6.1 Soil Results

Soil samples were collected and analyzed from each soil boring and monitoring well installed on site. These samples were analyzed for TPH and BTXE using EPA methods 8015 and 8020. Analyses were completed by Superior Analytical Laboratories of Martinez, California. Laboratory results for soils are summarized in Table 2. Copies of original laboratory reports are included in Appendix C.

Total hydrocarbon concentrations in the soil ranged from a high of 13,000 ppm TPH (B-8) in the vicinity of the re-fueling facility, to non-detect (method detection limit of 0.05 ppm) for soil samples from outlying areas of the site. Low levels of BTXE contamination in soils were also detected in soil samples which had corresponding elevated TPH concentrations. Total

TABLE 1

WELL GAUGING DATA
UNION PACIFIC RAILYARD
OAKLAND, CALIFORNIA
APRIL, 1991

WELL NO.	DATE	WELL HEAD ELEVATION	DEPTH TO PRODUCT	DEPTH TO WATER	WATER LEVEL ELEVATION	PRODUCT THICKNESS	CORRECTED GROUND WATER SURFACE *
OMW-1	4/9/91	8.79		5.54	3.25		3.25
OMW-2	4/9/91	5.88		2.10	3.78		3.78
OMW-3	4/9/91	7.16		3.93	3.23		3.23
OMW-4	4/9/91	7.41	3.79	6.23	1.18	2.44	3.23
OMW-5	4/9/91	7.62		4.64	2.98		2.98
OMW-6	4/9/91	5.78		7.60	-1.82		-1.82
OMW-7	4/9/91	7.03	3.26	7.48	-0.45	4.22	3.09
OMW-8	4/9/91	7.52		4.25	3.27		3.27

* CORRECTED GROUNDWATER SURFACE ASSUMES DENSITY OF 0.84 g/cm3

TABLE 2

ANALYTICAL RESULTS OF SOIL SAMPLES FROM SOIL BORINGS AT OAKLAND TOFC YARD

April 4-8, 1991 (Collection Date)

BORING #	MATRIX DEPTH	TPH	B	T	X	E
OMW-1	SOIL 5.5'	ND	NA	NA	NA	NA
	SOIL 7'	ND	NA	NA	NA	NA
	SOIL 11'	ND	NA	NA	NA	NA
OMW-2	SOIL 5.5'	4100	.008	.026	.048	.310
	SOIL 11'	1400	NA	NA	NA	NA
OMW-3	SOIL 3'	4500	NA	NA	NA	NA
	SOIL 6'	780	NA	NA	NA	NA
	SOIL 11'	195	NA	NA	NA	NA
OMW-4	SOIL 3'	9600	ND	.310	.860	5.300
	SOIL 6'	ND	NA	NA	NA	NA
	SOIL 11'	ND	NA	NA	NA	NA
OMW-5	SOIL 5.5'	19	NA	NA	NA	NA
	SOIL 8'	ND	NA	NA	NA	NA
OMW-6	SOIL 11'	ND	.0033	.005	ND	ND
	SOIL 14.5'	6+	NA	NA	NA	NA
OMW-7	SOIL 3.5'	5600	.086	.150	.290	1.400
	SOIL 6'	860	.025	.019	.025	.075
	SOIL 11'	360	NA	NA	NA	NA
OMW-8	SOIL 5.5'	ND	ND	.004	.004	.011
	SOIL 11'	ND	NA	NA	NA	NA

Detection Limits TPH (EPA Method 8015) 0.05 mg/l
BTXE (EPA Method 8020) 0.0003 mg/l

ND = Below the Limit of Detection
NA = Not Analized

TABLE 2 (CONTINUED)
ANALYTICAL RESULTS OF SOIL SAMPLES
FROM SOIL BORINGS AT OAKLAND TOFC YARD
April 4-8, 1991 (Collection Date)

BORING #	MATRIX DEPTH	TPH	B	T	X	E
B-1	SOIL 3.5'	ND	NA	NA	NA	NA
B-2	SOIL 6'	ND	NA	NA	NA	NA
B-3	SOIL 5.5'	ND	NA	NA	NA	NA
B-4	SOIL 6'	ND	NA	NA	NA	NA
	SOIL 9'	ND	NA	NA	NA	NA
B-5	SOIL 4.5'	ND	NA	NA	NA	NA
B-6	SOIL 3.5'	ND	NA	NA	NA	NA
B-7	SOIL 3.5'	8,900	0.095	.390	.530	2.700
B-8	SOIL 4'	13,000	.280	.720	1.400	6.200
B-9	SOIL 5'	ND	NA	NA	NA	NA

Detection Limits TPH (EPA Method 8015) 0.05 mg/l
BTXE (EPA Method 8020) 0.0003 mg/l

ND = Below the Limit of Detection
NA = Not Analized

BTXE contamination ranged from a high of 8.6 ppm (B-8) to non-detect (method detection limit of 0.0003 ppm) in the majority of samples. The hydrocarbon contamination of soil is concentrated in the immediate vicinity of the re-fueling rack and fuel storage tanks located to the west of the racks (OMW-7, 4, 3, 2 and B-7, 8).

Evidence from field observation and laboratory analysis suggests the dominate hydrocarbon contaminate is diesel fuel. The refueling rack and associated storage tanks are considered the most likely source of the contamination. Contamination of soil extends the entire length of the fueling rack and fuel storage tanks, and to the south of the rack approximately 200 feet (OMW-2, 3, 7). Hydrocarbon impacted soils also underlie the active rails in the vicinity of the fueling facility.

The lithologic units affected by the contamination along the northern edge of the fueling rack area include artificial fill and the natural bay sediments down to a depth of approximately 4.5 feet (OMW-4). This depth roughly corresponds to the depth of groundwater in this area. The natural groundwater gradient to the south has probably served to inhibit northward migration of hydrocarbon. An additional up-gradient well located on adjacent Naval Supply Center property is required to confirm this assumption.

South of the fueling rack, soils contamination has extend to lower lithologies. As seen in soil samples from OMW-2, a TPH concentration of 1,400 ppm was measured in fine to coarse sand at a depth of 11 feet below the ground surface (9 feet below present day water level). The contamination of soil below the present groundwater surface is problematic and may be the result of two different factors.

o During the previous few years, severe drought conditions existed in the San Francisco Bay area and the groundwater surface beneath the railyard may have been lower. Product may have migrated downward into lower sediments during this period of time.

- Depression of the groundwater surface as the result of a significant hydrocarbon release, could also result in contamination of normally groundwater saturated sediments.

6.2 Groundwater Results

Groundwater samples were collected and analyzed for TPH and BTXE from the eight wells located on site. The analyses were completed by Superior Analytical Laboratories of Martinez, California, using EPA method 8015 and 8020. Sampling procedures are presented in detail in the field methods section located in Appendix A. Results of groundwater analysis are presented in Table 3, copies of original laboratory reports are included in Appendix C.

Free diesel product was detected on top of groundwater in two monitor wells completed at the site (OMW-4, 2.44 feet and OMW-7, 4.22 feet, Table 1). Both wells are located immediately adjacent to the fueling rack. None of the other monitoring wells contained detectable free product. Figure 4 is a map showing the distribution of free product in the fueling area.

Sufficient data exists to define the extent of free product on top of groundwater to the south (downgradient) and east of the fueling area. Additional information is required to further define the free product plume to the north (upgradient) and to the west of the fueling area. USPCI recommends that three additional monitor wells be completed at the locations shown on Figure 5.

Laboratory results indicate low levels of dissolved contaminates in groundwater from monitoring wells that did not contain free product. The maximum TPH concentration detected in groundwater was 3.2 ppm (OMW-2, method detection limit of 0.05 ppm). Dissolved BTEX contamination was also low, indicative of diesel fuel contamination. Maximum total BTEX was

TABLE 3

ANALYTICAL RESULTS OF WATER SAMPLES FROM MONITORING WELLS AT OAKLAND TOFC YARD

April 8, 1991 (Collection Date)

WELL #	SAMPLE	TPH mg/l	B	T	X	E
			---------------	----mg/l--	----------	
OMW-1	WATER	0.06	ND	ND	ND	ND
OMW-2	WATER	3.2	ND	ND	.0012	.0067
OMW-3	WATER	1.4	.0004	.0005	.0056	.026
OMW-4	WATER	FREE PRODUCT		WELL NOT SAMPLED		
OMW-5	WATER	ND	ND	ND	ND	ND
OMW-6	WATER	0.08	ND	.0004	ND	.0005
OMW-7	WATER	FREE PRODUCT		WELL NOT SAMPLED		
OMW-8	WATER	0.05	ND	ND	ND	ND

Detection Limits TPH (EPA Method 8015) 0.05 mg/l
BTXE (EPA Method 8020) .0003 mg/l

0.041 ppm (OMW-3, method detection limit of 0.0003 ppm). Benzene was detected below drinking water standards (0.001 ppm) in only one groundwater sample (OMW-3, 0.0004 ppm).

The distribution of dissolved groundwater contamination is shown in Figure 4. The downgradient extent of groundwater contamination is well defined. Using an action level of 1.0 ppm, the dissolved hydrocarbon plume is confined to the area immediately surrounding the fueling area. In particular the southern (downgradient) and eastern edge of the plume appears to be well defined. Installation of two additional monitor wells discussed previously are recommended to define the northern (upgradient) and western limits of the dissolved hydrocarbon plume.

Measurements of conductivity taken during groundwater sampling indicate potentially brackish water quality. In all but one monitoring well, measured conductivities exceeded the limit of the conductivity meter (1,999 umho/cm). Groundwater salinity will have an impact on defining site remediation goals. Additional groundwater analysis for salinity (Total Dissolved Solids, cations, anions, etc) is warranted.

6.3 Operating Groundwater Recovery System

An operating groundwater recovery system (french drain) exists just west of the fueling facility. The system is designed to depress the groundwater surface and prevent water damage to rail switches and has been in operation for several years. The design and operational characteristics of the recovery system are poorly documented. The trench is approximately 60 feet long with a perforated drainage pipe at approximately 1.5 feet below ground surface.

The recovery system was not designed to recover free product, but does discharge to an oil/water separator. The amount of oil which may have been recovered to date by the system is not known. Because of the shallow nature of the french drain, the system will only recover groundwater (and associated free product) at times when the watertable is unusually high.

7.0 CONCLUSIONS

Data collected and analyzed to date has provided the following insights into site hydrogeology and subsurface hydrocarbon contamination.

- The hydrocarbon contaminant in groundwater and soil is primarily diesel fuel.

- **The source of hydrocarbon product is probably the re-fueling facility.**

- Groundwater is encountered at an elevation of 0 to 4 feet above mean sea level. The groundwater gradient slopes southward toward the Oakland Estuary.

- Free hydrocarbon product on groundwater is limited to the area immediately surrounding the train re-fueling rack.

- Dissolved hydrocarbon contamination in groundwater is low and is limited to the vicinity of the re-fueling rack and the area immediately downgradient.

- The downgradient boundary of the dissolved contaminate plume (1ppm TPH) is adequately defined and is approximately 600 feet north of the Oakland Estuary

- **The release of diesel fuel to the Oakland Estuary appears to have resulted from a leaking storm sewer extending beneath the fueling facility.** The release of diesel fuel to the Oakland Estuary was not the result of product migration through subsurface soils to the bay.

where did the diesel come from?
leaking UST? pipe?

8.0 RECOMMENDATIONS

The following activities should be conducted to further define the extent of groundwater contamination and initiate groundwater remediation at the site.

- Complete the final design, permitting, and installation of three recovery wells to depress the groundwater surface and recover free product. The wells should be installed near the center of the free product plume, equipped with total fluids airlift pumps, and discharge to an on-site oil water separator.
- Install two additional monitoring wells to define the northern (upgradient) and western extent of the free product and dissolved contaminate plumes and install one close in (downgradient) observation well to be used in future hydrologic tests and system operations.
- Sample and analyze water from select monitoring wells to determine groundwater salinity and evaluate appropriate cleanup levels for dissolved hydrocarbons in groundwater.
- Complete hydrologic tests to determine aquifer characteristics which will impact the operation and modification of the recovery system.
- Evaluate the influence of tidal fluctuations in the Oakland Estuary on groundwater levels in monitoring wells and proposed remediation activities at the railyard.

The implementation of a groundwater remediation system to recover free product and the collection of additional data should be initiated concurrently. Modification to the recovery system should be made as additional data is provided from the ongoing investigation.

9.0 REMEDIAL ACTION PLAN

A remedial action plan is recommended to begin the recovery of free product and impacted groundwater concurrently with the continuation of investigative and evaluation efforts. The recovery system should focus on the heart of the plume area to maximize free product recovery and prevent the migration of free and dissolved product toward the Oakland Estuary. Contemporaneous with installation of the system, additional monitoring wells are recommended to further delineate the western and northern (upgradient) limits of the free and dissolved product plumes. Hydrologic pumping tests should be performed to evaluate aquifer characteristics which impact the long term operation and performance of the recovery system. Additional sampling of monitor wells for groundwater salinity is necessary to determine appropriate cleanup goals for groundwater at the railyard.

The impact of the initial recovery system on the groundwater environment should be evaluated to assure capture and remediation of the entire free and dissolved hydrocarbon plume. It may be necessary after further delineation of the plume area and additional site investigation to modify the recovery system (additional wells, french drains, etc.) to maximize performance.

9.1 Alternative Analysis

Two remedial alternatives to initiate free product recovery at the site were evaluated. Remedial Option 1 consists of three recovery wells located within the refueling area in the heart of the free product plume. Remedial Option 2 consists of a french drain recovery system located on the south side of the fueling area, just downgradient of the heart of the free product plume. Because an oil/water separator exists adjacent to the fueling area, both systems employed total fluids pumps to recover free product and groundwater. The recovered fluids will be discharged to the existing water treatment system consisting of surge tank, oil/water separator, oil storage tank, and discharge piping. It is assumed that the modifications to the existing discharge permit issued by the East Bay Municipal Utility District will be obtained. The advantage and disadvantages of each system are considered in the following discussion.

Remedial Option One
Three Well Recovery System
Spacing between wells: 100 ft.
Depth of wells: 15 ft.

Advantages:

- Easy and quick to install. Can be installed in the heart of the plume to maximize initial free product recovery.
- Can be installed with minimum disturbance to ongoing railyard activities.
- Construction does not result in substantial volume of hydrocarbon contaminated soil requiring off-site disposal or treatment.
- System can be expanded or modified in the future to enhance performance and accelerate groundwater remediation.

Disadvantages:

- Because of multiple pumps, the system is operationally more complex than comparable french drain system, resulting in potentially higher operations and maintenance costs.
- Well spacing must be carefully evaluated to assure free and dissolved product does not migrate downgradient past the recovery system. Rapid installation requires the use of assumed hydraulic conductivities and other aquifer characteristics in design of the recovery system.

Remedial Option Two

French Drain Recovery System

Design criteria: 400 ft. long

Depth: 10 ft.

Advantages:

- o Single pump operation results in potentially reduced operational and maintenance costs.
- o Continuous nature of trench results in positive barrier to free and dissolved product migration. May result in more rapid remediation of contaminated groundwater.

Disadvantages:

- o Can not be installed in the heart of the free product plume without substantial disruption to ongoing railyard operations.
- o Results in substantial volume of hydrocarbon contaminated soil requiring off-site treatment or disposal.
- o Not as flexible as recovery well approach to remediation. Expansion and modification of system more difficult.

The immediate goal of this segment of the remedial action plan is to initiate free product recovery in the heart of the free product plume. The installation of a recovery well system is recommended instead of a french drain because it will accomplish this goal in a timely fashion, while minimizing the impact on railyard operations. The flexibility of a recovery well system also allows modification to the system (additional recovery wells, changes in well spacing, etc.) in the future as data is collected to enhance product and groundwater control.

9.2 System Design

Three recovery wells are proposed for installation at the locations shown on Figure 5. The wells will be approximately 100 feet apart and located within the fueling area in the heart of the free product plume. Each well will be constructed from 6 inch PVC casing to a depth of approximately 15 feet, 10 feet below the present groundwater surface. Factory slotted well screen (0.010 inch slot) will be installed in each well from total depth to approximately 3 feet below ground surface. A washed silica sand pack will be placed between the screen and the borehole annulus. The sand pack will extend to above the top of the screened casing. A 6 inch bentonite pellet seal will be placed above the sand pack and the well completed to the surface with a cement-bentonite slurry. The wells will be completed at the surface with a traffic rated grade level well cover

Each well will be equipped with an air displacement total fluids, pump. Well head controllers will be located within the grade level well cover at the top of each well. Groundwater from each well will be discharged to an on-site oil/water separator located adjacent to the fueling area (Figure 5). The entire system will be pneumatically operated and intrinsically explosion proof. Air for the pumps will be supplied by the existing air system at the railyard.

Water and oil produced by the system will be pumped to a surge tank at the existing railyard water treatment system. Major system components include an auto skimmer and oil/water separator. Recovered product will be stored in an oil storage tank for recycling. Water will be discharged to the East Bay Municipal Utility District sanitary sewer system under a modification of permit # 233-90851. In the event a modification of permit #233-90851 can not be obtained, other options such as an NPDES permit will be pursued. All other applicable permits will be obtained as necessary.

9.3 Continuing Investigation

Supplemental investigation efforts include the installation of additional monitoring wells as shown on Figure 5. These wells, combined with existing monitoring wells, should complete the delineation of the phase separated and dissolved product plumes. The wells will allow an assessment of the effect the recovery system has on the aquifer. Additional recovery wells will be recommended as required. Water quality and use information will be gathered to support evaluation of appropriate clean up targets.

FIELD METHODS

Drilling and Soil Sampling

All borings were advanced under the technical supervision of a USPCI geologist or hydrogeologist. The on-site geologist was present at all times during drilling to: 1) technically supervise the drilling subcontractor; 2) maintain a continuous log of materials penetrated by the borehole; 3) obtain and document soil samples; 4) test soil samples, drill cuttings, and atmospheric conditions with an organic vapor analyzer (OVA); and 5) oversee implementation of USPCI's Health and Safety Plan.

Soil borings were completed using a truck-mounted drilling rig equipped with 8-inch and 10-inch diameter hollow-stem augers. This drilling method was performed without the introduction of drilling fluids and allowed for the collection of relatively undisturbed soil samples through the hollow stem of the auger.

During drilling, soil samples were obtained using a split spoon sampler lowered through the hollow stem of the auger and advanced along with the auger to the desired depth. This method allowed for monitoring of soils penetrated during drilling. After retrieving the sampler, soils were screened in the field for organic vapor emissions using an Organic Vapor Analyzer (OVA). The OVA was also used to monitor organic vapor emissions from drill cuttings during drilling. Organic vapor measurements were recorded on the boring logs.

Soil samples collected for possible chemical analysis were placed in 8-ounce glass sample jars. The sample jars were equipped with teflon lined lids and were supplied by the analytical laboratory. Labels were attached to each sample and will include the following information: 1) boring number; 2) sample number; 3) date and time; 4) collectors name; 5) owner; and 6) location. Appropriately sealed and labeled samples were stored in ice chests cooled with dry or blue ice. Chain of custody records were maintained during the sampling program and transmitted to the laboratory with the samples. Samples were delivered to the laboratory by direct delivery or overnight courier, whichever is most convenient.

Prior to initiating each boring, the downhole equipment, including auger sections and sampling equipment, was thoroughly steam cleaned. The core barrel sampling equipment was either steam cleaned or carefully washed in a dilute trisodium phosphate (TSP) solution and rinsed in de-ionized water before retrieving each sample.

Monitoring Well Installation and Sampling

Eight of the soil borings were completed as groundwater monitoring wells. The monitoring well locations are displayed on Figure 2.

The monitoring wells were completed to a depth of 13 to 15 feet. Wells were installed through the hollow stem of the auger. All wells were constructed from threaded, 2-inch schedule 40 PVC casing. Factory slotted 0.010 inch well screen was installed from a depth of approximately 3 feet below ground surface to total depth. The upper 3 feet of the monitoring well was completed with blank casing.

The annular space between the well screen and borehole was filled with pre-washed silica sand to a position approximately one foot above the top of the well screen to form a filter pack. A bentonite seal was then placed above the filter pack. The remainder of the borehole was then back-filled to the ground surface with a cement-bentonite slurry. A locking cap and protective cover was installed over the well head and finished slightly above grade to limit ponding of water around the well head.

The wells were developed using the surge and bail technique. Measurements of the Ph and conductivity of the produced water was taken at regular intervals during development, and development proceeded until these parameters stabilize and produced water is relatively free of sediment.

Groundwater Sampling

During sampling of monitor wells for water quality, extreme care was taken to prevent cross contamination between wells or introduction of surface contamination into the well environment. All sampling equipment was decontaminated before use on each well, or should be disposable equipment certified as clean by the supplier.

Prior to sampling the monitoring wells, 3 to 5 well casing volumes of water were purged from each well. This helped assure that the water sample is representative of groundwater in the formation and not stagnant water which has been in contact with the well casing for several months. Wells were bailed using disposable polyethylene bailers. Clean nylon line (not previously used) was employed to lower the bailer down the well. The individual purging the well wore new latex gloves and clean Tyvex coveralls when purging the well. Care was taken to avoid agitating water in the well or allowing the bailer to contact contaminated materials at the surface (asphalt pavement, surface soil etc).

While purging the well, Ph and conductivity readings were taken at least every third bailer full of fluid removed using a calibrated meter. Calibration of Ph and Conductivity meters were undertaken daily prior to sampling. Samples for laboratory analysis were collected within 2 hours of purging the well.

As with purging, a clean pair of disposable latex gloves was worn during the groundwater sampling events. The bailer was attached to clean nylon cord and lowered slowly into the well to acquire the groundwater sample. Agitation of groundwater in the well was avoided. The bailer was retrieved the contents emptied into appropriate sample containers while minimizing agitation of the sample and contact between the sample and the atmosphere. The sample container was sealed immediately and labeled with all pertinent information prior to placement in an ice chest cooled with blue ice. Chain of custody records were completed and accompanied samples to the laboratory.

APPENDIX B

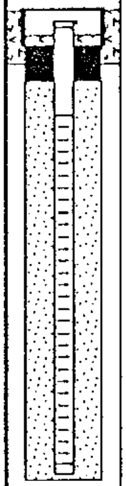
SOIL BORING LOGS
MONITOR WELL COMPLETION FORMS

U.S
POLLUTION
CONTROL INC.
Remedial Services

LOG

BORING NO. OMW-1
WELL NO. OMW-1

CLIENT: UP RAILROAD
JOB NUMBER: 98199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/4/91
DATE COMP: 4/4/91
SURF. EL:8.79 MSL
TD: 13.5 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 5.0 FT.



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
0	0.0 to 0.7 ASPHALT	AF			
	0.7 TO 4.5 ASPHALT SUB-GRADE FILL, DAMP, SLIGHT ODOR. RED CHERT GRAVEL AT 3.5'	AF	2.5	OMWI-2	TPH-ND
5	4.5 to 13.5 GREY, MEDIUM TO COARSE SAND, WITH SOME GRAVEL AND FINE SAND, WET, NO ODOR. TRACE CLAY AND SHELLS	SW	1.5	OMWI-5.5	TPH-ND
			0	OMWI-7	TPH-ND
10			0	OMWI-11	

BORING COMPLETED ON APRIL 4, 1991

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MONITOR WELL STATISTICS

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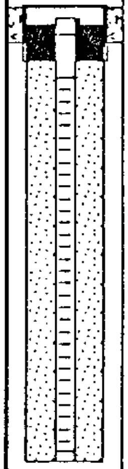
TOC EL: 8.79 MSL FT
GS EL: 9.01 MSL FT
BLANK CASING: .3 TO 3.0 FT
SCREEN CASING: 3.0 TO 13.0 FT
BOTTOM CAP: 13.0 TO 13.3 FT
SAND PACK: 2.0 TO 13.5 FT
2.5 SACKS 8X12
BENTONITE SEAL: 2.0 TO 1.0 FT
0.5 BUCK 3/8"
CONCRETE SEAL: 0.0 TO 1.0 FT
1.0 SACKS CMIX
FLUSH MOUNT: 0 TO 1.2 FT

U.S
POLLUTION
CONTROL INC.
Remedial Services

LOG

BORING NO. OMW-2
WELL NO. OMW-2

CLIENT: UP RAILROAD
JOB NUMBER: 96199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/4/91
DATE COMP: 4/4/91
SURF. EL:5.88 MSL
TD: 13.0 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 3.5 FT.



WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 1.0 RR BALLAST, GREY SANDY PEA GRAVEL, NO STAINING	AF			
		1.0 TO 11.5 GREY, FINE TO COARSE SAND AND GRAVEL, VERY MOIST, STRONG ODOR (2') TRACE SHELLS.	SP			
	5			18	OMW2-5.5	4,100 TPH
		AT 8' AS ABOVE, WET, SLIGHT ODOR, SHEEN.				
	10			7.0	OMW2-11	1,400 TPH
		11.5 TO 13 FINE SANDY CLAY AND SILT, DARK GREY, TRACE SHELLS, BAY MUD, SLIGHT H2S ODOR.	ML			
	15	BORING COMPLETED ON APRIL 4, 1991				
		************************************ MONITOR WELL STATISTICS ************************************				
	20	TOC EL: 5.88 MSL FT GS EL: 6.10 MSL FT BLANK CASING: .3 TO 2.0 FT SCREEN CASING: 2.0 TO 12.0 FT BOTTOM CAP: 12.0 TO 12.3 FT SAND PACK: 2.0 TO 12.5 FT 2.5 SACKS 8X12				
	25	BENTONITE SEAL: 1.5 TO 0.5 FT 0.5 BUCK 3/8" CONCRETE SEAL: 0.0 TO 0.5 FT 1.0 SACKS CMIX FLUSH MOUNT: 0 TO 1.2 FT				
	30					
	35					
	40					

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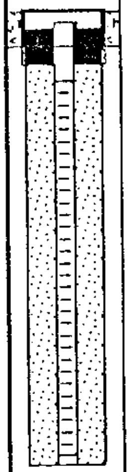
POLLUTION
CONTROL INC.
Remedial Services

LOG

BORING NO. OMW-3
WELL NO. OMW-3

CLIENT: UP RAILROAD
JOB NUMBER: 96199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/5/91
DATE COMP: 4/5/91
SURF. EL:7.16 MSL
TD: 13.0 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 4.5 FT.



WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 4.5 RR BALLAST, GREY TO BROWN SANDY GRAVEL, STAINED, DRY, BECOMES ODIFEROUS AT 4', WET WITH STRONG ODOR AT 4.5'.	AF	81	OMW3-3.0	4,500 TPH
	5	4.5 TO 11.5 GREY, FINE TO MEDIUM SAND WITH MINOR GRAVEL AND COARSE SAND. SLIGHT ODOR, SATURATED.	SW	55	OMW3-6	780 TPH
	10	AT 9' AS ABOVE, WET, VERY SLIGHT ODOR.		86	OMW2-11	195 TPH
		11.5 TO 13 FINE GRAINED SILTY SAND, GREY, BAY MUD.	SM			

BORING COMPLETED ON APRIL 5, 1991

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MONITOR WELL STATISTICS
****

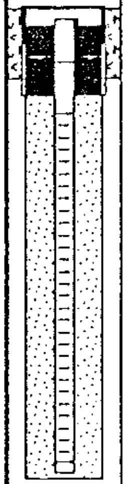
TOC EL:	7.16 MSL	FT
GS EL:	7.36 MSL	FT
BLANK CASING:	.3 TO 2.0	FT
SCREEN CASING:	2.0 TO 12.0	FT
BOTTOM CAP:	12.0 TO 12.3	FT
SAND PACK:	2.0 TO 12.5	FT
2.5 SACKS 8X12		
BENTONITE SEAL:	1.5 TO 0.5	FT
0.5 BUCK 3/8"		
CONCRETE SEAL:	0.0 TO 0.5	FT
1.0 SACKS CMIX		
FLUSH MOUNT:	0 TO 1.2	FT

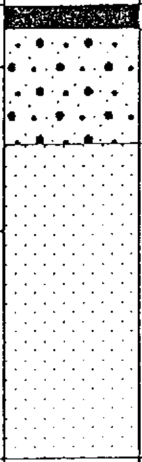
U.S
POLLUTION
CONTROL INC.
Remedial Services

LOG

BORING NO. OMW-4
WELL NO. OMW-4

CLIENT: UP RAILROAD
JOB NUMBER: 96199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/8/91
DATE COMP: 4/8/91
SURF. EL:7.41 MSL
TD: 13.5 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 4.5 FT.





WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 0.7 ASPHALT	AF			
		ASPHALT SUB-GRADE, GREY TO BROWN SANDY GRAVEL, MOIST, ODOR.	AF	7	OMW4-3.0	9,600 TPH
	5	AT 1.5' BECOMES GREENISH-GREY, WITH STRONG ODOR.		4	OMW4-6	TPH-ND
		4.0 TO 13.0 GREY, FINE TO MEDIUM SAND WITH MINOR GRAVEL AND COARSE SAND. SLIGHT ODOR, SATURATED, TRACE SHELLS.	SW			
	10	AT 11' AS ABOVE, WET, VERY SLIGHT ODOR.		1	OMW4-11	TPH-ND
	15					
	20					
	25					
	30					
	35					
	40					

BORING COMPLETED ON APRIL 8, 1991

****
MONITOR WELL STATISTICS
****

TOC EL: 7.41 MSL FT
GS EL: 7.57 MSL FT
BLANK CASING: .3 TO 3.0 FT
SCREEN CASING: 3.0 TO 13.0 FT
BOTTOM CAP: 13.0 TO 13.3 FT
SAND PACK: 2.0 TO 13.5 FT
2.5 SACKS 8X12
BENTONITE SEAL: 2.0 TO 0.5 FT
0.5 BUCK 3/8"
CONCRETE SEAL: 0.0 TO 0.5 FT
1.0 SACKS CMIX
FLUSH MOUNT: 0 TO 1.2 FT

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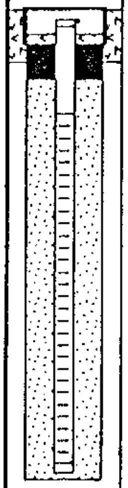
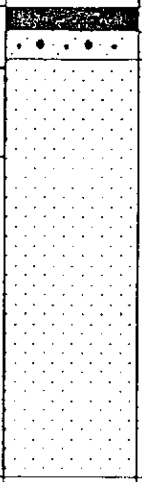
CONTROL INC.
Remedial Services

LOG

BORING NO. OMW-5
WELL NO. OMW-5

CLIENT: UP RAILROAD
JOB NUMBER: 96199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/4/91
DATE COMP: 4/4/91
SURF. EL:7.62 MSL
TD: 13.5 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 7.0 FT.





WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 0.7 ASPHALT	AF			
		0.7 TO 1.5 ASPHALT SUB-GRADE FILL, DAMP, SLIGHT ODOR. GREY SANDY GRAVEL.	AF			
	5	1.5 to 13.0 GREY, MEDIUM TO COARSE SAND, WITH SOME GRAVEL AND FINE SAND, WET AT 7'. TRACE CLAY AND SHELLS, NO ODOR.		0	OMW5-5.5	19 TPH
		SAND BECOMES FINER, NO ODOR.	SW	0	OMW5-8	TPH-ND
	10					
	15	BORING COMPLETED ON APRIL 4, 1991				
	20					
	25					
	30					
	35					
	40					

****
MONITOR WELL STATISTICS
****

TOC EL: 7.62 MSL FT
GS EL: 7.87 MSL FT
BLANK CASING: .3 TO 3.0 FT
SCREEN CASING: 3.0 TO 13.0 FT
BOTTOM CAP: 13.0 TO 13.3 FT
SAND PACK: 2.0 TO 13.5 FT
2.5 SACKS 8X12
BENTONITE SEAL: 2.0 TO 1.0 FT
0.5 BUCK 3/8"
CONCRETE SEAL: 0.0 TO 1.0 FT
1.0 SACKS CMIX
FLUSH MOUNT: 0 TO 1.2 FT

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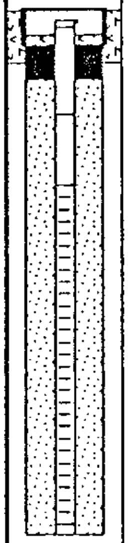
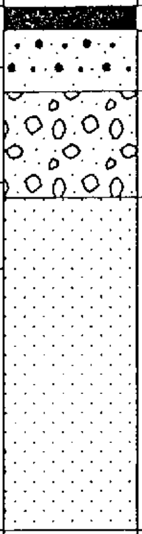
Remedial Services

BORING NO. OMW-6 LOG
WELL NO. OMW-6

CLIENT: UP RAILROAD
JOB NUMBER: 96199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/4/91
DATE COMP: 4/4/91
SURF. EL:5.78 MSL
TD: 15.0 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 7.0 FT.





WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 0.7 ASPHALT	AF			
		0.7 TO 1.5 ASPHALT SUB-GRADE FILL, DAMP, SLIGHT ODOR. BROWN COARSE SANDY GRAVEL, TRACE FINES, NO ODOR, DAMP.	AF GM	0 0		
	5	2.5 to 5.5 BROWN TO GREY GRAVELY SAND TO SANDY GRAVEL. WOOD DEBRIS AT 3', DAMP, NO ODOR.		0		
	10	5.5 TO 15 GREY TO DARK GREY SILTY FINE GRAINED SAND, MINOR COARSE TO MEDIUM GRAINED SAND, WET, TRACE SHELLS, WOOD DEBRIS, NO ODOR. BAY MUD.	SW	0 0 0	OMW6-11 OMWB-145	TPH-ND B TPH
	15					
	20					
	25					
	30					
	35					
	40					

BORING COMPLETED ON APRIL 4, 1991

****
MONITOR WELL STATISTICS
****

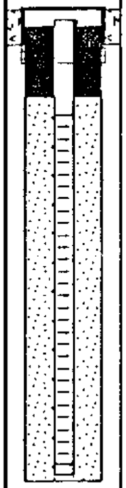
TOC EL: 5.78 MSL FT
GS EL: 5.88 MSL FT
BLANK CASING: .3 TO 4.5 FT
SCREEN CASING: 4.5 TO 14.5 FT
BOTTOM CAP: 14.5 TO 14.8 FT
SAND PACK: 3.5 TO 15.0 FT
2.5 SACKS 8X12
BENTONITE SEAL: 3.5 TO 2.0 FT
0.5 BUCK 3/8"
CONCRETE SEAL: 0.0 TO 2.0 FT
1.0 SACKS CMIX
FLUSH MOUNT: 0 TO 1.2 FT

U.S
POLLUTION
CONTROL INC.
Remedial Services

LOG

BORING NO. OMW-7
WELL NO. OMW-7

CLIENT: UP RAILROAD			JOB NUMBER: 96199
PROJECT: OAKLAND, UPRR YARD		LOCATION: OAKLAND, CALIFORNIA	
DRILLED BY: PC EXPLORATION	DRILLER: BRAD		METHOD: 4-1/4" HSA
DATE START: 4/4/91	DATE COMP: 4/4/91	SURF. EL:7.03 MSL	TD: 13.5 BGS
LOGGED BY: KV ROSE	APPROVED BY:		DEPTH TO WATER: 4.5 FT.



WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 2.5 RR BALLAST, GREY LIMESTONE GRAVEL, NO STAINING	AF			
		2.5 TO 5.5 GREY TO DARK GREENISH GREY, FINE TO COARSE SAND VERY MOIST, STRONG DIESEL ODOR STARTING AT 3', FREE PRODUCT AT 4.5'TO 5'.	GM	28	OMW7-3.5	5,600 TPH
	5	5.5 TO 13.5 FINE TO MEDIUM SAND, GREY, MINOR COARSE SAND, TRACE GRAVEL AND SHELLS, DIESEL ODOR STRONG AT 6', BECOMES SLIGHT AT 12', SATURATED.	SW	67	OMW7-6	860 TPH
	10			8.0	OMW2-11	360 TPH
	15					
	20					
	25					
	30					
	35					
	40					

BORING COMPLETED ON APRIL 4, 1991

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MONITOR WELL STATISTICS

****

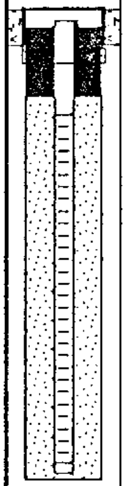
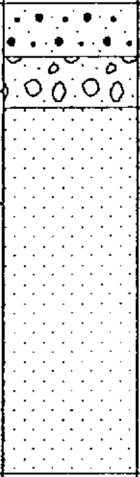
TOC EL:	7.03 MSL	FT
GS EL:	7.20 MSL	FT
BLANK CASING:	.3 TO 3.0	FT
SCREEN CASING:	3.0 TO 13.0	FT
BOTTOM CAP:	13.0 TO 13.3	FT
SAND PACK:	3.0 TO 13.5	FT
2.5 SACKS 8X12		
BENTONITE SEAL:	2.5 TO 1.0	FT
0.5 BUCK 3/8"		
CONCRETE SEAL:	0.0 TO 1.0	FT
1.0 SACKS CMIX		
FLUSH MOUNT:	0 TO 1.2	FT

U.S
POLLUTION
CONTROL INC.
Remedial Services

OG

BORING NO. OMW-8
WELL NO. OMW-8

CLIENT: UP RAILROAD
JOB NUMBER: 98199
PROJECT: OAKLAND, UPRR YARD
LOCATION: OAKLAND, CALIFORNIA
DRILLED BY: PC EXPLORATION
DRILLER: BRAD
METHOD: 4-1/4" HSA
DATE START: 4/4/91
DATE COMP: 4/4/91
SURF. EL:7.52 MSL
TD: 13.5 BGS
LOGGED BY: KV ROSE
APPROVED BY:
DEPTH TO WATER: 5.5 FT.

WELL COMP	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE		ODOR	SAMPLE NUMBER	SAMPLE ANAL
	0	0.0 to 1.5 RR BALLAST, GREY LIMESTONE GRAVEL, NO STAINING		AF			
		1.5 TO 3.0 BROWN SILTY SAND, SOME GRAVEL, TRACE CLAY, MOIST, STRONG DIESEL ODOR STARTING AT 2.5'. BECOMES STAINED DARKER GREY ALSO AT 2.5'.		GM			
	5					OMW8-5.5	TPH-ND
		3.0 TO 13.5 FINE TO MEDIUM SAND, GREY, MINOR COARSE SAND, TRACE GRAVEL AND SHELLS, DIESEL ODOR MODERATE AT 3.5', BECOMES FAINT AT 10', SATURATED.		SW			
	10					OMW8-11	TPH-ND
	15						
	20						
	25						
	30						
	35						
	40						

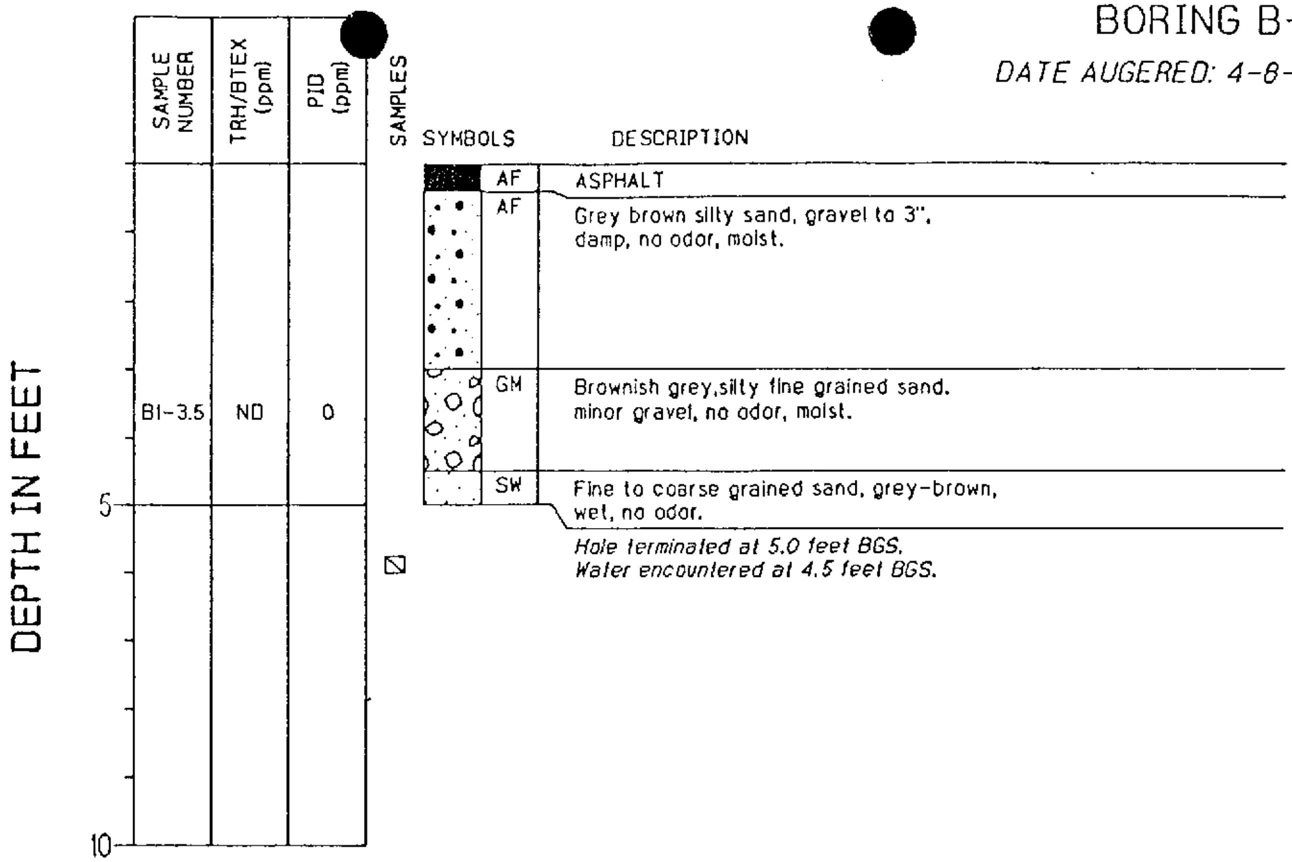
BORING COMPLETED ON APRIL 4, 1991

****
MONITOR WELL STATISTICS
****

TOC EL: 7.52 MSL FT
GS EL: 7.69 MSL FT
BLANK CASING: .3 TO 3.0 FT
SCREEN CASING: 3.0 TO 13.0 FT
BOTTOM CAP: 13.0 TO 13.3 FT
SAND PACK: 3.0 TO 13.5 FT
2.5 SACKS 8X12
BENTONITE SEAL: 2.5 TO 1.0 FT
0.5 BUCK 3/8"
CONCRETE SEAL: 0.0 TO 1.0 FT
1.0 SACKS CMIX
FLUSH MOUNT: 0 TO 1.2 FT

BORING B-1

DATE AUGERED: 4-8-91



SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B1-3.5	ND	0

ASPHALT

Grey brown silty sand, gravel to 3", damp, no odor, moist.

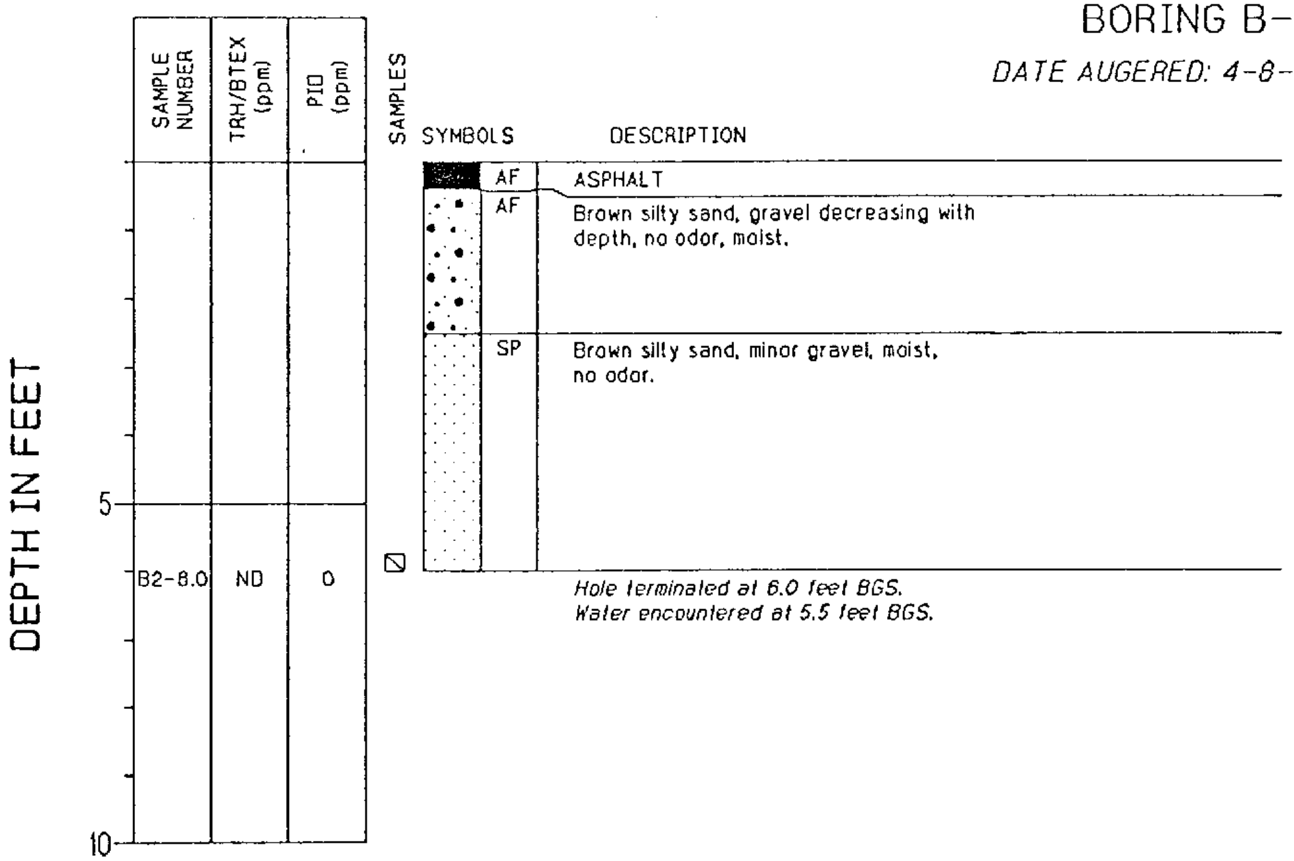
Brownish grey, silty fine grained sand, minor gravel, no odor, moist.

Fine to coarse grained sand, grey-brown, wet, no odor.

Hole terminated at 5.0 feet BGS.
Water encountered at 4.5 feet BGS.

BORING B-2

DATE AUGERED: 4-8-91



SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B2-6.0	ND	0

ASPHALT

Brown silty sand, gravel decreasing with depth, no odor, moist.

Brown silty sand, minor gravel, moist, no odor.

Hole terminated at 6.0 feet BGS.
Water encountered at 5.5 feet BGS.

USPCI
REMEDIAL SERVICES
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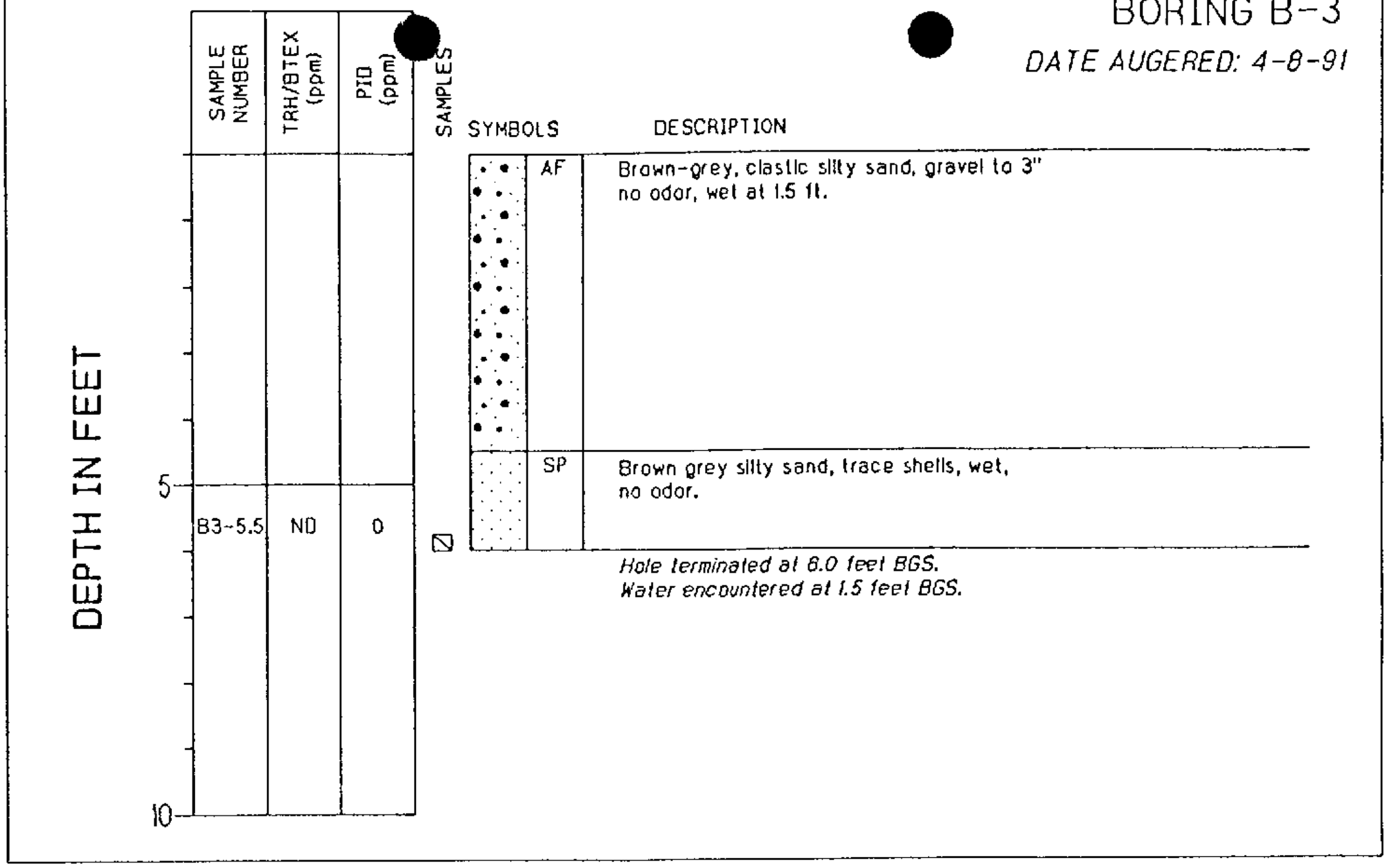
Pacific Corporation

LOG OF HOLES B-1 AND B-2
Oakland TOFC
OAKLAND, CALIFORNIA

TEST PIT
REPORT

BORING B-3

DATE AUGERED: 4-8-91



SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B3-5.5	ND	0

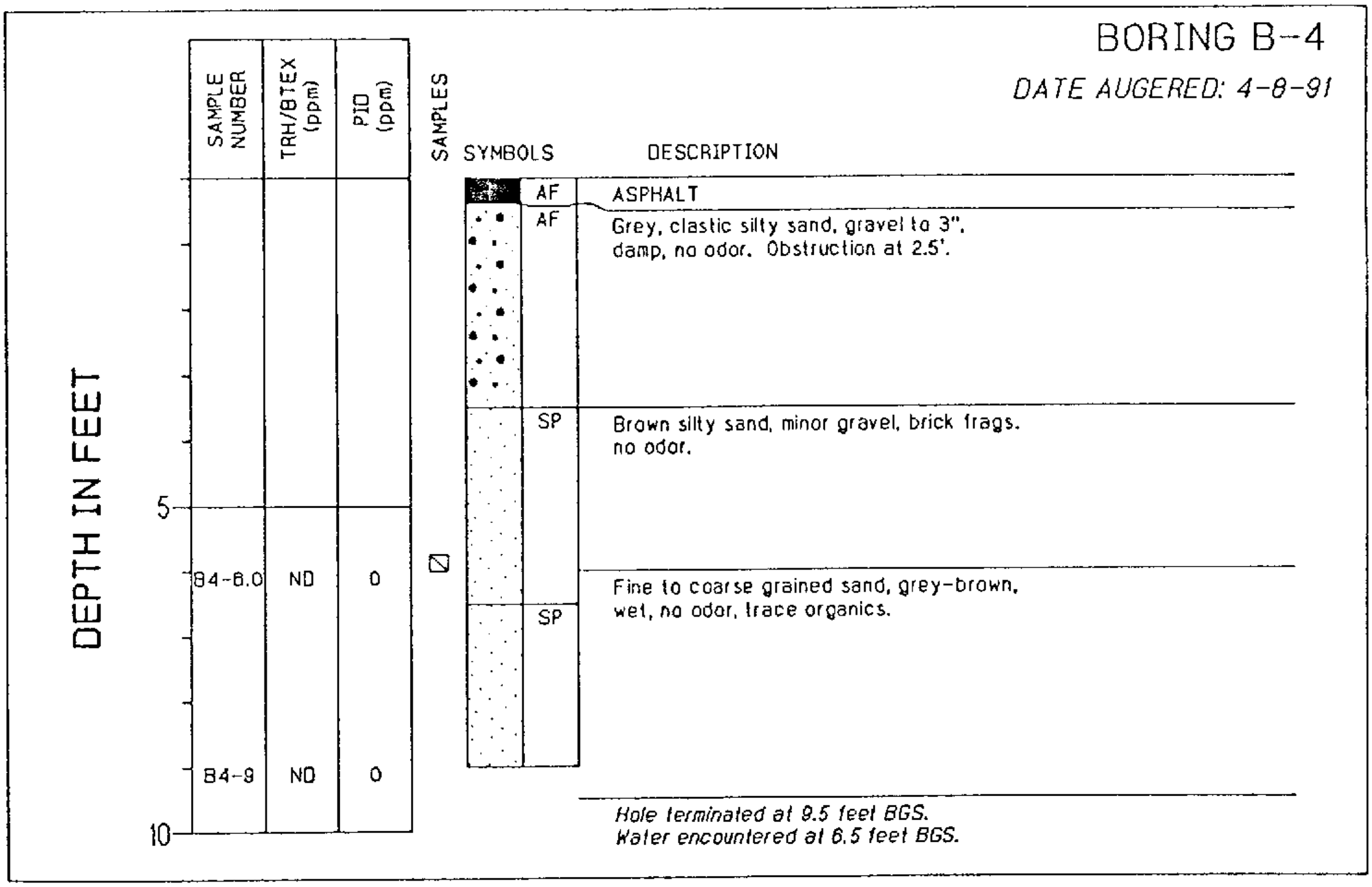
AF: Brown-grey, clastic silty sand, gravel to 3" no odor, wet at 1.5 ft.

SP: Brown grey silty sand, trace shells, wet, no odor.

Hole terminated at 6.0 feet BGS.
Water encountered at 1.5 feet BGS.

BORING B-4

DATE AUGERED: 4-8-91



SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B4-6.0	ND	0
B4-9	ND	0

AF: ASPHALT

AF: Grey, clastic silty sand, gravel to 3", damp, no odor. Obstruction at 2.5'.

SP: Brown silty sand, minor gravel, brick frags. no odor.

SP: Fine to coarse grained sand, grey-brown, wet, no odor, trace organics.

Hole terminated at 9.5 feet BGS.
Water encountered at 6.5 feet BGS.

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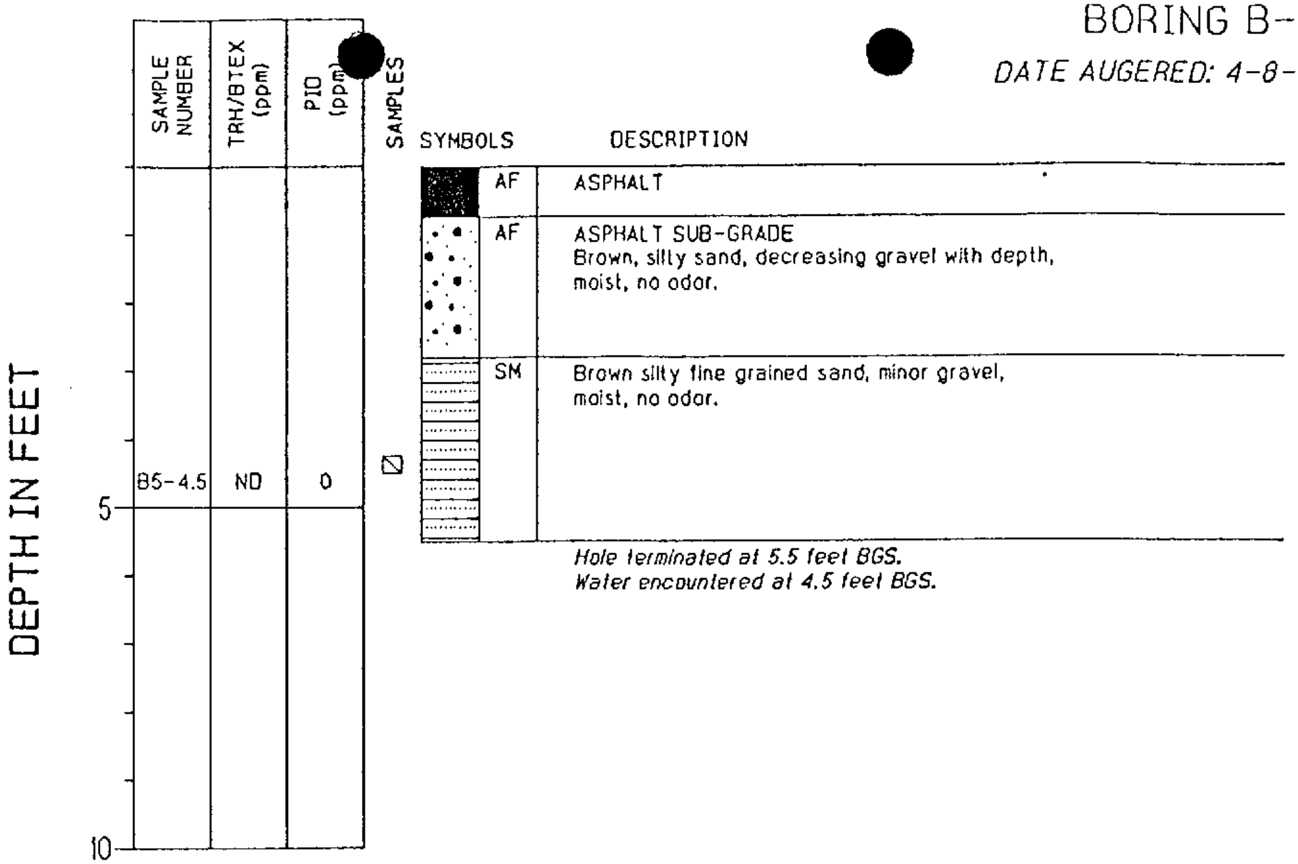
LOG OF HOLES B-3 AND B-4
Oakland TOFC
OAKLAND, CALIFORNIA

TEST PIT
REPORT

BORING B-5

DATE AUGERED: 4-8-91



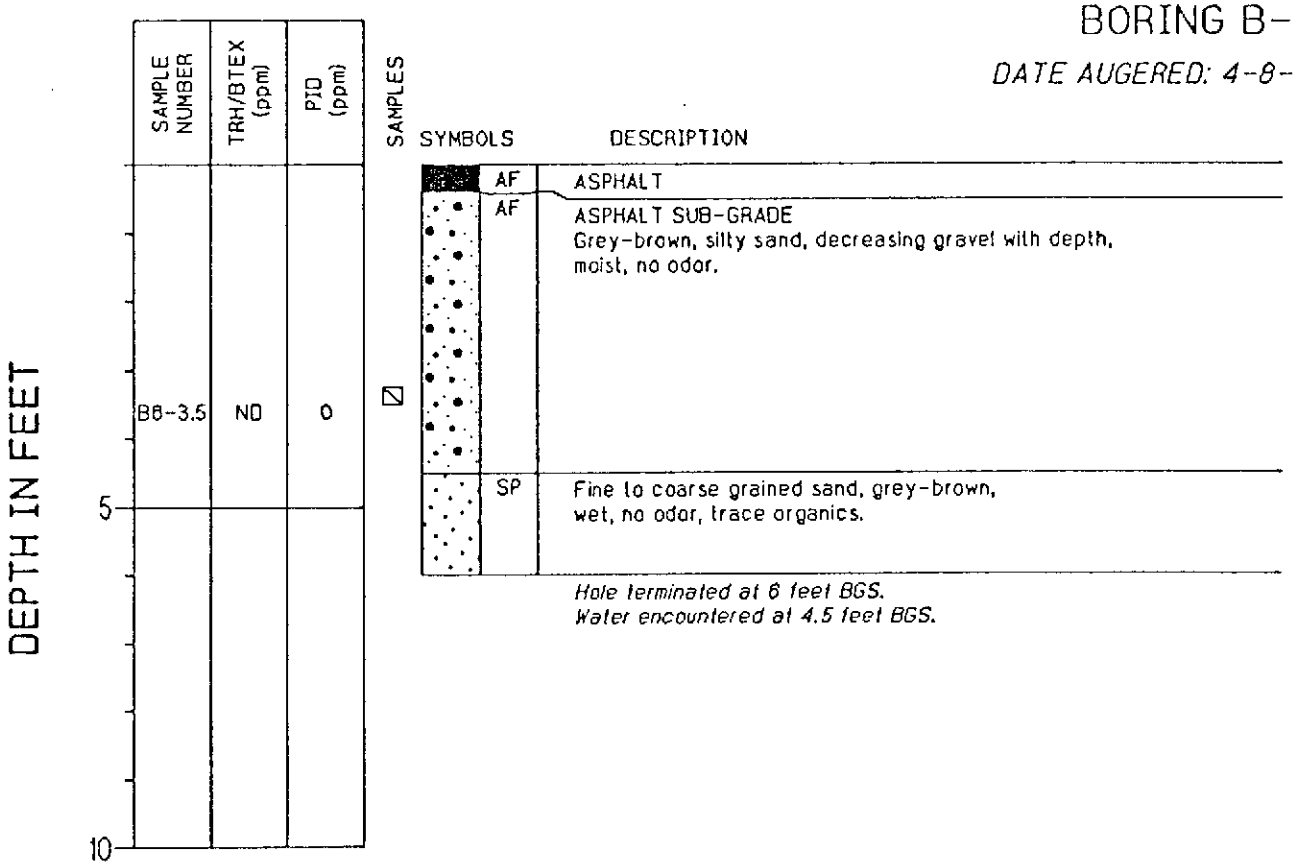
SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B5-4.5	ND	0

SYMBOLS	DESCRIPTION
AF	ASPHALT
AF	ASPHALT SUB-GRADE Brown, silty sand, decreasing gravel with depth, moist, no odor.
SM	Brown silty fine grained sand, minor gravel, moist, no odor.

Hole terminated at 5.5 feet BGS.
Water encountered at 4.5 feet BGS.

BORING B-6

DATE AUGERED: 4-8-91



SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B6-3.5	ND	0

SYMBOLS	DESCRIPTION
AF	ASPHALT
AF	ASPHALT SUB-GRADE Grey-brown, silty sand, decreasing gravel with depth, moist, no odor.
SP	Fine to coarse grained sand, grey-brown, wet, no odor, trace organics.

Hole terminated at 6 feet BGS.
Water encountered at 4.5 feet BGS.

USPCI
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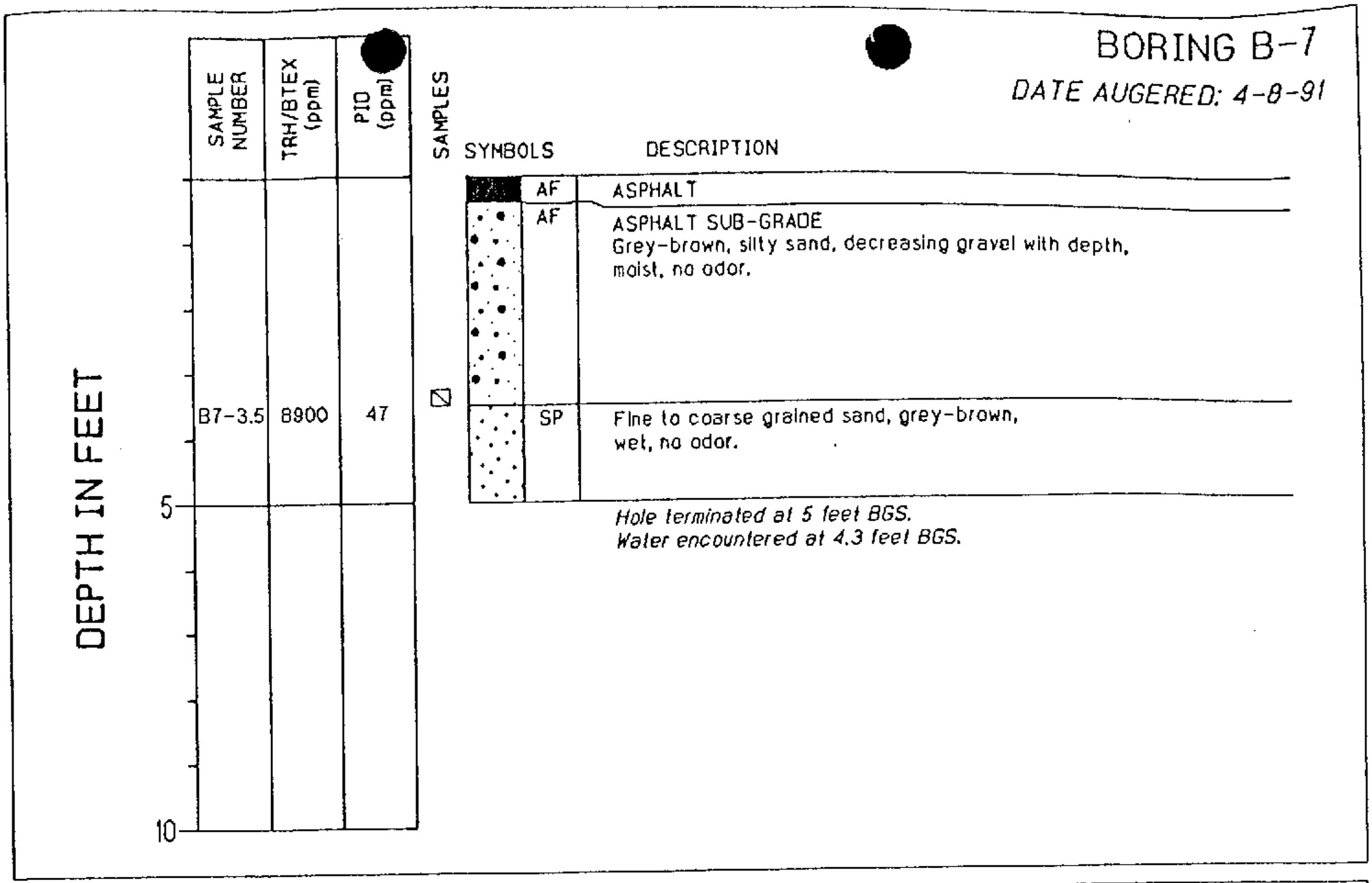
LOG OF HOLES B-5 AND OAK-B6
Oakland TOFC
OAKLAND, CALIFORNIA

TEST PIT
REPORT

BORING B-7

DATE AUGERED: 4-8-91



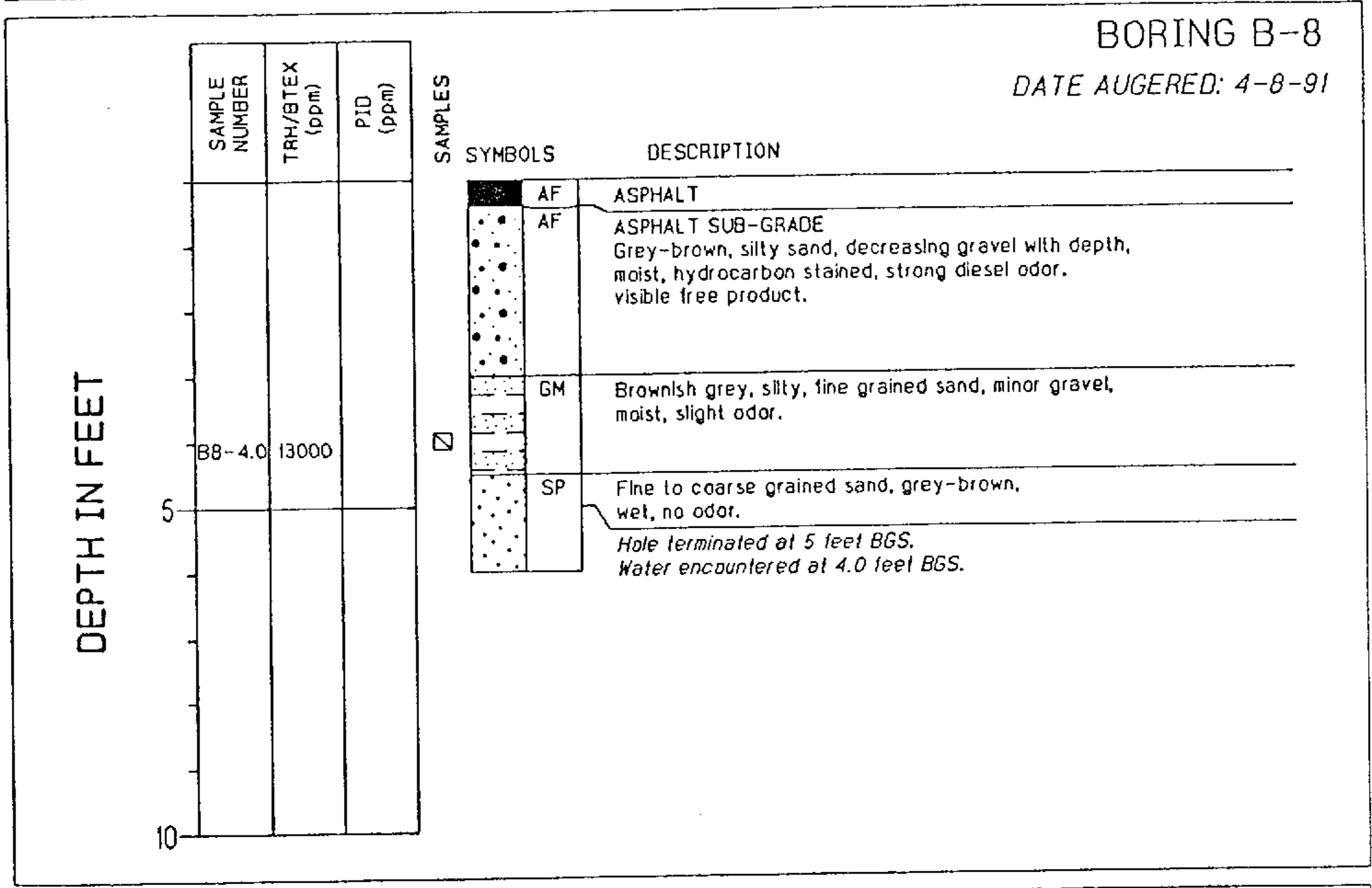
SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B7-3.5	8900	47

SYMBOLS	DESCRIPTION
AF	ASPHALT
AF	ASPHALT SUB-GRADE Grey-brown, silty sand, decreasing gravel with depth, moist, no odor.
SP	Fine to coarse grained sand, grey-brown, wet, no odor.

Hole terminated at 5 feet BGS.
Water encountered at 4.3 feet BGS.

BORING B-8

DATE AUGERED: 4-8-91



SAMPLE NUMBER	TRH/BTEX (ppm)	PID (ppm)
B8-4.0	13000	

SYMBOLS	DESCRIPTION
AF	ASPHALT
AF	ASPHALT SUB-GRADE Grey-brown, silty sand, decreasing gravel with depth, moist, hydrocarbon stained, strong diesel odor. visible free product.
GM	Brownish grey, silty, fine grained sand, minor gravel, moist, slight odor.
SP	Fine to coarse grained sand, grey-brown, wet, no odor.

Hole terminated at 5 feet BGS.
Water encountered at 4.0 feet BGS.

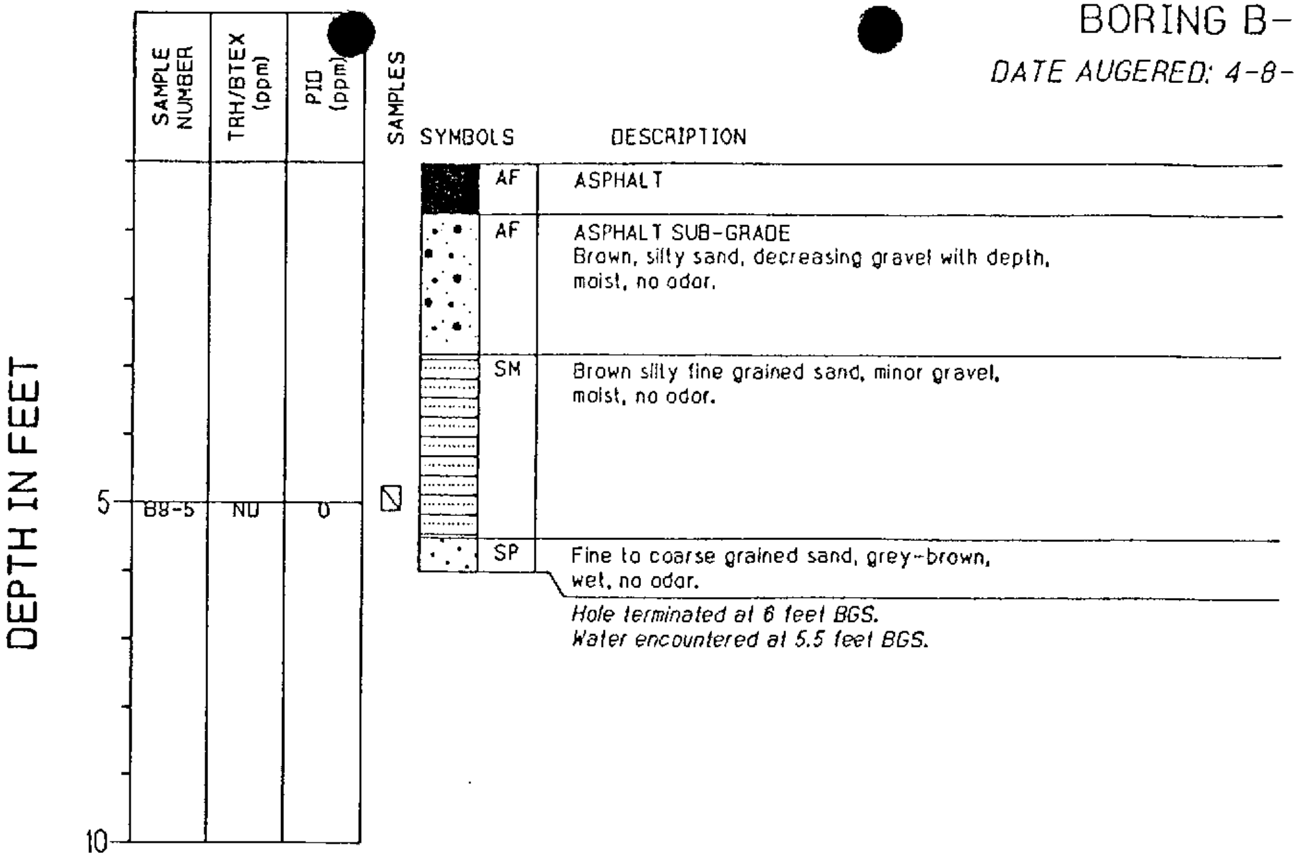
USPCI
REMEDIAL SERVICES
A Subsidiary of Union
Pacific Corporation

LOG OF HOLES B-7 AND OAK-B8
Oakland TOFC
OAKLAND, CALIFORNIA

TEST PIT
REPORT

BORING B-9

DATE AUGERED: 4-8-91



AF	ASPHALT
AF	ASPHALT SUB-GRADE Brown, silty sand, decreasing gravel with depth, moist, no odor.
SM	Brown silty fine grained sand, minor gravel, moist, no odor.
SP	Fine to coarse grained sand, grey-brown, wet, no odor.

Hole terminated at 6 feet BGS.
Water encountered at 5.5 feet BGS.

USPCI
REMEDIAL SERVICES
A Subsidiary of Union
Pacific Corporation

LOG OF HOLE B-9
Oakland TOFC
OAKLAND, CALIFORNIA

TEST PIT
REPORT

APPENDIX C

LABORATORY REPORTS
CHAIN OF CUSTODY DOCUMENTATION

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 82866
CLIENT: USPCI
CLIENT JOB NO.: 96199

DATE RECEIVED: 04/12/91
DATE REPORTED: 04/19/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
1	omw-6	0.08

mg/L - parts per million (ppm)

Method Detection Limit for Diesel in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = NA
RPD Diesel = 10
MS/MSD Average Recovery = 107%: Duplicate RPD = 12

Richard Srna, Ph.D.

Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 82866
CLIENT: USPCI
CLIENT JOB NO.: 96199

DATE RECEIVED: 04/12/91
DATE REPORTED: 04/19/91

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

AB #	Sample Identification	Concentration(ug/L)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	omw-6	ND<0.3	0.4	ND<0.3	0.5

ug/L - parts per billion (ppb)

Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery =89 %: Duplicate RPD = <8

Richard Srna, Ph.D.

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 82823
CLIENT: USPCI
CLIENT JOB NO.: 96199

DATE RECEIVED: 04/08/91
DATE REPORTED: 04/17/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/Kg) Diesel Range
1	OMW-1,1A,5.5'	ND<10
2	OMW-1,2A,7'	ND<10
3	OMW-1,3A,11'	ND<10
4	OMW-2,1A,5.5'	4100
5	OMW-2,2A,11'	1400
6	OMW-3,1A,3'	4500
7	OMW-3,2A,6'	780
8	OMW-4,1A,3'	9600
9	OMW-4,2A,6'	ND<10
10	OMW-5,1A,5.5'	19
11	OMW-5,2A,8'	ND<10
12	OMW-6,1A,11'	ND<10
13	OMW-6,2A,14.5'	6*
14	OMW-7,1A,3.5'	5600
15	OMW-7,2A,6'	860
16	B-1,1A,3.5'	ND<10
17	B-2,1A,6'	ND<10
18	B-3,1A,5.5'	ND<10
19	B-4,1A,6'	ND<10
20	B-4,2A,9'	ND<10
21	B-5,1A,4.5'	ND<10
22	B-6,1A,3.5'	ND<10
23	B-7,1A,3.5'	8900
24	B-8,1A,4'	13000
25	B-9,1A,5'	ND<10
26	OMW-3,3A,11'	195
27	OMW-4,3A,11'	ND<10
28	OMW-8,1A,5.5'	ND<10
39	OMW-7,3A,11'	360
40	OMW-8,2A,11'	ND<10

Method Detection Limit for Gasoline and Diesel in Soil: 10 mg/Kg

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = 18
RPD Diesel = 1

MS/MSD Average Recovery = 114%: Duplicate RPD = 5

* not typical diesel pattern present.

Richard Srna, Ph.D.

Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 82823
CLIENT: USPCI
CLIENT JOB NO.: 96199

DATE RECEIVED: 04/08/91
DATE REPORTED: 04/17/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
30	OMW-1,2A	0.06*
32	OMW-2,2A	3.2
34	OMW-3,2A	1.4
36	OMW-5,2A	ND<0.05
37	OMW-8,2A	0.05*

mg/L - parts per million (ppm)
not Typical diesel pattern present.

Method Detection Limit for Diesel in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Diesel = 10
MS/MSD Average Recovery = 111%: Duplicate RPD = 3

Richard Srna, Ph.D.

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 82823
CLIENT: USPCI
CLIENT JOB NO.: 96199

DATE RECEIVED: 04/08/91
DATE REPORTED: 04/17/91

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES by EPA SW-846 Methods 5030 and 8020

		Concentration(ug/kg)(ug/L)			
LAB #	Sample Identification	Benzene	Toluene	Ethyl Benzene	Xylenes
4	OMW-2,1A,5.5'	8	26	48	310
8	OMW-4,1A,3'	ND<150	310	860	5300
12	OMW-6,1A,11'	3.3	5	ND<3	ND<3
14	OMW-7,1A,3.5'	86	150	290	1400
15	OMW-7,2A,6'	25	19	25	75
23	B-7,1A,3.5'	95	390	530	2700
24	B-8,1A,4'	280	720	1400	6200
28	OMW-8,1A,5.5'	ND<3	4	4	11
29	OMW-1,1AB *	ND<0.3	ND<0.3	ND<0.3	ND<0.3
31	OMW-2,1AB *	ND<0.3	ND<0.3	1.2	6.7
33	OMW-3,1AB *	0.4	0.5	5.6	26
35	OMW-5,1AB *	ND<0.3	ND<0.3	ND<0.3	ND<0.3
38	OMW-8,1AB *	ND<0.3	ND<0.3	ND<0.3	ND<0.3

* ug/L - parts per billion (ppb)

ug/kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg
Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 91%: Duplicate RPD = <2

Richard Srna, Ph.D.

Laboratory Manager

U.S. POLLUTION CONTROL, INC.

5665 Flatiron Parkway
Boulder Colorado 80301
(303) 938-5500

CHAIN OF CUSTODY RECORD

PROJ. NO. 96199

PROJECT NAME UPRR-Oakland TOFC Yard

SAMPLERS: *(Signature)* K Rose

STAT. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH (8015 mod)	BTEX (8020)					REMARKS
omw-1	4/4/91	0945			omw-1, 1A, 5.5'	1	X						
omw-1	4/4/91	0955			omw-1, 2A, 7'	1	X						
omw-1	4/4/91	1000			omw-1, 3A, 11'	1	X						
omw-2	4/5/91	0800			omw-2, 1A, 5.5'	1	X	X					
omw-2	4/5/91	0810			omw-2, 2A, 11'	1	X						
omw-3	4/5/91	1010			omw-3, 1A, 2'	1	X						Note: omw-3, 3A, 11' on next COC
omw-3	4/5/91	1020			omw-3, 2A, 6'	1	X						
omw-4	4/8/91	0830			omw-4, 1A, 3'	1	X	X					Note: omw-4, 3A, 11' on next COC
omw-4	4/8/91	0840			omw-4, 2A, 6'	1	X						
omw-5	4/4/91	1645			omw-5, 1A, 5.5	1	X						
omw-5	4/4/91	1700			omw-5, 2A, 8'	1	X						
omw-6	4/5/91	1330			omw-6, 1A, 11'	1	X	X					
omw-6	4/5/91	1350			omw-6, 2A, 14.5'	1	X						
omw-7	4/4/91	1208			omw-7, 1A, 3.5	1	X	X					
omw-7	4/4/91	1215			omw-7, 2A, 6	1	X	X					

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*
K Rose	4/8/91				
Relinquished by: *(Signature)*	**Date/Time**	**Received by: *(Signature)***	**Relinquished by: *(Signature)***	**Date/Time**	**Received by: *(Signature)***
Relinquished by: *(Signature)*	**Date/Time**	**Received for Laboratory by: *(Signature)***	**Date/Time**	**Remarks**	

Split Samples: ☐ Accepted ☐ Declined Sign[illegible]

[illegible]bution: Original Accompanies Shipment, First Copy to Coordinator Field Files; Second Copy to Rep[illegible]ative of Inspected Facility

U.S.
POLLUTION
CONTROL, INC.

5665 Flatiron Parkway
Boulder, Colorado 80301
(303) 938-5500

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
96199	Oakland TOFC

SAMPLERS: *(Signature)*

STAT. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH (8015)	BTEX (8020)					REMARKS
B-1	4/8/91	0920			B-1, 1A, 3.5'	1	X						
B-2		1030			B-2, 1A, 6'		X						
B-3		1115			B-3, 1A, 5.5'		X						
B-4		1145			B-4, 1A, 6'		X						
B-4		1200			B-4, 2A, 9'		X						
B-5		1300			B-5, 1A, 4.5		X						
B-6		1330			B-6, 1A, 3.5		X						
B-7		1400			B-7, 1A, 3.5		X	X					
B-8		1420			B-8, 1A, 4'		X	X					
B-9	4/8/91	1500			B-9, 1A, 5'		X						
OMW-3	4/5/91	1030			OMW-3, 3A, 11'	1	X						
OMW-4	4/8/91	0850			OMW-4, 3A, 11'	1	X						
OMW-8	4/4/91	1400			OMW-8, 1A, 5.5'	1	X	X					

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*
	4/8/91				

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*

Relinquished by: *(Signature)*	Date/Time	Received for Laboratory by: *(Signature)*	Date/Time	Remarks

Split Samples:
☐ Accepted ☐ Declined ____________ Signature

Distribution: Original Accompanies Shipment, First Copy to Coordinator Field Files, Second Copy to Representative of Inspected Facility

U.S.
POLLUTION
CONTROL, INC.

5665 Flatiron Parkway
Boulder Colorado 80301
(303) 938-5500

CHAIN OF CUSTODY RECORD

PROJ. NO. 96199

PROJECT NAME Oakland TOFC Yard

SAMPLERS: *(Signature)*

STAT. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH (8015)	BTEX (8020)					REMARKS
omw-1	4/7/91	1850			omw-1, 1AB	2		X					
omw-1	|	1855			omw-1, 2A	1	X						
omw-2	|	1930			omw-2, 1AB	2		X					
omw-2	|	1935			omw-2, 2A	1	X						
omw-3	|	1830			omw-3, 1AB	2		X					
omw-3	|	1835			omw-3, 2A	1	X						
omw-5	|	1800			omw-5, 1AB	2		X					
omw-5	4/7/91	1805			omw-5, 2A	1	X						

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*
	4/8/91				
Relinquished by: *(Signature)*	**Date/Time**	**Received by:** *(Signature)*	**Relinquished by:** *(Signature)*	**Date/Time**	**Received by:** *(Signature)*
Relinquished by: *(Signature)*	**Date/Time**	**Received for Laboratory by:** *(Signature)*	**Date/Time**	**Remarks**	

Split Samples: ☐ Accepted ☐ Declined Signatu

D[illegible]on: Original Accompanies Shipment; First Copy to Coordinator Field Files; Second Copy to Represe[illegible] of Inspected Facility

U.S. POLLUTION CONTROL, INC.

5665 Flatiron Parkway
Boulder, Colorado 80301
(303) 938-5500

CHAIN OF CUSTODY RECORD

PROJ. NO. 96199

PROJECT NAME Oakland TOFC Yard

SAMPLERS: *(Signature)* K Rose

STAT. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH (8015)	BTEX (8020)					REMARKS
omw-6	4/9/91	1405			omw-6, 1A,B (H_2O)	2		X					
omw-6	4/9/91	1400			omw-6, 2A (H_2O)	1	X						
omw-8	4/7/91	1910			omw-8, 1A,B (H_2O)	2		X					Note: Delivered 4/8/91
omw-8	4/7/91	1915			omw-8, 2A (H_2O)	1	X						" "
omw-7	4/4/91	1230			omw-7, 3A, 11' (Soil)	1	X						" "
omw-8	4/4/91	1410			omw-8, 2A, 11' (Soil)	1	X						" "

For Questions Call Ken Rose
(303) 938 5562

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*
K Rose	4/12/91 1430				
Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*

Relinquished by: *(Signature)*	Date/Time	Received for Laboratory by: *(Signature)*	Date/Time	Remarks

Di on: Original Accompanies Shipment. First Copy to Coordinator Field Files; Second Copy to Represe of Inspected Facility

Split Samples: ☐ Accepted ☐ Declined Signature

COPY

file:upocty.rrp
disk:net

R. K. F.

APR 28 1988

April 26, 1988

Mr. Storm Goranson
Hazardous. Materials Specialist
County of Alameda
County Department of Environmental Health
470-27th Street, Room 322
Oakland, CA 94612

RE: Initial Remedial Measures at Union Pacific Motor Freight Facility located at 1750 Ferro Street, Oakland, California.

Dear Mr. Goranson:

HUNTER is submitting this Initial Remedial Plan for Union Pacific Railroad (Union Pacific) in response to oil identified in an excavation during the removal of a 3,000 gallon underground bulk oil storage tank located at the Union Pacific Motor Freight Facility (Oakland Motor Freight) located at 1750 Ferro Street in Oakland, California. Union Pacific is committed to recovery of the oil and is continuing to obtain additional data for input into the evaluation and selection of final remedial alternatives. Union Pacific would like to begin the initial remedial action to recover oil from the excavation in conjunction with backfilling of the excavation to assure stabilization of a maintenance building adjacent to the excavation and to remove the current hazard of an open excavation in the proximity of the active maintenance building.

BACKGROUND INFORMATION

Results of tank integrity tests indicated that product lines leading from a 3,000 gallon bulk oil storage tank were not tight. In late November, Union Pacific requested the removal of the bulk oil storage tank and associated piping to eliminate the system as a discharge source of oil. On 17 December, 1987, HUNTER removed the tank and associated piping and removed approximately 350 gallons of oil from the excavation by a vacuum truck (Figure 1).

In the process of soil excavation, material exhibiting no field indications of contamination was separated and stockpiled on site. Soil suspected of containing high concentrations of petroleum was placed on plastic sheeting to prevent the migration of contaminants into the subsurface. The contaminated soil will be properly disposed by Union Pacific.

At various depths within the excavation, waste material and debris were identified (i.e. rubble, old road beds, palm trees, etc.). Near the pit bottom, at a depth of 12 feet, the soil consisted of sandy clay. The precise depth to ground water was unknown, therefore, in order to minimize the potential for contamination to migrate to lower depths, this sandy clay layer was not penetrated.

Oil was observed entering the pit from 7 locations along the sidewalls of the excavation. A majority of this inflow occurred from 4 points shown on Figure 1. At location 1, a continuous low flow occurred at a depth of 10 feet. At location 2, a low flow of reddish oil and a dark oil occurred in the pit at depths of 3 and 10 feet, respectively. The largest flow occurred at a depth of 10 feet along the southern face of the pit at locations 3 and 4.

On 16 February 1988, HUNTER personnel sampled the fluid in the excavation for contamination analysis screening. Samples were collected and analyzed for polychlorinated biphenyls (PCB's); California Administrative Code (CAC) metals; benzene, toluene, and xylene; and total petroleum hydrocarbon (TPH). The analyses indicate the fluid in the excavation is oil. No other organics were identified. Of identified CAC metals, lead was the only metal identified above the Soluble Threshold Limit Concentration of 5 mg/l as stated in the CAC, Title 22 - Social Security, Division 4 - Environmental Health, Article 11 - Criteria for Identification of Hazardous and Extremely Hazardous Wastes.

INITIAL REMEDIAL PLAN

HUNTER has developed this initial remedial action, to initiate recovery of oil from the excavation in a manner that will stabilize the maintenance building, eliminate the current safety hazard of an open excavation in the active maintenance area and allow continued operation of the maintenance building during site activities. Construction of a large diameter well in the current excavation and installation of an oil pumping system will allow continued use of the site during the performance of the initial remedial action. The excavation associated with the removal of the 3,000 gallon bulk oil underground storage tank will be backfilled in order to eliminate the open excavation as a safety hazard and to eliminate the possibility of instability of the building foundation. This initial remedial action will be conducted in conjunction with removal of an oil-water separator system and two waste oil tanks.

Prior to backfilling the excavation, a large diameter well will be constructed in the excavation. A 24-inch OD perforated steel casing will be completed to a depth of 4 feet beneath the bottom of the current excavation. The excavation will then be backfilled with gravel to a depth of approximately 8 feet. The remainder of the excavation will be filled with clean soil, re-compacted, and re-surfaced with concrete. A 36-inch OD concrete manhole with a steel cover will be placed over the well for protection. An extraction system will be installed after the replaced concrete surface has cured.

A fluids pumping system will be installed to remove oil from the large diameter well into a holding tank located on site. Fluids stored in the tank will be disposed of in accordance with federal, state, and local regulations. Final design of the system will be based on anticipated discharge from the large diameter well.

The pumping system may consist of a compressed air operated, diaphragm pump placed in the bottom of the large diameter well. The pump would be operated by a compressed air supply, with a pump discharge line delivering fluid to the storage tank. If it is determined that an API separator currently active on site is the most effective method for disposal, documentation indicating the system is approved and currently in regulatory compliance will be supplied to the County.

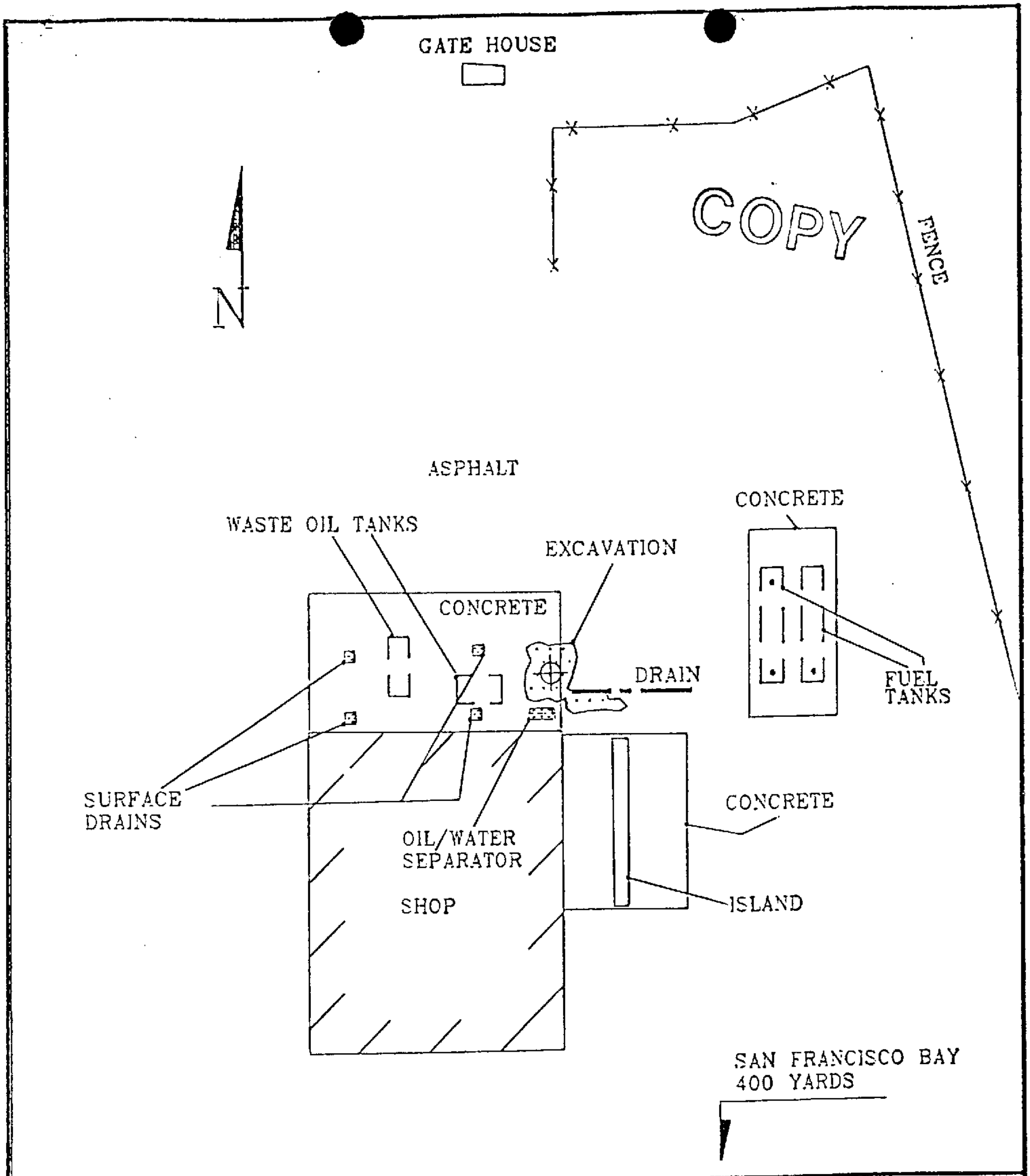
After the initial remedial system is operating, a summary report will be prepared and submitted to the County for approval. If you have any questions, please do not hesitate to contact me at 714-964-8722.

Sincerely,
Hunter Environmental Services, Inc.

Robert Traylor
Senior Scientist

enclosure

cc:
Roger Fitch, Union Pacific, 1416 Dodge Street, Omaha, NE 68179 ✓
Harry Patterson, Union Pacific, 1416 Dodge St., Omaha, NE 68179
Jim Noble, Union Pacific, 1750 Ferro St., Oakland, CA 94607
Noel Nelson, HUNTER, Martinez, California
Terry Wright, HUNTER, Fountain Valley, California
Bill Racine, HUNTER, Canton, Ohio



0 40 FEET
SCALE (approx.)

⌖ Large Diameter Well

GREGG

UNION PACIFIC MOTOR
FREIGHT FACILITY
OAKLAND, CA

SITE MAP

3/88

FIGURE 1

COMPLETED PROJECT REPORT

PROJECT NAME, NUMBER, LOCATION USPR-UST-1 -- Oakland 94608

916-641-8330

USPCI Project Manager Alfred Brule' USPCI Project Supervisor Joe Nicholson

Principal Client Contact, Title, Telephone Number Rick Ditmars, USPCI, Boulder

Can Client Be Used For Future Reference: YES____ NO____ Sales Rep.____

Project Start Up Date____ Project Completion Date____

PROJECT CLASSIFICATION (Check More Than One Where Appropriate)

Site Assessment____ Groundwater Remediation____ Offsite T&D ____ Retrofill ____
RI/FS ____ In-Situ Closure ____ Structure Decon. ____ Govt.Contract ____
Eng. Design ____ On-Site Treatment ____ Drum Removal ____ Sprfnd/RCRA Closure____
Treat. Study X U.S.T. ____ Lab Pack ____ Other____

PROJECT DESCRIPTION (Include tons/gallons/drums/tanks removed or treated; type of waste; highlights/lowlights; significant problem resolution; health & safety issues, etc. (Enclose copies of Project photographs)

Project included excavation, sampling/analysis, transportation, disposal and backfill to remove 2 - 10,000 gallon underground storage tanks. Work included demolition of a 30' x 30' x 24" concrete cover slab, 2 concrete fuel islands, fuel pumps, piping and wiring, light standard, concrete catch basin and other miscellaneous structures.

Some delays were encountered during on-site activities with respect to local regulatory contraints and buried underground obstructions. UP expressed some dissatisfaction over timely completion of the project; however, given all the various factors which came into play on this project, the work was completed in a reasonable time frame, and on budget.

FINANCIAL

	PLAN	ACTUAL	VARIANCE
Gross Revenue	$30,000.00	$39,528.02	$9,528.02
Net Revenue	$25,000.00	$31,432.02	$6,432.02
Operating Margin After GSA	$ 3,070.00	$ 7,196.00	$4,126.00

Distribution: Remedial Services Sr.V.P.; Operations V.P.; Mgr. Engineering; Mgr. Env.Assess.;

National Analytical Laboratories
4322 South 49th West Avenue
Tulsa, Oklahoma 74107
(918) 446-1162

Report Data To: Mr. [illegible]
[illegible]
731-A1 North Market
Sacto, CA 95834
Contact:
Phone: (916) 921-2267

Bill To: Same
Contact:
P.O. or Proj. #

WASTE ANALYSIS CHAIN OF CUSTODY RECORD

PROJ. NO.: 91605

PROJECT NAME: Union Pacific Railroad

SAMPLERS (Signature): Joseph Nickleson

Sample Location	Date	Time	Comp.	Grab	Sample ID	Number of Containers	Land Disposal/Solid	Land Disposal/Liquid	Waste Oil Profile	Kiln Fuel Profile	Solvent Recovery	Wastewater for HRI	Incineration	Inorganic RCRA	F-waste/CCWE	TPH [illegible]	BTEX	REMARKS
NW-WALL	2/22/90	4:05		X	UP-OAK-002	1												Soils in Brass Tube
SW		4:10		X	UP-OAK-003	1												
SE		4:15		X	UP-OAK-004	1												
NE		4:20		X	UP-OAK-005	1												
CENTRAL		4:00P		X	UPOAK-001	1												H2O glass jar

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Joseph Nickleson	2/23/90				
Relinquished by: (Signature)	**Date/Time**	**Received by: (Signature)**	**Relinquished by: (Signature)**	**Date/Time**	**Received by: (Signature)**

LAND DISPOSAL/SOLID

pH
Specific Gravity
Total Solids
Flashpoint
Organic Chlorides by Bomb
Reactive CN-, S= (screen = quant. if positive)
F-waste Solvents/CCWE Limits
EP-TOX Metals (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)
Physical State
Normality if needed

KI[illegible] FUEL

pH
Specific Gravity
Flashpoint
Total Chlorides by Bomb
BTU
Ash
Solvent Scan

From: HRI, 2/89

INCINERATION

pH
Specific Gravity
Flashpoint
Total Chlorides by Bomb
CN-, S=
Total Organic Carbon
BTU
Ash
M[illegible]s (Sb, As, Ba, Be, Cd, Cr, Cu, Hg, Pb, Mn,
[illegible], P, K, Se, Si, Ag, Na, Tl, Sn, Zn)

From: 6/88

WASTE OIL PROFILE

pH
Specific Gravity
Total Chlorides
BS&W
BTU
Ash
Total As, Cd, Cr, Pb
PCB

From: HRI 2/89

LAND DISPOSAL/LIQUID

pH
Specific Gravity
Total Solids
Flashpoint
Organic Chlorides by Bomb
Reactive CN-, S= (screen = quant. if positive)
F-waste Solvents/CCWE Limits
EP-TOX Metals (As, Ba, Cd, Cr, Hg, Pb, Se, Ag)
Physical State
% Water
Total Cyanide
PCB
Total Metals (As, Cd, Cr(VI), Pb, Hg, Ni, Se, Tl)
Normality if needed

SOLVENT RECOVERY

pH
Specific Gravity
Flashpoint
Solvent Scan
BTU
Ash
Chlorides

From: HRI, 2/89

INORGANIC RCRA

pH
Flashpoint
Reactivity Cyanide and Sulfide
EP-TOX Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag)

WASTEWATER FOR HRI

pH
Flashpoint
Reactive CN-, S= (screen = quant. if positive)
Total Chlorides
Specific Gravity
Solvent Scan

From: HRI, 2/89

F-WASTE SOLVENTS

Benzene
2-Ethoxyethanol
2-Nitropropane
1,1,2-Trichloroethane
Acetone
n-butyl alcohol
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Cresols
Cyclohexanone
1,2-Dichlorobenzene
Ethyl acetate
Ethyl benzene
Ethyl ether
Isobutanol
Methanol
Methylene chloride
Methyl ethyl ketone
Methyl isobutyl ketone
Nitrobenzene
Pyridine
Tetrachloroethylene
Toluene
1,1,2-Trichloro-1,2,2-Trifluoroethan
1,1,1-Trichloroethane
Trichloroethylene
Trichlorofluoromethane
Xylene

NATIONAL ANALYTICAL LABORATORIES
A Division of
U.S. POLLUTION CONTROL, INC.

received
3/2/90

JOE NICHOLSON
USPCI - REMEDIAL SERVICES
791-A NORTH MARKET

SACREMENTO CA 95834

EPORT NUMBER: [illegible]

PAGE [illegible]

AMPLE IDENTIFICATION: [illegible]
USTOMER IDENTIFICATION: [illegible]
ATE SAMPLED: 2/22/90
YPE OF MATERIAL: LIQUID

DATE RECEIVED: [illegible]
DATE COMPLETED: [illegible]

ARAMETER	REF. METHOD	DET. LIMIT	RESULT
ENZENE	EPA 8020	0.002 MG/KG	0.053 MG/KG
THYLBENZENE	EPA 8020	0.002 MG/KG	BDL MG/KG
OLUENE	EPA 8020	0.002 MG/KG	0.003 MG/KG
YLENES	EPA 8020	0.002 MG/KG	0.035 MG/KG
OTAL PETROLEUM HYDROCARBONS	-	-	-
ASOLINE	MOD 8015	0.05 MG/KG	BDL MG/KG
IESEL	MOD 8015	0.05 MG/KG	BDL MG/KG

DL = BELOW DETECTION LIMIT

NATIONAL ANALYTICAL LABORATORIES
A Division of
U.S.
POLLUTION
CONTROL, INC.

received
3/2/90

JOE NICHOLSON
USPCI - REMEDIAL SERVICES
[illegible] NORTH MARKET

SACREMENTO CA 95834

REPORT NUMBER: [illegible]

SAMPLE IDENTIFICATION: [illegible]
CUSTOMER IDENTIFICATION: UP-CAR-100
DATE SAMPLED: [illegible]
TYPE OF MATERIAL: SOIL

DATE RECEIVED: [illegible]
DATE COMPLETED: [illegible]

PARAMETER	REF. METHOD	DET. LIMIT	RESULT
BENZENE	EPA 8020	0.005 MG/KG	BDL MG/KG
ETHYLBENZENE	EPA 8020	0.005 MG/KG	BDL MG/KG
TOLUENE	EPA 8020	0.005 MG/KG	BDL MG/KG
XYLENES	EPA 8020	0.005 MG/KG	BDL MG/KG
TOTAL PETROLEUM HYDROCARBONS	-	-	-
GASOLINE	MOD 8015	0.05 MG/KG	BDL MG/KG
DIESEL	MOD 8015	0.05 MG/KG	BDL MG/KG

BDL = BELOW DETECTION LIMIT

4322 South 49th West Avenue • Tulsa, Oklahoma 74107 • (918) 446-1162

NATIONAL ANALYTICAL LABORATORIES
A Division of
U.S. POLLUTION CONTROL, INC.

received
3/2/90

JOE NICHOLSON
USPCI - REMEDIAL SERVICES
[illegible] NORTH MARKET

SACRAMENTO CA 95834

REPORT NUMBER: [illegible]

PAGE 1

SAMPLE IDENTIFICATION: 8238-02
CUSTOMER IDENTIFICATION: UP-OAK-002
DATE SAMPLED: 2/22/90
TYPE OF MATERIAL: SOIL

DATE RECEIVED: 2/26/90
DATE COMPLETED: 2/27/90

PARAMETER	REF. METHOD	DET. LIMIT	RESULT
BENZENE	EPA 8020	0.002 MG/KG	BDL MG/KG
ETHYLBENZENE	EPA 8020	0.002 MG/KG	BDL MG/KG
TOLUENE	EPA 8020	0.002 MG/KG	BDL MG/KG
XYLENES	EPA 8020	0.002 MG/KG	BDL MG/KG
TOTAL PETROLEUM HYDROCARBONS	-	-	-
GASOLINE	MOD 8015	[illegible].05 MG/KG	BDL MG/KG
DIESEL	MOD 8015	0.05 MG/KG	BDL MG/KG

BDL = BELOW DETECTION LIMIT

NATIONAL ANALYTICAL LABORATORIES
A Division of
U.S. POLLUTION CONTROL, INC.

received
3/2/90

JOE TINDLSON
USPCI - REMEDIAL SERVICES
731-M NORTH MARKET

SACRAMENTO CA 95834

REPORT NUMBER: [illegible]

PAGE 3

SAMPLE IDENTIFICATION: 9002-03
CUSTOMER IDENTIFICATION: UF-OAK-30
DATE SAMPLED: 2/22/90
TYPE OF MATERIAL: SOIL

DATE RECEIVED: 2/23/90
DATE COMPLETED: 2/27/90

PARAMETER	REF. METHOD	DET. LIMIT	RESULT
BENZENE	EPA 8020	0.005 MG/KG	BDL MG/KG
ETHYLBENZENE	EPA 8020	0.005 MG/KG	BDL MG/KG
TOLUENE	EPA 8020	0.005 MG/KG	0.007 MG/KG
XYLENES	EPA 8020	0.005 MG/KG	0.035 MG/KG
TOTAL PETROLEUM HYDROCARBONS			
GASOLINE	MOD 8015	1.00 MG/KG	1.31 MG/KG
DIESEL	MOD 8015	5.00 MG/KG	BDL MG/KG

BDL = BELOW DETECTION LIMIT

NATIONAL ANALYTICAL LABORATORIES
A Division of
U.S.
POLLUTION
CONTROL, INC.

received
3/2/90

JOE NICHOLSON
TERRA - REMEDIAL SERVICES
711-M NORTH MARKET

SACRAMENTO CA 95834

REPORT NUMBER: [illegible]

PAGE [illegible]

SAMPLE IDENTIFICATION: [illegible]
CUSTOMER IDENTIFICATION: [illegible]
DATE SAMPLED: 2/21/90
TYPE OF MATERIAL: SOIL

DATE RECEIVED: [illegible]
DATE COMPLETED: [illegible]

PARAMETER	REF. METHOD	DET. LIMIT	RESULT
BENZENE	EPA 8020	[illegible] MG/KG	0.004 MG/KG
ETHYLBENZENE	EPA 8020	[illegible] MG/KG	0.007 MG/KG
TOLUENE	EPA 8020	[illegible] MG/KG	[illegible] MG/KG
XYLENES	EPA 8020	[illegible] MG/KG	[illegible] MG/KG
TOTAL PETROLEUM HYDROCARBONS			
GASOLINE	MOD 8015	[illegible] MG/KG	BDL MG/KG
DIESEL	MOD 8015	[illegible] MG/KG	BDL MG/KG
[illegible] HYDROCARBONS	MOD 8015	0.05 MG/KG	2.13 MG/KG

BDL = BELOW DETECTION LIMIT

SITE NOTIFICATION INFORMATION

PORT OF OAKLAND

December 6, 1993

Eric Taylor
USPCI
24125 Aldine-Westfield Road
Spring, Texas 77373

SUBJECT: **Permit Application Approval**
1750 Ferro Road
Port # 3443

Dear Mr Taylor,

Attached is the Port approved City of Oakland building permit application for your project to install groundwater monitoring wells at the subject property, leased from the Port by Union Pacific Company. Also attached are two copies of the permit drawings, signed to verify Port approval.

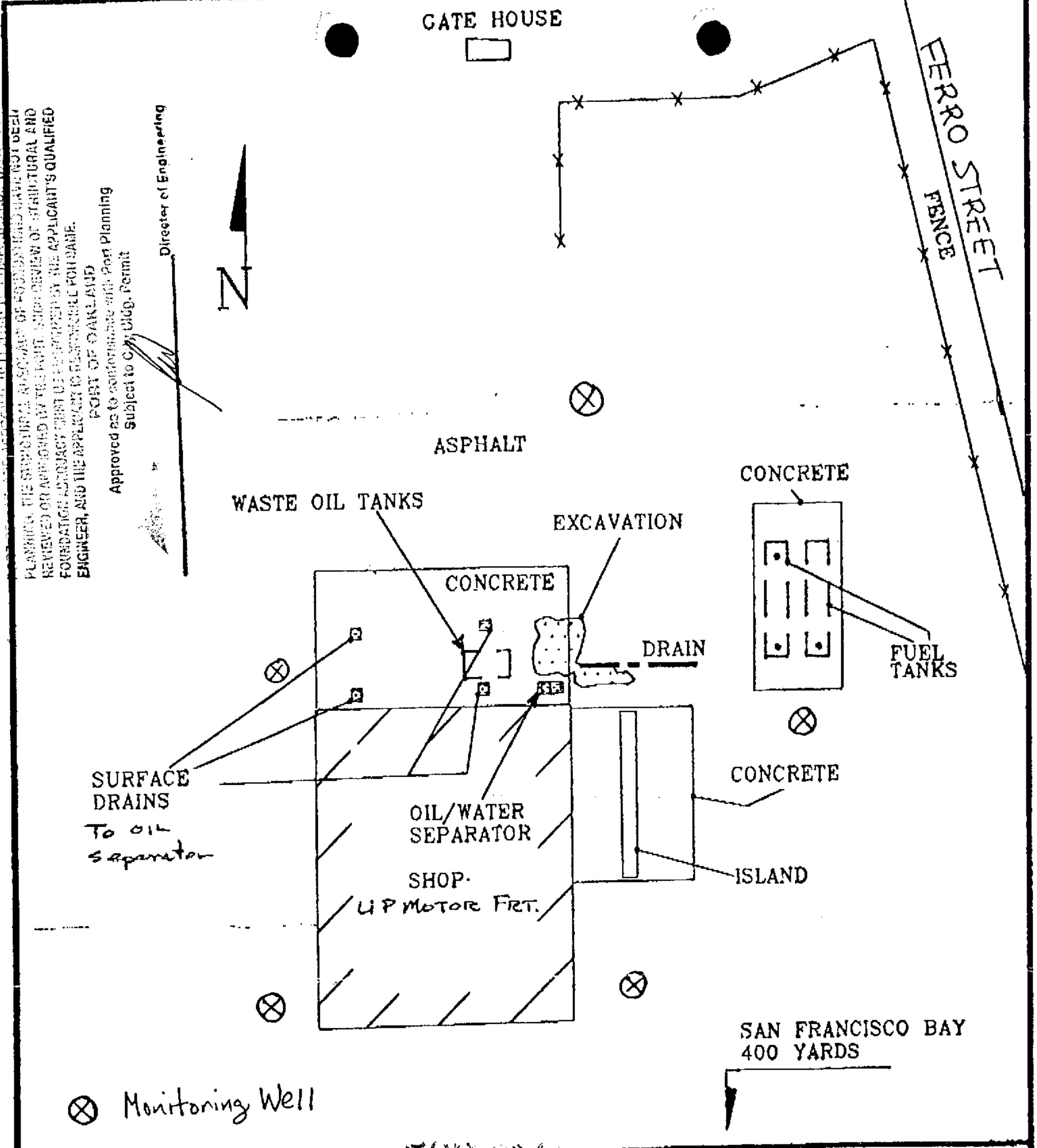
My understanding from the City of Oakland Department of Development Services (building department), is that they will not require a building or other permit for this work. You are free to proceed with the project once you have the Water Quality Control Board approval.

Thank you for your cooperation. Please feel free to contact me with any questions or further permit matters at (510) 272-1361.

Sincerely,

Joe Marsh
Port Permits

530 Water Street ■ Jack London's Waterfront ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone (415) 272-1100 ■ Fax 272-1172 ■ Telex 336-334 ■ Cable address, PORTOFOAK, Oakland



[illegible] APPROVAL IS LIMITED TO CONFORMANCE WITH PORT PLANNING. THE STRUCTURAL ADEQUACY OF FOUNDATIONS HAVE NOT BEEN REVIEWED OR APPROVED BY THE PORT. SUCH REVIEW OF STRUCTURAL AND FOUNDATION ADEQUACY MUST BE PERFORMED BY THE APPLICANT'S QUALIFIED ENGINEER, AND THE APPLICANT IS RESPONSIBLE FOR SAME.

PORT OF OAKLAND
Approved as to conformance with Port Planning
Subject to City Bldg. Permit

Director of Engineering

Port of Oakland
PLANNING DEPARTMENT
RECEIVED
DEC 1 1992
#3443
Port Permits Section

GREGG

UNION PACIFIC MOTOR
FREIGHT FACILITY
OAKLAND, CA

SITE MAP

3/88

FIGURE 1

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

TELEFAX TRANSMITTAL

DATE: 16 Nov 92

DELIVER TO: Eric Taylor

NAME OF FIRM: USPCI

FAX PHONE #: (713) 350-7246

FROM: Wyman Hong

NUMBER OF PAGES: 2
(Including transmittal)

UNDERGROUND ALERT
1-800-642-2444

MONDAY 10AM
I'LL BE THERE

FOR VOICE CONTACT CALL: (510) 484-2600

FOR RETURN FAX: (510) 462-3914

REMARKS: Transmitting drilling permit 92580 for a monitoring well construction project at 1750 Ferro Street in Oakland for Union Pacific.

ZONE 7 WATER RESOURCES MANAGEMENT

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (510) 484-2600

TELEFAX TRANSMITTAL

DATE: 10 Nov 92 0948

DELIVER TO:

NAME OF FIRM: USPCI

FAX PHONE #: 713-350 7246

FROM: Craig Mayfield

NUMBER OF PAGES: 02
(Including transmittal)

FOR VOICE CONTACT CALL: (510) 484-2600

FOR RETURN FAX: (510) 462-3914

REMARKS: Please complete a drl return for your monitoring well project in Oakland, CA, Port of Oakland.

ZONE 7 WATER AGENCY

11-19-92
mailed

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1750 Ferro St.
Oakland CA
Union Pacific Facility

CLIENT
Name Union Pacific Railroad Company (Mr. Harry Patterson) Manager of Environmental Site Remediation
Address Room 930 1416 Dodge St Voice
City Omaha Nebraska Zip 68179-0930

APPLICANT
Name Eric Taylor (USPCI)
24125 Aldine Fax 713-350-7246
Address Westfield Rd Voice 713-350-7266
City Spring, TX Zip 77375

TYPE OF PROJECT
Well Construction
Cathodic Protection ___
Water Supply ___
Monitoring X
Geotechnical Investigation
General ___
Contamination X
Well Destruction ___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. Layne-Western, Sacramento C-57 510011

WELL PROJECTS
Drill Hole Diameter 8 in.
Casing Diameter 2 in.
Surface Seal Depth 3 ft.
Maximum Depth ___ ft.
Number ___

GEOTECHNICAL PROJECTS
Number of Borings ___
Hole Diameter ___ in.
Maximum Depth ___ ft.

ESTIMATED STARTING DATE 12-6-92
ESTIMATED COMPLETION DATE 12-11-92

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S Eric Taylor 11/10/92

FOR OFFICE USE

PERMIT NUMBER ___
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved ___ Date ___

PORT OF OAKLAND

January 31, 1990

Mr. Al Brule
U.S. Pollution Control, Inc.
731-M North Market Boulevard
Sacramento, CA. 95834

Dear Mr. Brule:

SUBJECT: PROPOSED UNDERGROUND STORAGE TANK REMOVALS AT 1750 FERRO, OAKLAND

The purpose of this letter is to acknowledge receipt of your letter dated January 22, 1990 to Mr. Charles Boyd in the Port Planning Division. Your letter references the procedure for the proposed underground storage tank removals at 1750 Ferro, Oakland. Please note, your letter documents conflicting information with your previously approved Alameda County Department of Environmental Health (County) Underground Tank Closure/Modification Plan (Closure Plan).

If U.S. Pollution Control, Inc. intends to follow the changed procedure outlined in your letter of January 22, 1990, the County Closure Plan must be amended and reapproved by the County. Upon receipt of the amended County Closure Plan, please send a copy to Michele Heffes in the Port Environmental Department.

If you have any questions regarding this information, please contact Michele Heffes at 839-2656.

Sincerely,

Joyce Washington

Joyce Washington
Asset Property Manager

JW/MH/bb

cc: Rick Ditmars, U.S. Pollution Control
Rafat Shahid, Alameda County Department
of Environmental Health

PC/UST-VP/Ltrs11

66 Jack London Square • P.O. Box 2064 • Oakland, California 94604-2064 • Phone (415)444-3188
Cable Address PORTOFOAK, Oakland - Telex 336-334

MEMBER OF THE AMERICAN ASSOCIATION OF PORT AUTHORITIES, INC., THE AIRPORT OPERATORS COUNCIL INTERNATIONAL, INC. and THE INTERNATIONAL ASSOCIATION OF PORTS AND HARBORS

USPCI, INC.
Remedial Services

December 1, 1989

Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Re: Union Pacific Railroad UST Removal
1750 Ferro St.
Oakland, CA 94607

Enclosed please find three (3) copies of an application for permit to remove two (2) USTs at the above referenced location. Included are the closure plans, Health and Safety Plans, and site maps. Workmen's Compensation Certificates and the Deposit have been sent under separate cover.

If you have any questions, please do not hesitate to call. We would like to commence tank removal as soon as possible.

Sincerely,

Richard C. Ditmars
Geophysicist
Environmental Assessments

Enclosures
cc: Alan Jensen, UPRR
[redacted] USPCI
John Yellich, USPCI

5665 Flatiron Parkway
Boulder, Colorado 80301
(303) 938-5500
FAX (303) 938-5520

USPCI, INC.
Remedial Services

November 17, 1989

Alameda County
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Re: Underground Storage Tank Removal
Union Pacific Railroad
1750 Ferro St.
Oakland, CA 94607

Enclosed please find a check for $498.00 for the permit to remove two underground storage tanks at the above address. The closure plan is being sent under separate cover. If you have any questions, please do not hesitate to call.

Sincerely,

Richard C. Ditmars
Geophysicist
Environmental Assessments

Enclosure
cc: [redacted] USPCI
John Yellich, USPCI
Alan Jensen, UPRR

5665 Flatiron Parkway
Boulder, Colorado 80301
(303) 938-5500
FAX (303) 938-5520

Excavation Permit Granted ______ ______ No. ______

CITY OF OAKLAND

Permit to Excavate and Install, Repair, or Remove Inflammable Liquid Tanks.

Tank Permit No. 9342

Oakland, California, January 25, 19 90

PERMISSION IS HEREBY GRANTED TO ~~install~~ remove ~~new~~ Gasoline tank and excavate commencing ______ feet inside property line

on the east side of Ferro Street Street Avenue ______ feet ______ of ______ Street Avenue

House No. 1750 Ferro Street Street Avenue Present Storage ______

Owner Union Pacific Railroad Address 1750 Ferro Street Phone ______

Applicant U. S. Pollution Control, Inc. Address 731-M North Market B lvd. Sacramento 95834 Phone 1-916-921-2202

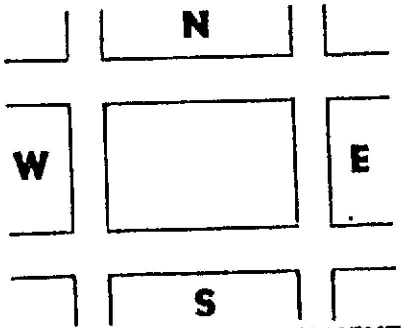
Dimensions of street (sidewalk) surface to be disturbed ______ X ______ Number of Tanks 1 Capacity 10,000 Gallons, each.
1 1,000

Remarks: ______

This Permit is granted in accordance with existing City Ordinances.
Owner hereby agrees to remove tanks on discontinuance of use or when notified by the City Authorities.
When installing, removing or repairing tanks, no open flame to be on or near premises.

Approved ______ Fire Marshal

Approved ______ Drainage Division Engineering Dept.



EXCAVATING PERMIT

Issued in accordance with Ord. No. 278 CMS, Sec. 6-2.04

______ square feet of digging or removal granted.

The receipt of $ ______ special deposit is hereby acknowledged.

GENERAL DEPOSIT. BUREAU OF PERMITS AND LICENSES.

CERTIFICATE OF TANK AND EQUIPMENT INSPECTION

Inspected and passed on ______ 19 ______

By ______ Fire Marshal

Inspection Fee Paid - - - - - - - - - $ 120.00 ck#1448 rec#628546

Received by G. M. Johnson
FIRE PREVENTION BUREAU

NOTICE

Before Covering Tanks, Above Certificate Must Be Signed.

When ready for inspection notify Fire Prevention Bureau, 273-3851

THIS PERMIT MUST BE LEFT ON THE WORK AS AUTHORITY THEREFOR.

538-58 (5-67)

UNION PACIFIC RAILROAD

PRELIMINARY SITE ASSESSMENT REPORT

UPRR TOFC YARD UPMF FACILITY
1750 FERRO ST.
Oakland

March 1993

STATE WELL REPORTS AND BORING/WELL LOGS ALONG WITH ANALYTICAL RESULTS AND COC'S

JANUARY 12 - 15, 1993

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

USPCI
A Subsidiary of
Union Pacific Corporation

WELL LOG ABBREVIATIONS

ALT	altered
A	angular
APHNT	aphanitic
APP	approximately
A/A	as above
BSLT	basalt
BLK	black
BLDR	boulder
BRN	brown
BLKY	bulky
CH	inorganic clays, high plasticity
CL	inorganic clays, low plasticity
CMTD	cemented
CNSLDT	consolidated
C	coarse
CBBL	cobble
CMPT	component
CLY	clay/clayey
CLST	claystone
DMP	damp
DRK	dark
D.G.	decomposed granite
DNS	dense
DLTNCY	dilatancy
ELSTC	elastic
ELNGD	elongated
FELD	feldspar
FLM	film
F	fine
FRM	firm
FSSD	fissured
FRCD	fractured
GC	clayey gravels
GM	silty gravels
GP	poorly graded gravel
GW	well graded
GAS	gasoline
GRDD	graded
GR	grain
GRNTC	granitic
GRVL	gravel
ORNG	orange
ORG	organic
GRY	gray
GRN	green
HRD	hard
H	high
HOMO	homogenous
IGN	igneous
IND	individual
INDURD	indurated
INTBDD	interbedded
INTERCAL	intercalated
LMNTD	laminated
LT	light
LTL	little
LS	loose
MH	elastic silt, clayey silt, micaceous or diatomaceous fine sandy or or silty soils
ML	inorganic silts and very fine sands
MN	manganese
MNOX	manganese oxide
MJR	major
MSSV	massive
M	medium or moderate
MCA	mica/eous
MNR	minor
MST	moist
MTTLING	mottling
N	no, none, non
NPLST	nonplastic
NPO	no product odor
OH	organic clays of medium to high plasticity, organic silty clays
OL	organic silts and organic silty clays
PT	peat and other highly organic soils
PHNO	phenocryst
PLST	plastic/icity
PRLY	poorly, product
PRPH	porphyry/itic
POSS	possible
QTZ	quartz
R	rapid
RX	reactive
RD	red
RKS	rocks
RND	round
SM	silty sands
SP	poorly graded sands or with gravel
SW	well graded sands or with gravel
SND	sand
SNDST	sandstone
SIL	siliceous
SLT	silt
SLTY	sitly
SL	slightly
SL PO	slight product odor
SLW	slow
SFT	soft
SRTD	sorted
STCKY	sticky
STRNG	strong
STRNG PO	strong product odor
SA	subangular
SR	subround
SURF	surface
TGHNSS	toughness
TR	trace
TFF	tuff/aceous
V	very
VOLC	volcanic
WTR	water
WT	water table
WHT	white
W/	with
YLLW	yellow
O	odor

USPCI

A Subsidiary of
Union Pacific Corporation

LOG

BORING NO. EXAMPLE

WELL NO.

CLIENT:

JOB NUMBER:

PROJECT:

LOCATION:

DRILLED BY:

DRILLER:

METHOD:

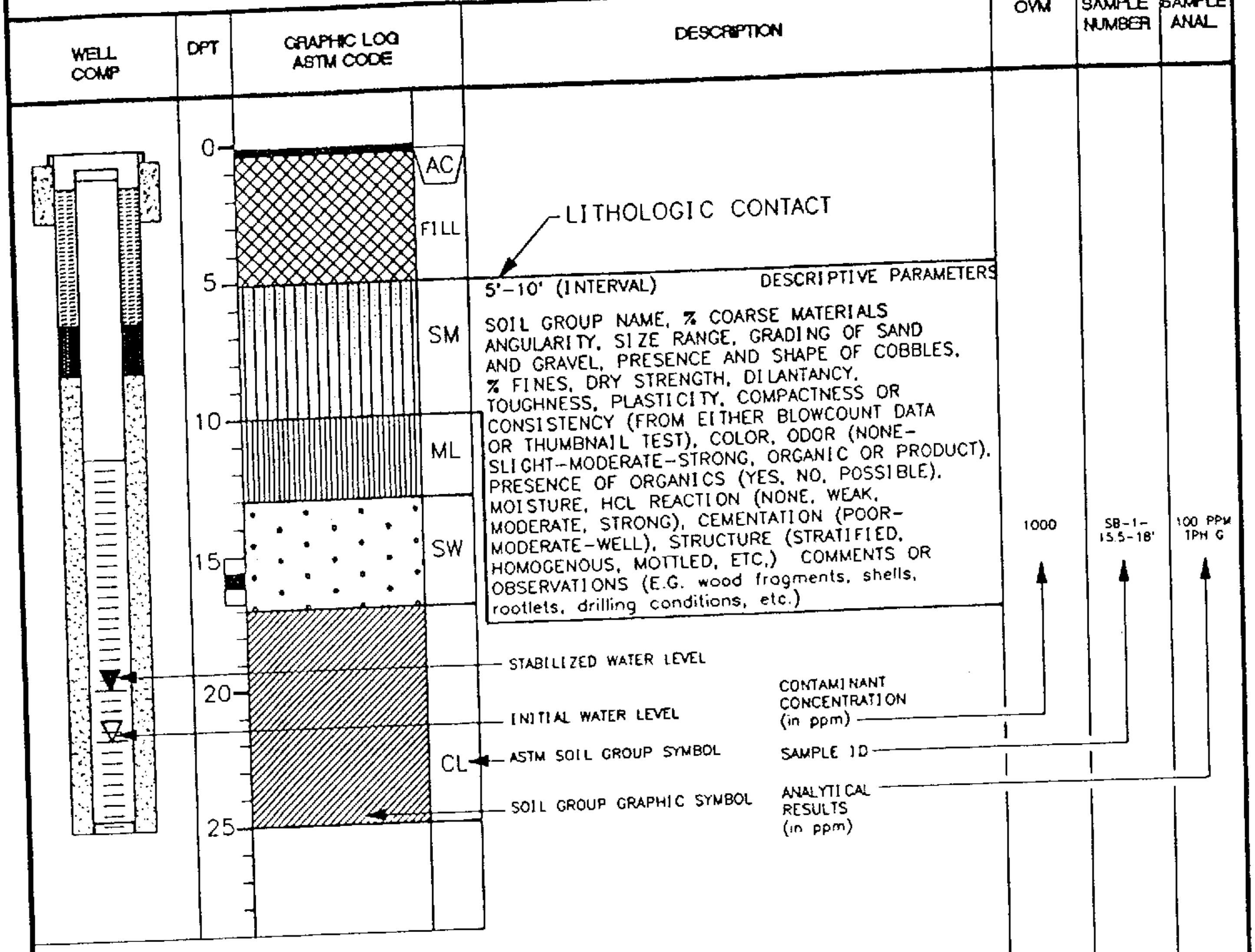
DATE START:

DATE COMPLETE:

TD:

LOGGED BY:

DEPTH TO WATER:



5'-10' (INTERVAL) DESCRIPTIVE PARAMETERS

SOIL GROUP NAME, % COARSE MATERIALS ANGULARITY, SIZE RANGE, GRADING OF SAND AND GRAVEL, PRESENCE AND SHAPE OF COBBLES, % FINES, DRY STRENGTH, DILANTANCY, TOUGHNESS, PLASTICITY, COMPACTNESS OR CONSISTENCY (FROM EITHER BLOWCOUNT DATA OR THUMBNAIL TEST), COLOR, ODOR (NONE-SLIGHT-MODERATE-STRONG, ORGANIC OR PRODUCT), PRESENCE OF ORGANICS (YES, NO, POSSIBLE), MOISTURE, HCL REACTION (NONE, WEAK, MODERATE, STRONG), CEMENTATION (POOR-MODERATE-WELL), STRUCTURE (STRATIFIED, HOMOGENOUS, MOTTLED, ETC.) COMMENTS OR OBSERVATIONS (E.G. wood fragments, shells, rootlets, drilling conditions, etc.)

▤	NEAT CEMENT	░	SAND	⊓	TRAFFIC BOX OR PROTECTIVE CASING
▦	BENTONITE PELLETS OR CHIPS	☰	WELL SCREEN	⊓	WATER TIGHT LOCKING CAP
▒	CONCRETE	☐	BLANK CASING	⊓	END CAP

01/11/93 at 13:15 K:\9212\96124\96124F34

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SOIL BORING/WELL LOG

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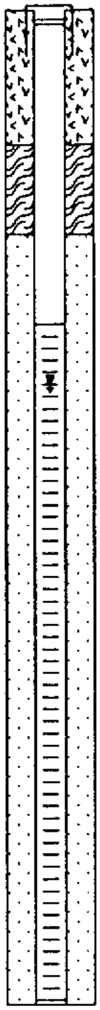
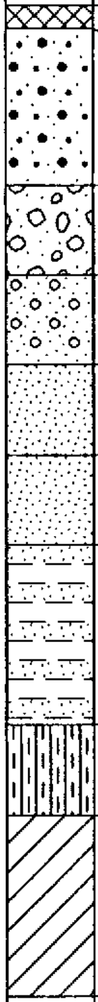
BORING NO.
WELL NO. OKUS-W1

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-12-93
DATE COMP: 1-12-93
REF. EL.: 9.17
TOTAL DEPTH: 22.0
LOGGED BY: C.S. BYERMAN
APPROVED BY: F.E. TAYLOR
DEPTH TO WATER: 8.42

WELL COMP



GRAPHIC LOG



DPT (ft)	BLOWS	ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
		ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	ND		
		FL	0.5 to 4.0 **FILL MATERIAL:** DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, LOOSE, DRY, NO ODOR	ND		
5	23 25	GW	4.0 to 6.0 **GRAVEL:** WITH SAND, BROWN, WELL GRADED, MINOR ORGANICS, LOOSE, DRY, NO ODOR, NO RECOVERY	ND		
	27 28 7 9	SW	6.0 to 8.0 **SAND:** BROWN TO GRAY, WITH MINOR GRAVEL, WELL GRADED, MINOR ORANICS, BROWN TO GRAY, LOOSE, DRY, NO ODOR	ND	OKS-1 (6'-8')	TPH-IR TPH-6 TPH-D BTEX
	8 14	SP	8.0 to 10.0 **SAND:** DARK GRAY ~~TO OLIVE GRAY~~, NO GRAVEL, POORLY GRADED, LOOSE, WET AT 10 FEET, NO ODOR	ND		
10	2 4 8	SP	10.0 to 12.0 **SAND:** DARK GRAY TO OLIVE GRAY, WITH MINOR SILT, NO GRAVEL, POORLY GRADED, WET AT 10 FEET, SLIGHT ODOR	5	OKS-2a (10-12')	TPH-IR TPH-6 TPH-D BTEX
15	8 13 15 20 15	SM	12.0 to 16.0 **SAND:** OLIVE GRAY WITH SILT, SILT INCREASING WITH DEPTH, MEDIUM DENSE, WET, SLIGHT ODOR	3	OKS-2b (10-12')	METALS 8270 8010
	15 12	ML	16.0 to 18.0 **SILT:** OLIVE GRAY, WITH CLAY, MINOR VERY FINE-GRAINED SAND, MEDIUM DENSE, WET, SLIGHT ODOR	ND		
20	10 14 23 25 27 25	CL	18.0 to 22.0 **CLAY:** DARK TO OLIVE GRAY, WITH SILT, SAND ABSENT, MODERATELY ELASTIC, WET, VERY SLIGHT ODOR	ND		
25						
30						

TOTAL DEPTH - 22.0 FEET (WELL SET AT 22 FEET)

SAMPLE ANALYTICAL RESULTS - SEE TABLES 3a and 3b
ND - NOT DETECTED

WATER LEVEL MEASURED 1-14-93 AND 1-15-93

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

JOB NUMBER: 96281

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SOIL BORING/WELL LOG

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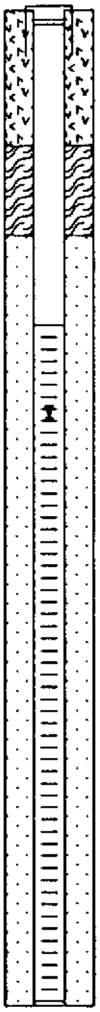
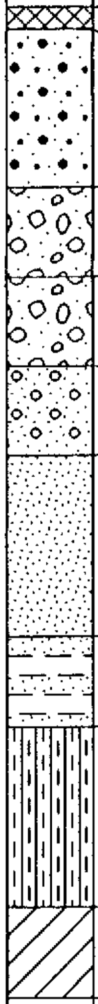
BORING NO.
WELL NO. OKUS-W2

CLIENT: UNION PACIFIC RAILROAD	JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE	LOCATION: 1750 FERRO ST., OAKLAND, CA
DRILLED BY: LAYNE WESTERN	DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 1-12-93	DATE COMP: 1-12-93
REF. EL.: 9.71	TOTAL DEPTH: 22.0
LOGGED BY: C.S. BYERMAN	APPROVED BY: F.E. TAYLOR
DEPTH TO WATER: 9.08	





BLOWS	ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
	ASPH	0.0 to 0.5 **ASPHALT CONRETE**	ND		
18 34	FL	0.5 to 4.0 **FILL MATERIAL:** DARK BROWN TO GRAY, MIX OF GRAVEL AND SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR	ND	OKS-3 (2'-4')	TPH-D TPH-G BTEX
37 26	GW	4.0 to 6.0 **GRAVEL:** BROWN, WITH SAND, WELL GRADED, DRY, LOOSE, NO ODOR			
4 10 10	GW	6.0 to 8.0 **GRAVEL WITH ABUNDANT SAND:** BROWN TO GRAY, WELL GRADED, DRY, LOOSE, NO ODOR, NO RECOVERY	5		
12 2 9 8	SW	8.0 to 10.0 **SAND** OLIVE GRAY TO BLACK, WITH MINOR GRAVEL, WELL GRADED, SOME ORGANICS, LOOSE, WET AT 10 FEET, MODERATE ODOR	64	OKS-4a (8'-10')	TPH-IR TPH-D TPH-G BTEX
6 4 7 5 12	SP	10.0 to 14.0 **SAND** GRAY TO OLIVE GRAY, WITH MINOR SILT, NO GRAVEL, POORLY GRADED, LOOSE, WET, MODERATE ODOR	37 35	OKS-4b (8'-10')	METALS 8010 8270
7 10	SM	14.0 to 16.0 **SILT** OLIVE GRAY TO OLIVE GREEN, WITH SAND, LOOSE, WET, MODERATE ODOR	55	OKS-5 (14-16')	TPH-D TPH-G BTEX
12 15 21 35 37 40	ML	16.0 to 20.0 **SILT** OLIVE GRAY, WITH MINOR CLAY, NO SAND, MODERATELY DENSE, WET, MODERATE ODOR	40		
14 30	CL	20.0 to 22.0 **CLAY** OLIVE GRAY, WITH SILT, NO SAND, MODERATELY DENSE, SLIGHTLY ELASTIC, WET, SLIGHT ODOR	30		
28 21					

TOTAL DEPTH - 22.0 FEET (WELL SET AT 22 FEET)

SAMPLE ANALYTICAL RESULTS - SEE TABLES 3a and 3b
ND - NOT DETECTED

WATER LEVEL MEASURED - 1-14-93 and 1-15-93

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

JOB NUMBER: 96281

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SOIL BORING/WELL LOG

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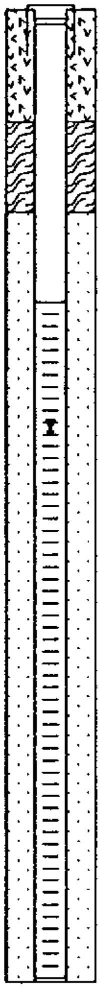
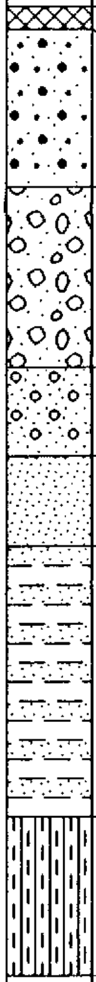
BORING NO.
WELL NO. OKUS-W3

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND – UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-13-93
DATE COMP: 1-13-93
REF. EL.: 9.80
TOTAL DEPTH: 21.0
LOGGED BY: C.S. BYERMAN
APPROVED BY:
DEPTH TO WATER: 9.39

WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	ND		
		18 50	FL	0.5 to 4.0 **FILL MATERIAL:** DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR	ND		
	5	6 7 5 5	GW	4.0 to 8.0 **GRAVEL:** GRAY, WITH SAND, SAND INCREASES WITH DEPTH, WELL GRADED, MINOR ORGANICS, GRAY, LOOSE, DRY, SLIGHT ODOR	7	OKS-6 (6'-8')	TPH-IR TPH-D TPH-G BTEX
		7 9	SW	8.0 to 10.0 **SAND:** OLIVE GRAY TO BROWN, WITH MINOR FINE GRAVEL, WELL GRADED, MINOR FILL MATERIAL, LOOSE, WET AT 9.0 FEET, SLIGHT ODOR	18		
	10	8 7 9 14	SP	10.0 to 12.0 **SAND:** OLIVE GRAY, VERY FINE, NO GRAVEL, POORLY GRADED, GRADED, LOOSE, WET, SLIGHT TO MODERATE ODOR	25	OKS-7a (10-12')	TPH-D TPH-G BTEX
	15	15 10 8 9 7 7	SM	12.0 to 18.0 **SAND:** OLIVE GRAY, WITH SILT, VERY FINE-GRAINED SAND, POORLY GRADED, LOOSE, WET, MODERATE ODOR	33 17	OKS-7b (10-12')	TPH-IR METALS
	20	3 6 3 6	ML	18.0 to 21.5 **SILT:** OLIVE GRAY TO DARK GRAY, WITH CLAY, MINOR VERY FINE SAND, OLIVE GRAY TO DARK GRAY, LOOSE, SLIGHTLY ELASTIC, WET, SLIGHT ODOR	10	OKS-8 (18-20')	TPH-IR TPH-D TPH-G BTEX
	25 30			TOTAL DEPTH – 21.5 FEET (WELL SET AT 21.5 FEET) SAMPLE ANALYTICAL RESULTS – SEE TABLES 3a and 3b ND – NOT DETECTED WATER LEVEL MEASURED 1-14-93 AND 1-15-93			

JOB NUMBER: 96281

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

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SOIL BORING/WELL LOG

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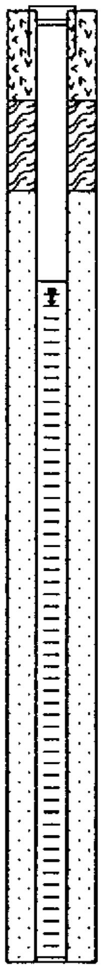
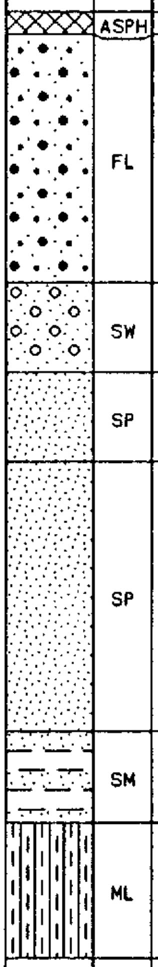
BORING NO.

WELL NO. OKUS-W4

CLIENT: UNION PACIFIC RAILROAD	JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE	LOCATION: 1750 FERRO ST., OAKLAND, CA
DRILLED BY: LAYNE WESTERN	DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 1-13-93	DATE COMP: 1-13-93
REF. EL.: 7.35	TOTAL DEPTH: 21.0
LOGGED BY: C.S. BYERMAN	APPROVED BY:
DEPTH TO WATER: 8.43	





DPT (ft)	BLOWS	ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
0.0 to 0.5		ASPH	**ASPHALT CONCRETE**	ND		
0.5 to 6.0	16 16	FL	**FILL MATERIAL:** DARK BROWN TO GRAY,MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, SLIGHT ODOR AT 5 FEET	ND 18		
6.0 to 8.0	10 25	SW	**SAND:** OLIVE GRAY, WITH MINOR GRAVEL, WELL GRADED, SAND STAINED WITH AN OIL SUBSTANCE, MODERATELY DENSE, MOIST AT 7 FEET, MODERATE ODOR	54		
8.0 to 10.0	3 2	SP	**SAND:** OLIVE GRAY, WITH MINOR FINE GRAVEL, POORLY GRADED, STAINED WITH AN OIL SUBSTANCE, LOOSE, WET AT 9.0 FEET, MODERATE ODOR	72	OKS-10a (8'-9')	TPH-IR TPH-D TPH-G BTEX
10.0 to 16.0	4 7 13 10 11 9	SP	**SAND:** OLIVE GRAY TO DARK GRAY, VERY FINE-GRAINED, NO GRAVEL, MINOR SILT, MINOR FILL MATERIAL, OIL STAINED, WET, MODERATE ODOR	24	OKS-10b (8'-9')	METALS
16.0 to 18.0	7 7 10	SM	**SAND:** GRAY, WITH SILT, VERY FINE-GRAINED SAND, POORLY GRADED, OIL STAINED, MODERATELY DENSE, WET, SLIGHT ODOR	ND		
18.0 to 21.0	6 11 15 22 23	ML	**SILT:** OLIVE GRAY, WITH CLAY, CLAY CONTENT INCREASES WITH DEPTH, OLIVE GRAY, MODERATELY DENSE, SLIGHTLY ELASTIC, WET, SLIGHT ODOR	ND		

TOTAL DEPTH - 21.0 FEET (WELL SET AT 21 FEET)

SAMPLE ANALYTICAL RESULTS - SEE TABLES 3a and 3b
ND - NOT DETECTED

WATER LEVEL MEASURED 1-14-93 AND 1-15-93

F. ERICKSON TAYLOR
No. 4710
EXP. 6-94

JOB NUMBER: 96281

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SOIL BORING/WELL LOG

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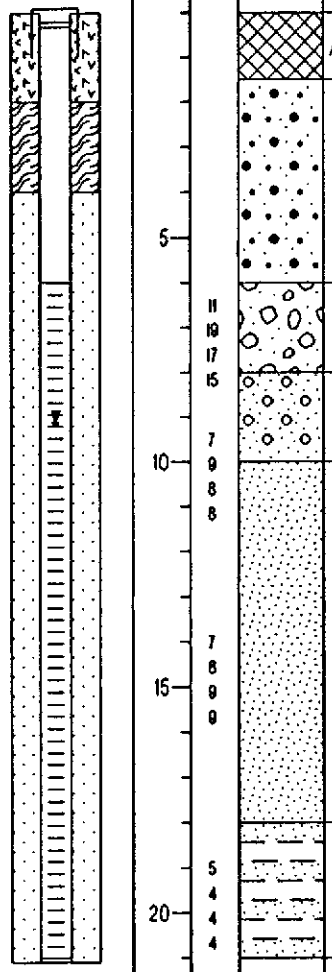
BORING NO.
WELL NO. OKUS-W5

CLIENT: UNION PACIFIC RAILROAD	JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE	LOCATION: 1750 FERRO ST., OAKLAND, CA
DRILLED BY: LAYNE WESTERN DRILLER: RUSS	METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-14-93 DATE COMP: 1-14-93 REF. EL.: 9.25	TOTAL DEPTH: 21.0
LOGGED BY: C.S. BYERMAN APPROVED BY: F.E. TAYLOR	DEPTH TO WATER: 9.13



WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 1.5 **ASPHALT CONCRETE**	ND		
	5		FL	1.5 to 6.0 **FILL MATERIAL:** BROWN TO GRAY, MIX OF GRAVEL, SAND BRICK, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR	ND		
		11 19 17 15	GW	6.0 to 8.0 **GRAVEL:** OLIVE GREEN TO GRAY, WITH SAND, WELL GRADED, LOOSE, DRY, NO ODOR	ND	OKS-14 (7')	TPH-IR TPH-D TPH-G BTEX
	10	7 9 8 8	SW	8.0 to 10.0 **SAND:** OLIVE GREEN TO BLACK, WITH ~~GRAVEL, WELL GRADED,~~ BLACK, HEAVY OIL STAINING, LOOSE, WET AT 9.0 FEET, MODERATE ODOR	75	OKS-13a (8-10')	TPH-IR TPH-D TPH-G BTEX
	15	7 8 9 9	SP	10.0 to 18.0 **SAND:** OLIVE GRAY, WITH MINOR FINE GRAVEL AND SILT, POORLY GRADED, SOME BLACK OIL STAINING, WET, MODERATE ODOR	62	OKS-13b (8-10')	METALS
	20	5 4 4 4	SM	18.0 to 21.0 **SAND:** GRAY, WITH SILT, VERY FINE-GRAINED SAND, POORLY GRADED, LOOSE, WET, SLIGHT ODOR	55		

TOTAL DEPTH - 21.0 FEET (WELL SET AT 21 FEET)

SAMPLE ANALYTICAL RESULTS - SEE TABLES 3a and 3b
ND - NOT DETECTED

WATER LEVEL MEASURED 1-14-93 AND 1-15-93

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

USPCI
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SOIL BORING/WELL LOG

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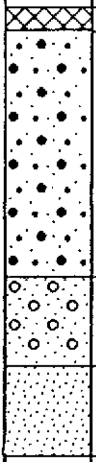
BORING NO. OKUS-B1
WELL NO.

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND – UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-13-93
DATE COMP: 1-13-93
REF. EL.: 10.00
TOTAL DEPTH: 10
LOGGED BY: C.S. BYERMAN
APPROVED BY: F.E. TAYLOR
DEPTH TO WATER:



WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	ND		
	5	8,9, 13,14	FL	0.5 to 6.0 **FILL MATERIAL:** BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICK, AND OTHER MATERIAL, BROWN TO GRAY, DRY, LOOSE, NO ODOR			
		6,7,7,7	SW	6.0 to 8.0 **SAND AND GRAVEL:** GRAY TO OLIVE GRAY, WELL GRADED, LOOSE, DRY, MODERATE ODOR	3		
	10	9,10, 11,14	SP	8.0 to 10.0 **SAND:** OLIVE GRAY, MINOR GRAVEL AND SILT, POORLY GRADED, MODERATELY LOOSE, WET AT 10.0 FEET, MODERATE ODOR	31 38	OKS-9 (8-9')	TPH-IR TPH-D TPH-G BTEX
	15						
	20						
	25						
	30						

TOTAL DEPTH – 10.0 FEET

SAMPLE ANALYTICAL RESULTS – TPH, BTEX – SEE TABLE 3a
ND – NOT DETECTED
ELEVATION MEASURED FROM MSL

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

JOB NUMBER: 96281

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SOIL BORING/WELL LOG

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BORING NO. OKUS-B2
WELL NO.

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND – UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-13-93
DATE COMP: 1-13-93
REF. EL.: 9.30
TOTAL DEPTH: 8.5
LOGGED BY: C.S. BYERMAN
APPROVED BY: F.E. TAYLOR
DEPTH TO WATER:

WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG	ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			▩	ASPH	0.0 to 2.0 **ASPHALT CONCRETE**	ND		
	5	8 11 12 12	⁘	FL	2.0 to 6.0 **FILL MATERIAL:** GRAY TO BROWN, GRAVEL AND SAND, CLEAN LOOSE, DRY, NO ODOR	ND	OKS-11 (4'-5')	TPH-IR TPH-D TPH-G BTEX
		4 4 4 4 1 2 5 7	○	GW	6.0 to 8.5 **GRAVEL WITH SAND:** BROWN TO GRAY, WELL GRADED, AT 7.5 FEET STAINED WITH A BLACK OILY SUBSTANCE, LOOSE, MOIST AT 8 FEET, SLIGHT ODOR	2.5	OKS-12 (7'-8')	TPH-IR TPH-D TPH-G BTEX
	10 15 20 25 30				TOTAL DEPTH – 8.5 FEET SAMPLE ANALYTICAL RESULTS – TPH, BTEX – SEE TABLE 3a ND – NOT DETECTED ELEVATION MEASURED FROM MSL			

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

JOB NUMBER: 96281

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SOIL BORING/WELL LOG

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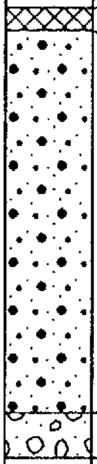
BORING NO. OKUS-B3
WELL NO.

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-14-93
DATE COMP: 1-14-93
REF. EL.: 9.98
TOTAL DEPTH: 10.0
LOGGED BY: C.S. BYERMAN
APPROVED BY:
DEPTH TO WATER:



WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	N/A		
	5	5 7 12 25	FL	0.5 to 9.0 **FILL MATERIAL:** OLVIE GREEN TO BROWN, GRAVEL, SAND, WOOD, GLASS, WELL GRADED, DRY TO 8 FEET, LOOSE TO MODERATELY DENSE, MODERATE ODOR			
	10	7 13 30 39	GW	9.0 to 10.0 **SAND WITH GRAVEL:** OLIVE GRAY, POORLY GRADED, WET AT 9.5 FEET, LOOSE, MODERATE ODOR	N/A N/A	OKS-15 (8'-10')	TPH-IR TPH-D TPH-G BTEX
	15						
	20						
	25						
	30						

TOTAL DEPTH - 10.0 FEET

SAMPLE ANALYTICAL RESULTS - TPH, BTEX - SEE TABEL 3a
N/A - NOT ANALYZED (OVM MALFUNCTION)
ELEVATION MEASURED FROM MSL

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

JOB NUMBER: 96281

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Union Pacific Corporation

SOIL BORING/WELL LOG

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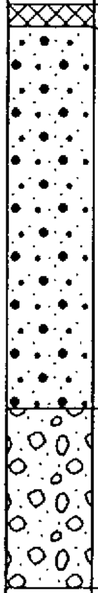
BORING NO. OKUS-B4

WELL NO.

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-14-93
DATE COMP: 1-14-93
REF. EL.: 7.78
TOTAL DEPTH: 13.0
LOGGED BY: C.S. BYERMAN
APPROVED BY:
DEPTH TO WATER:



WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	N/A		
	5	7 7 4 15 12 12 18 20	FL	0.5 to 9.0 **FILL MATERIAL:** OLIVE GREEN TO REDDISH BROWN, GRAVEL, SAND, BRICK, WELL GRADED, DRY, LOOSE, FOUL ODOR			
	10	8 11 15 8	GW	9.0 to 13.0 **SAND WITH MINOR GRAVEL:** OLIVE GRAY, POORLY GRADED, WET AT 10 FEET, LOOSE, FOUL ODOR	N/A	OKS-16a (8'-9') OKS-16b (8'-9')	TPH-D TPH-G BTEX TPH-IR METALS
	15			TOTAL DEPTH - 13.0 FEET			
	20						
	25						
	30						

SAMPLE ANALYTICAL RESULTS-TPH, BTEX, METALS-SEE TABLE 3a
N/A - NOT ANALYZED (OVM MALFUNCTION)
ELEVATION MEASURED FROM MSL

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

JOB NUMBER: 96281

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OIL BORING/WELL LOG

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BORING NO. OKUS-B5

WELL NO.

CLIENT: UNION PACIFIC RAILROAD			JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE		LOCATION: 1750 FERRO ST., OAKLAND, CA.	
DRILLED BY: LAYNE WESTERN	DRILLER: RUSS		METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-14-93	DATE COMP: 1-14-93	REF. EL.: 7.56	TOTAL DEPTH: 13.0
LOGGED BY: C.S. BYERMAN	APPROVED BY:		DEPTH TO WATER:

WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	N/A		
		2 2 4 4	FL	0.5 to 11.0 **FILL MATERIAL:** OLIVE GREEN TO REDDISH BROWN, GRAVEL, SAND, BRICK, WET AT 10 FEET, LOOSE, FOUL ODOR	N/A	OKS-17 (2'-4')	TPH-IR
	5	7 20 22 29					
		6 5 12 13				OKS-18 (8'-10')	BROKEN
	10						
		2 1 1 1	SP	11.0 to 13.0 **SAND:** OLIVE GRAY, WITH MINOR GRAVEL, POORLY GRADED, WET, MODERATELY DENSE, FOUL ODOR	N/A	OKS-19 (11'-13')	TPH-IR METALS
	15			TOTAL DEPTH - 13.0 FEET SAMPLE ANALYTICAL VALUES - TPH, BTEX, METALS - SEE TABLE 3a N/A - NOT ANALYZED (OVM MALFUNCTION) ELEVATION MEASURED FROM MSL			
	20						
	25						
	30						

REGISTERED GEOLOGIST
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JOB NUMBER: 96281

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OIL BORING/WELL LOG

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BORING NO. OKUS-B6
WELL NO.

CLIENT: UNION PACIFIC RAILROAD
JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE
LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN
DRILLER: RUSS
METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-14-93
DATE COMP: 1-14-93
REF. EL.: 7.43
TOTAL DEPTH: 12.0
LOGGED BY: C.S. BYERMAN
APPROVED BY: F.E. TAYLOR
DEPTH TO WATER:

WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **HALT CONCRETE:**	N/A		
	5	8 17 30 50	FL	0.5 to 6.0 **FILL MATERIAL:** OLIVE GREEN, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR	N/A		
	10	10 6 12 14 7 15	SW	6.0 to 10.0 **SAND:** OLIVE GRAY, WITH MINOR GRAVEL, WELL GRADED, LOOSE, SLIGHTLY FOUL ODOR, NO RECOVERY FOR SAMPLE, MOIST AT 8 FEET	N/A		
		12 12 4 4 4 4	SP	10.0 to 12.0 **SAND:** OLIVE GRAY, NO GRAVEL, POORLY GRADED, WET AT 10 FEET, LOOSE, SLIGHTLY FOUL ODOR	N/A	OKS-20 (10'-11')	BROKEN
	15 20 25 30			TOTAL DEPTH - 12.0 FEET NO ANALYTICAL RESULTS - CONTAINER BROKEN DURING SHIPPING N/A - NOT ANALYZED (OVM MALFUNTION) ELEVATION MEASURED FROM MSL			

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OIL BORING/WELL LOG

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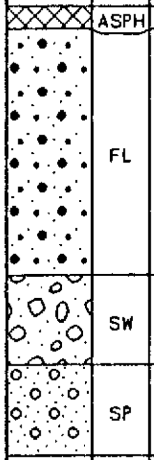
BORING NO. OKUS-B7

WELL NO.

CLIENT: UNION PACIFIC RAILROAD		JOB NUMBER: 96281
PROJECT: UPMF OAKLAND - UST SITE		LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN	DRILLER: RUSS	METHOD: H-S AUGER W/ SPL SPOON
DATE START: 1-15-93	DATE COMP: 1-15-93	REF. EL.: 8.87
TOTAL DEPTH: 10.0		
LOGGED BY: C.S. BYERMAN	APPROVED BY:	DEPTH TO WATER:



WELL COMP	DPT (ft)	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM (ppm)	SAMPLE NUMBER	SAMPLE ANAL.
			ASPH	0.0 to 0.5 **ASPHALT CONCRETE**	N/A		
	5		FL	0.5 to 6.0 **FILL MATERIAL:** OLIVE GREEN TO GRAY, GRAVEL, SAND, BRICK, DRY, LOOSE, NO ODOR.			
		9 9 6	SW	6.0 to 8.0 **FINE GRAVEL:** BROWN TO GRAY, VERY FINE TO MEDIUM SAND, WELL GRADED, SOME ORGANICS, DRY, LOOSE, SLIGHT ODOR	N/A	OKS-21 (6'-8')	TPH-D TPH-G BTEX
		6 9 10	SP	8.0 to 10.0 **SAND:** OLIVE GRAY, WITH MINOR GRAVEL AND SILT, POORLY GRADED, STAINED W/BLACK OILY SUBSTANCE, MODERATELY LOOSE, WET AT 10 FEET	N/A	OKS-22 (6'-8')	MS/MSDS TPH-D TPH-G BTEX
	10	11 7 9 12 12 14			N/A	OKS-23 (8'-10')	TPH-IR METALS
	15						
	20						
	25						
	30						

TOTAL DEPTH - 10.0 FEET

SAMPLE ANALYTICAL RESULTS - TPH, BTEX, METALS, MS/MSDS - SEE TABLE 3a
N/A - NOT ANALYZED (OVM MALFUNCTION)
ELEVATION MEASURED FROM MSL

REGISTERED GEOLOGIST
F. ERICKSON TAYLOR
No. 4710
EXP. 6-94
STATE OF CALIFORNIA

Designation: D 248[illegible] 90

AMERICAN SOCIETY FOR TESTING AND MATERIALS
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If not listed in [illegible]rent combined index, will appear in the next edition.

Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)[1]

This standard is issued under the fixed designation D 2488; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

1. Scope

1.1 This practice covers procedures for the description of soils for engineering purposes.

1.2 This practice also describes a procedure for identifying soils, at the option of the user, based on the classification system described in Test Method D 2487. The identification is based on visual examination and manual tests. It must be clearly stated in reporting an identification that it is based on visual-manual procedures.

1.2.1 When precise classification of soils for engineering purposes is required, the procedures prescribed in Test Method D 2487 shall be used.

1.2.2 In this practice, the identification portion assigning a group symbol and name is limited to soil particles smaller than 3 in. (75 mm).

1.2.3 The identification portion of this practice is limited to naturally occurring soils (disturbed and undisturbed).

NOTE 1—This practice may be used as a descriptive system applied to such materials as shale, claystone, shells, crushed rock, etc. (See Appendix X2).

1.3 The descriptive information in this practice may be used with other soil classification systems or for materials other than naturally occurring soils.

1.4 *This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautionary statements see Section 8.

1.5 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 *ASTM Standards:*

- D 653 Terminology Relating to Soil, Rock, and Contained Fluids[2]
- D 1452 Practice for Soil Investigation and Sampling by Auger Borings[2]
- D 1586 Method for Penetration Test and Split-Barrel Sampling of Soils[2]
- D 1587 Practice for Thin-Walled Tube Sampling of Soils[2]
- D 2113 Practice for Diamond Core Drilling for Site Investigation[2]
- D 2487 Test Method for Classification of Soils for Engineering Purposes[2]
- D 4083 Practice for Description of Frozen Soils (Visual-Manual Procedure)[2]

3. Terminology

3.1 *Definitions:*

3.1.1 Except as listed below, all definitions are in accordance with Terminology D 653.

NOTE 2—For particles retained on a 3-in. (75-mm) US standard sieve, the following definitions are suggested:

Cobbles—particles of rock that will pass a 12-in. (300-mm) square opening and be retained on a 3-in. (75-mm) sieve, and

Boulders—particles of rock that will not pass a 12-in. (300-mm) square opening.

3.1.1.2 *clay*—soil passing a No. 200 (75-μm) sieve that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when air-dry. For classification, a clay is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index equal to or greater than 4, and the plot of plasticity index versus liquid limit falls on or above the "A" line (see Fig. 3 of Test Method D 2487).

3.1.1.3 *gravel*—particles of rock that will pass a 3-in. (75-mm) sieve and be retained on a No. 4 (4.75-mm) sieve with the following subdivisions:

coarse—passes a 3-in. (75-mm) sieve and is retained on a ¾-in. (19-mm) sieve.

fine—passes a ¾-in. (19-mm) sieve and is retained on a No. 4 (4.75-mm) sieve.

3.1.1.4 *organic clay*—a clay with sufficient organic content to influence the soil properties. For classification, an organic clay is a soil that would be classified as a clay, except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.1.5 *organic silt*—a silt with sufficient organic content to influence the soil properties. For classification, an organic silt is a soil that would be classified as a silt except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.1.6 *peat*—a soil composed primarily of vegetable tissue in various stages of decomposition usually with an organic odor, a dark brown to black color, a spongy consistency, and a texture ranging from fibrous to amorphous.

3.1.1.7 *sand*—particles of rock that will pass a No. 4

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[1] This practice is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.07 on Identification and Classification of Soils.

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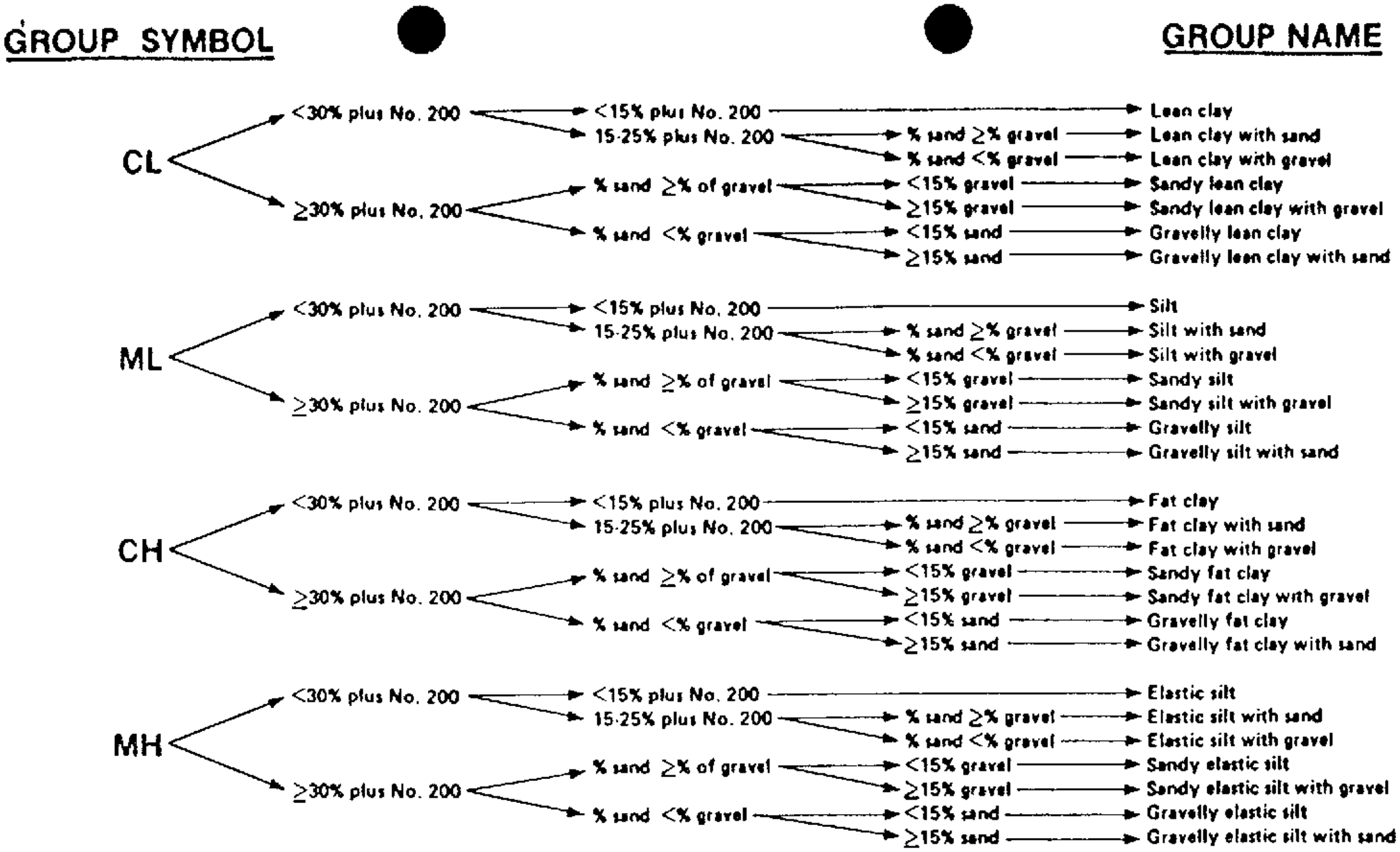
[2] *Annual Book of ASTM Standards*, Vol 04.08.



Note—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1a Flow Chart for Identifying Inorganic Fine-Grained Soil (50 % or more fines)

(4.75-mm) sieve and be retained on a No. 200 (75-µm) sieve with the following subdivisions:

coarse—passes a No. 4 (4.75-mm) sieve and is retained on a No. 10 (2.00-mm) sieve.

medium—passes a No. 10 (2.00-mm) sieve and is retained on a No. 40 (425-µm) sieve.

fine—passes a No. 40 (425-µm) sieve and is retained on a No. 200 (75-µm) sieve.

3.1.1.8 *silt*—soil passing a No. 200 (75-µm) sieve that is nonplastic or very slightly plastic and that exhibits little or no strength when air dry. For classification, a silt is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index less than 4, or the plot of plasticity index versus liquid limit falls below the "A" line (see Fig. 3 of Test Method D 2487).

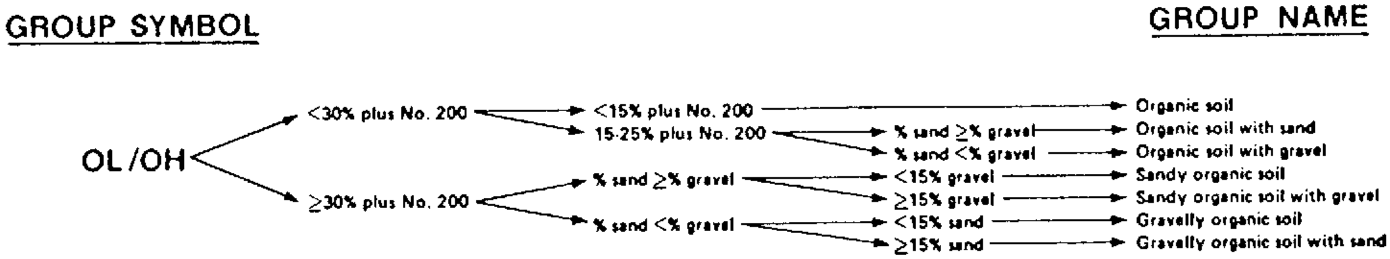
4. Summary of Practice

4.1 Using visual examination and simple manual tests, this practice gives standardized criteria and procedures for describing and identifying soils.

4.2 The soil can be given an identification by assigning a group symbol(s) and name. The flow charts, Figs. 1a and 1b for fine-grained soils, and Fig. 2, for coarse-grained soils, can be used to assign the appropriate group symbol(s) and name. If the soil has properties which do not distinctly place it into a specific group, borderline symbols may be used, see Appendix X3.

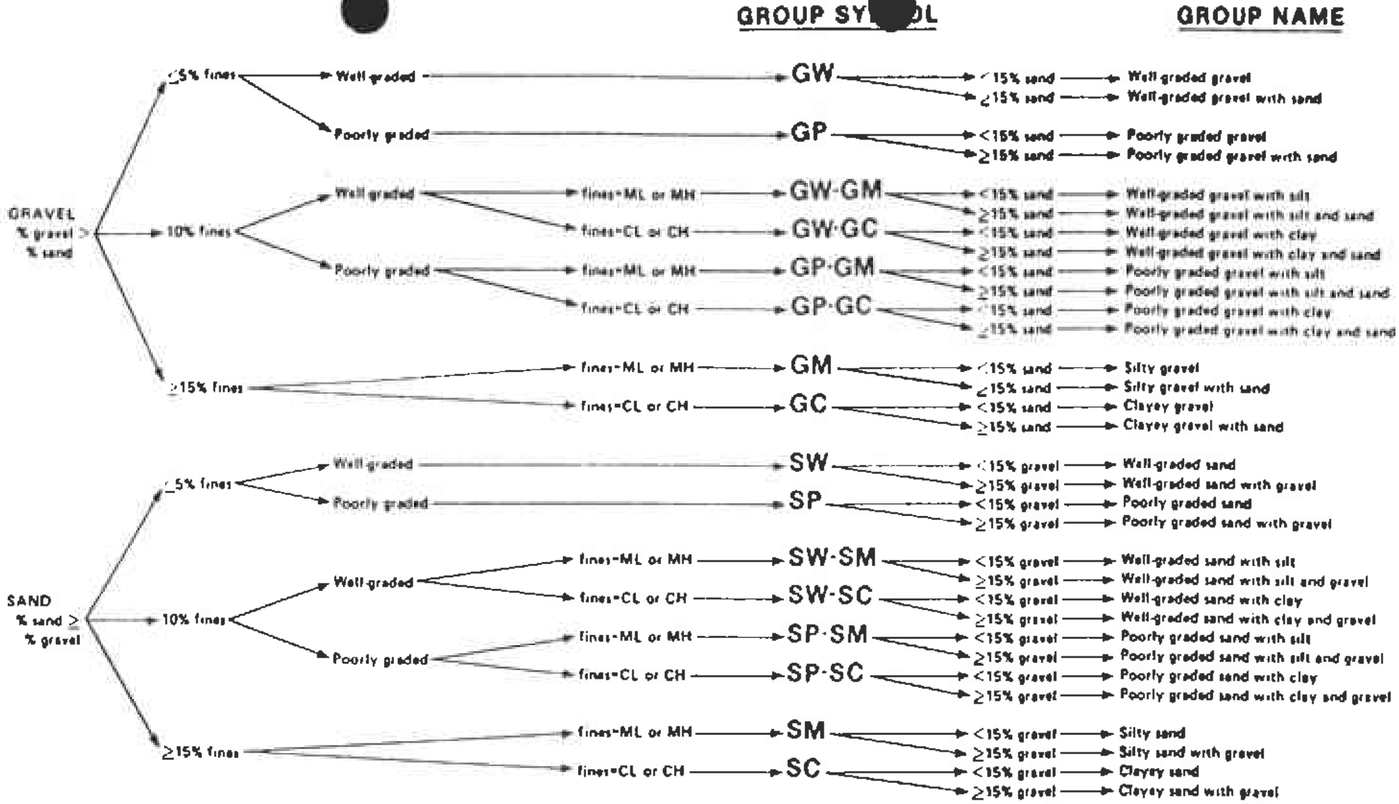
Note 3—It is suggested that a distinction be made between *dual symbols* and *borderline symbols*.

Dual Symbol—A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC, CL-ML used to indicate that the soil has been identified as having the properties of a classification in accordance with Test Method D 2487 where two symbols are required. Two symbols are required when the soil has between 5 and 12 % fines or



Note—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1b Flow Chart for Identifying Organic Fine-Grained Soil (50 % or more fines)



NOTE—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 2 Flow Chart for Identifying Coarse-Grained Soils (less than 50 % fines)

when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

Borderline Symbol—A borderline symbol is two symbols separated by a slash, for example, CL/CH, GM/SM, CL/ML. A borderline symbol should be used to indicate that the soil has been identified as having properties that do not distinctly place the soil into a specific group (see Appendix X3).

5. Significance and Use

5.1 The descriptive information required in this practice can be used to describe a soil to aid in the evaluation of its significant properties for engineering use.

5.2 The descriptive information required in this practice should be used to supplement the classification of a soil as determined by Test Method D 2487.

5.3 This practice may be used in identifying soils using the classification group symbols and names as prescribed in Test Method D 2487. Since the names and symbols used in this practice to identify the soils are the same as those used in Test Method D 2487, it shall be clearly stated in reports and all other appropriate documents, that the classification symbol and name are based on visual-manual procedures.

5.4 This practice is to be used not only for identification of soils in the field, but also in the office, laboratory, or wherever soil samples are inspected and described.

5.5 This practice has particular value in grouping similar soil samples so that only a minimum number of laboratory tests need be run for positive soil classification.

NOTE 4—The ability to describe and identify soils correctly is learned more readily under the guidance of experienced personnel, but it may also be acquired systematically by comparing numerical laboratory test results for typical soils of each type with their visual and manual characteristics.

5.6 When describing and identifying soil samples from a given boring, test pit, or group of borings or pits, it is not necessary to follow all of the procedures in this practice for every sample. Soils which appear to be similar can be grouped together; one sample completely described and identified with the others referred to as similar based on performing only a few of the descriptive and identification procedures described in this practice.

5.7 This practice may be used in combination with Practice D 4083 when working with frozen soils.

6. Apparatus

6.1 *Required Apparatus:*

6.1.1 *Pocket Knife or Small Spatula.*

6.2 *Useful Auxiliary Apparatus:*

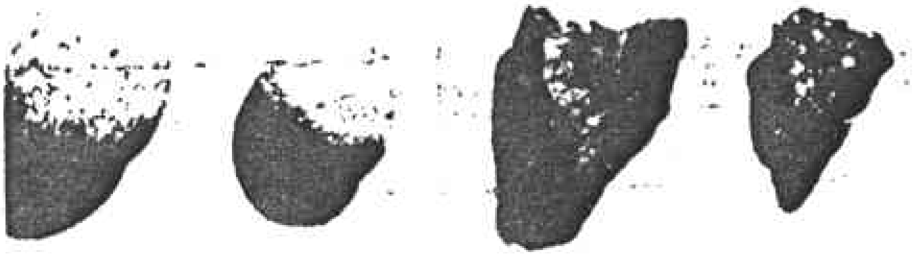
6.2.1 *Small Test Tube and Stopper* (or jar with a lid).

6.2.2 *Small Hand Lens.*

7. Reagents

7.1 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean water from a city water supply or natural source, including non-potable water.

7.2 *Hydrochloric Acid*—A small bottle of dilute hydrochloric acid, HCl, one part HCl (10 *N*) to three parts water (This reagent is optional for use with this practice). See Section 8.



(a) Rounded

(b) Angular

(c) Subrounded

(d) Subangular

FIG. 3 Typical Angularity of Bulky Grains

8. Safety Precautions

8.1 When preparing the dilute HCl solution of one part concentrated hydrochloric acid (10 *N*) to three parts of distilled water, slowly add acid into water following necessary safety precautions. Handle with caution and store safely. If solution comes into contact with the skin, rinse thoroughly with water.

8.2 **Caution**—Do not add water to acid.

9. Sampling

9.1 The sample shall be considered to be representative of the stratum from which it was obtained by an appropriate, accepted, or standard procedure.

NOTE 5—Preferably, the sampling procedure should be identified as having been conducted in accordance with Practices D 1452, D 1587, or D 2113, or Method D 1586.

9.2 The sample shall be carefully identified as to origin.

NOTE 6—Remarks as to the origin may take the form of a boring number and sample number in conjunction with a job number, a geologic stratum, a pedologic horizon or a location description with respect to a permanent monument, a grid system or a station number and offset with respect to a stated centerline and a depth or elevation.

9.3 For accurate description and identification, the minimum amount of the specimen to be examined shall be in accordance with the following schedule:

Maximum Particle Size, Sieve Opening	Minimum Specimen Size, Dry Weight
4.75 mm (No. 4)	100 g (0.5 lb)
9.5 mm (⅜ in.)	200 g (0.5 lb)
19.0 mm (¾ in.)	1.0 kg (2.2 lb)
38.1 mm (1½ in.)	8.0 kg (18 lb)
75.0 mm (3 in.)	60.0 kg (132 lb)

NOTE 7—If random isolated particles are encountered that are significantly larger than the particles in the soil matrix, the soil matrix can be accurately described and identified in accordance with the preceeding schedule.

9.4 If the field sample or specimen being examined is smaller than the minimum recommended amount, the report shall include an appropriate remark.

10. Descriptive Information for Soils

10.1 *Angularity*—Describe the angularity of the sand (coarse sizes only), gravel, cobbles, and boulders, as angular, subangular, subrounded, or rounded in accordance with the criteria in Table 1 and Fig. 3. A range of angularity may be stated, such as: subrounded to rounded.

10.2 *Shape*—Describe the shape of the gravel, cobbles, and boulders as flat, elongated, or flat and elongated if they meet the criteria in Table 2 and Fig. 4. Otherwise, do not mention the shape. Indicate the fraction of the particles that have the shape, such as: one-third of the gravel particles are flat.

10.3 *Color*—Describe the color. Color is an important property in identifying organic soils, and within a given

TABLE 1 Criteria for Describing Angularity of Coarse-Grained Particles (see Fig. 3)

Description	Criteria
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

TABLE 2 Criteria for Describing Particle Shape (see Fig. 4)

The particle shape shall be described as follows where length, width, and thickness refer to the greatest, intermediate, and least dimensions of a particle, respectively.

Flat	Particles with width/thickness > 3
Elongated	Particles with length/width > 3
Flat and elongated	Particles meet criteria for both flat and elongated

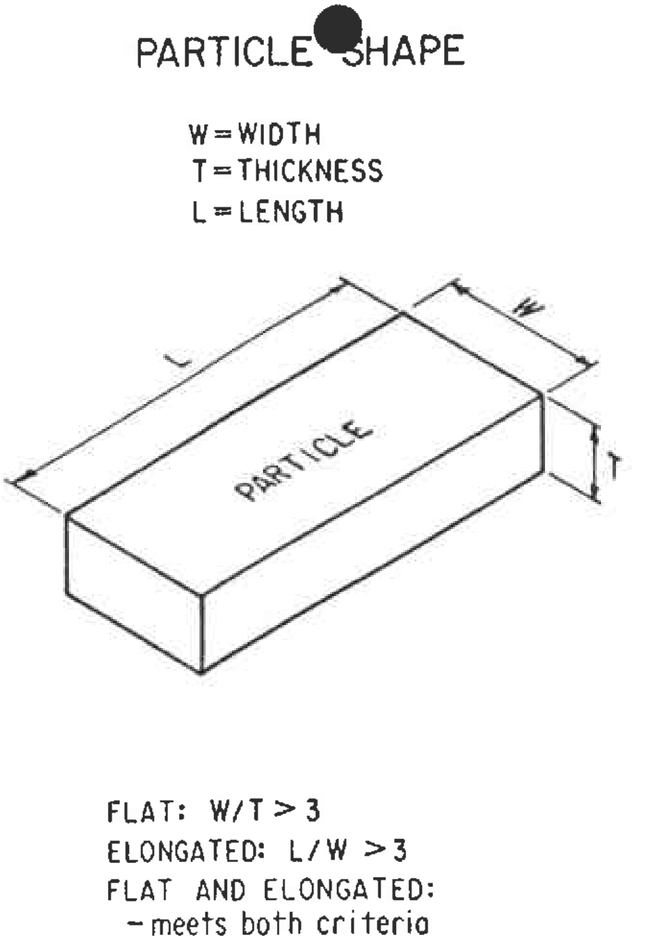


FIG. 4 Criteria for Particle Shape

TABLE 3 Criteria for Describing Moisture Condition

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

locality it may also be useful in identifying materials of similar geologic origin. If the sample contains layers or patches of varying colors, this shall be noted and all representative colors shall be described. The color shall be described for moist samples. If the color represents a dry condition, this shall be stated in the report.

10.4 *Odor*—Describe the odor if organic or unusual. Soils containing a significant amount of organic material usually have a distinctive odor of decaying vegetation. This is especially apparent in fresh samples, but if the samples are dried, the odor may often be revived by heating a moistened sample. If the odor is unusual (petroleum product, chemical, and the like), it shall be described.

10.5 *Moisture Condition*—Describe the moisture condition as dry, moist, or wet, in accordance with the criteria in Table 3.

10.6 *HCl Reaction*—Describe the reaction with HCl as none, weak, or strong, in accordance with the critera in Table 4. Since calcium carbonate is a common cementing agent, a report of its presence on the basis of the reaction with dilute hydrochloric acid is important.

TABLE 4 Criteria for Describing the Reaction With HCl

Description	Criteria
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

TABLE 5 Criteria for Describing Consistency

Description	Criteria
Very soft	Thumb will penetrate soil more than 1 in. (25 mm)
Soft	Thumb will penetrate soil about 1 in. (25 mm)
Firm	Thumb will indent soil about ¼ in. (6 mm)
Hard	Thumb will not indent soil but readily indented with thumbnail
Very hard	Thumbnail will not indent soil

10.7 *Consistency*—For intact fine-grained soil, describe the consistency as very soft, soft, firm, hard, or very hard, in accordance with the criteria in Table 5. This observation is inappropriate for soils with significant amounts of gravel.

10.8 *Cementation*—Describe the cementation of intact coarse-grained soils as weak, moderate, or strong, in accordance with the criteria in Table 6.

10.9 *Structure*—Describe the structure of intact soils in accordance with the criteria in Table 7.

10.10 *Range of Particle Sizes*—For gravel and sand components, describe the range of particle sizes within each component as defined in 3.1.2 and 3.1.6. For example, about 20 % fine to coarse gravel, about 40 % fine to coarse sand.

10.11 *Maximum Particle Size*—Describe the maximum particle size found in the sample in accordance with the following information:

10.11.1 *Sand Size*—If the maximum particle size is a sand size, describe as fine, medium, or coarse as defined in 3.1.6. For example: maximum particle size, medium sand.

10.11.2 *Gravel Size*—If the maximum particle size is a gravel size, describe the maximum particle size as the smallest sieve opening that the particle will pass. For example, maximum particle size, 1½ in. (will pass a 1½-in. square opening but not a ¾-in. square opening).

10.11.3 *Cobble or Boulder Size*—If the maximum particle size is a cobble or boulder size, describe the maximum dimension of the largest particle. For example: maximum dimension, 18 in. (450 mm).

10.12 *Hardness*—Describe the hardness of coarse sand and larger particles as hard, or state what happens when the particles are hit by a hammer, for example, gravel-size particles fracture with considerable hammer blow, some gravel-size particles crumble with hammer blow. "Hard" means particles do not crack, fracture, or crumble under a hammer blow.

10.13 Additional comments shall be noted, such as the presence of roots or root holes, difficulty in drilling or augering hole, caving of trench or hole, or the presence of mica.

10.14 A local or commercial name or a geologic interpre-

TABLE 6 Criteria for Describing Cementation

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

TABLE 7 Criteria for Describin[illegible]ucture

Description	Criteria
Stratified	Alternating layers of varying material or color with layers at least 6 mm thick; note thickness
Laminated	Alternating layers of varying material or color with the layers less than 6 mm thick; note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

tation of the soil, or both, may be added if identified as such.

10.15 A classification or identification of the soil in accordance with other classification systems may be added if identified as such.

11. Identification of Peat

11.1 A sample composed primarily of vegetable tissue in various stages of decomposition that has a fibrous to amorphous texture, usually a dark brown to black color, and an organic odor, shall be designated as a highly organic soil and shall be identified as peat, PT, and not subjected to the identification procedures described hereafter.

12. Preparation for Identification

12.1 The soil identification portion of this practice is based on the portion of the soil sample that will pass a 3-in. (75-mm) sieve. The larger than 3-in. (75-mm) particles must be removed, manually, for a loose sample, or mentally, for an intact sample before classifying the soil.

12.2 Estimate and note the percentage of cobbles and the percentage of boulders. Performed visually, these estimates will be on the basis of volume percentage.

NOTE 8—Since the percentages of the particle-size distribution in Test Method D 2487 are by dry weight, and the estimates of percentages for gravel, sand, and fines in this practice are by dry weight, it is recommended that the report state that the percentages of cobbles and boulders are by volume.

12.3 Of the fraction of the soil smaller than 3 in. (75 mm), estimate and note the percentage, by dry weight, of the gravel, sand, and fines (see Appendix X4 for suggested procedures).

NOTE 9—Since the particle-size components appear visually on the basis of volume, considerable experience is required to estimate the percentages on the basis of dry weight. Frequent comparisons with laboratory particle-size analyses should be made.

12.3.1 The percentages shall be estimated to the closest 5 %. The percentages of gravel, sand, and fines must add up to 100 %.

12.3.2 If one of the components is present but not in sufficient quantity to be considered 5 % of the smaller than 3-in. (75-mm) portion, indicate its presence by the term *trace*, for example, trace of fines. A trace is not to be considered in the total of 100 % for the components.

13. Preliminary Identification

13.1 The soil is *fine grained* if it contains 50 % or more fines. Follow the proc[illegible]s for identifying fine-grained soils of Section 14.

13.2 The soil is *coarse grained* if it contains less than 50 % fines. Follow the procedures for identifying coarse-grained soils of Section 15.

14. Procedure for Identifying Fine-Grained Soils

14.1 Select a representative sample of the material for examination. Remove particles larger than the No. 40 sieve (medium sand and larger) until a specimen equivalent to about a handful of material is available. Use this specimen for performing the dry strength, dilatancy, and toughness tests.

14.2 *Dry Strength:*

14.2.1 From the specimen, select enough material to mold into a ball about 1 in. (25 mm) in diameter. Mold the material until it has the consistency of putty, adding water if necessary.

14.2.2 From the molded material, make at least three test specimens. A test specimen shall be a ball of material about ½ in. (12 mm) in diameter. Allow the test specimens to dry in air, or sun, or by artificial means, as long as the temperature does not exceed 60°C.

14.2.3 If the test specimen contains natural dry lumps, those that are about ½ in. (12 mm) in diameter may be used in place of the molded balls.

NOTE 10—The process of molding and drying usually produces higher strengths than are found in natural dry lumps of soil.

14.2.4 Test the strength of the dry balls or lumps by crushing between the fingers. Note the strength as none, low, medium, high, or very high in accorance with the criteria in Table 8. If natural dry lumps are used, do not use the results of any of the lumps that are found to contain particles of coarse sand.

14.2.5 The presence of high-strength water-soluble cementing materials, such as calcium carbonate, may cause exceptionally high dry strengths. The presence of calcium carbonate can usually be detected from the intensity of the reaction with dilute hydrochloric acid (see 10.6).

14.3 *Dilatancy:*

14.3.1 From the specimen, select enough material to mold into a ball about ½ in. (12 mm) in diameter. Mold the material, adding water if necessary, until it has a soft, but not sticky, consistency.

14.3.2 Smooth the soil ball in the palm of one hand with the blade of a knife or small spatula. Shake horizontally, striking the side of the hand vigorously against the other hand several times. Note the reaction of water appearing on

TABLE 8 Criteria for Describing Dry Strength

Description	Criteria
None	The dry specimen crumbles into powder with mere pressure of handling
Low	The dry specimen crumbles into powder with some finger pressure
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure
High	The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface
Very high	The dry specimen cannot be broken between the thumb and a hard surface

TABLE 9 Criteria for De[illegible]ing Dilatancy

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing

TABLE 10 Criteria for Describing Toughness

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft
Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness
High	Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness

the surface of the soil. Squeeze the sample by closing the hand or pinching the soil between the fingers, and note the reaction as none, slow, or rapid in accordance with the criteria in Table 9. The reaction is the speed with which water appears while shaking, and disappears while squeezing.

14.4 *Toughness:*

14.4.1 Following the completion of the dilatancy test, the test specimen is shaped into an elongated pat and rolled by hand on a smooth surface or between the palms into a thread about ⅛ in. (3 mm) in diameter. (If the sample is too wet to roll easily, it should be spread into a thin layer and allowed to lose some water by evaporation.) Fold the sample threads and reroll repeatedly until the thread crumbles at a diameter of about ⅛ in. The thread will crumble at a diameter of ⅛ in. when the soil is near the plastic limit. Note the pressure required to roll the thread near the plastic limit. Also, note the strength of the thread. After the thread crumbles, the pieces should be lumped together and kneaded until the lump crumbles. Note the toughness of the material during kneading.

14.4.2 Describe the toughness of the thread and lump as low, medium, or high in accordance with the criteria in Table 10.

14.5 *Plasticity*—On the basis of observations made during the toughness test, describe the plasticity of the material in accordance with the criteria given in Table 11.

14.6 Decide whether the soil is an *inorganic* or an *organic* fine-grained soil (see 14.8). If inorganic, follow the steps given in 14.7.

14.7 *Identification of Inorganic Fine-Grained Soils:*

TABLE 11 Criteria for Describing Plasticity

Description	Criteria
Nonplastic	A ⅛-in. (3-mm) thread cannot be rolled at any water content
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit

14.7.1 Identif[illegible] soil as a *lean clay*, CL, if the soil has medium to high [illegible]y strength, no or slow dilatancy, and medium toughness and plasticity (see Table 12).

14.7.2 Identify the soil as a *fat clay*, CH, if the soil has high to very high dry strength, no dilatancy, and high toughness and plasticity (see Table 12).

14.7.3 Identify the soil as a *silt*, ML, if the soil has no to low dry strength, slow to rapid dilatancy, and low toughness and plasticity, or is nonplastic (see Table 12).

14.7.4 Identify the soil as an *elastic silt*, MH, if the soil has low to medium dry strength, no to slow dilatancy, and low to medium toughness and plasticity (see Table 12).

NOTE 11—These properties are similar to those for a lean clay. However, the silt will dry quickly on the hand and have a smooth, silky feel when dry. Some soils that would classify as MH in accordance with the criteria in Test Method D 2487 are visually difficult to distinguish from lean clays, CL. It may be necessary to perform laboratory testing for proper identification.

14.8 *Identification of Organic Fine-Grained Soils:*

14.8.1 Identify the soil as an *organic soil*, OL/OH, if the soil contains enough organic particles to influence the soil properties. Organic soils usually have a dark brown to black color and may have an organic odor. Often, organic soils will change color, for example, black to brown, when exposed to the air. Some organic soils will lighten in color significantly when air dried. Organic soils normally will not have a high toughness or plasticity. The thread for the toughness test will be spongy.

NOTE 12—In some cases, through practice and experience, it may be possible to further identify the organic soils as organic silts or organic clays, OL or OH. Correlations between the dilatancy, dry strength, toughness tests, and laboratory tests can be made to identify organic soils in certain deposits of similar materials of known geologic origin.

14.9 If the soil is estimated to have 15 to 25 % sand or gravel, or both, the words "with sand" or "with gravel" (whichever is more predominant) shall be added to the group name. For example: "lean clay with sand, CL" or "silt with gravel, ML" (see Figs. 1a and 1b). If the percentage of sand is equal to the percentage of gravel, use "with sand."

14.10 If the soil is estimated to have 30 % or more sand or gravel, or both, the words "sandy" or "gravelly" shall be added to the group name. Add the word "sandy" if there appears to be more sand than gravel. Add the word "gravelly" if there appears to be more gravel than sand. For example: "sandy lean clay, CL", "gravelly fat clay, CH", or "sandy silt, ML" (see Figs. 1a and 1b). If the percentage of sand is equal to the percent of gravel, use "sandy."

15. Procedure for Identifying Coarse-Grained Soils (Contains less than 50 % fines)

15.1 The soil is a *gravel* if the percentage of gravel is estimated to be more than the percentage of sand.

TABLE 12 Identification of Inorganic Fine-Grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot be formed
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

15.2 The soil is a *sand* if the p[illegible]ntage of gravel is estimated to be equal to or less than the percentage of sand.

15.3 The soil is a *clean gravel* or *clean sand* if the percentage of fines is estimated to be 5 % or less.

15.3.1 Identify the soil as a *well-graded gravel*, GW, or as a *well-graded sand*, SW, if it has a wide range of particle sizes and substantial amounts of the intermediate particle sizes.

15.3.2 Identify the soil as a *poorly graded gravel*, GP, or as a *poorly graded sand*, SP, if it consists predominantly of one size (uniformly graded), or it has a wide range of sizes with some intermediate sizes obviously missing (gap or skip graded).

15.4 The soil is either a *gravel with fines* or a *sand with fines* if the percentage of fines is estimated to be 15 % or more.

15.4.1 Identify the soil as a *clayey gravel*, GC, or a *clayey sand*, SC, if the fines are clayey as determined by the procedures in Section 14.

15.4.2 Identify the soil as a *silty gravel*, GM, or a *silty sand*, SM, if the fines are silty as determined by the procedures in Section 14.

15.5 If the soil is estimated to contain 10 % fines, give the soil a dual identification using two group symbols.

15.5.1 The first group symbol shall correspond to a clean gravel or sand (GW, GP, SW, SP) and the second symbol shall correspond to a gravel or sand with fines (GC, GM, SC, SM).

15.5.2 The group name shall correspond to the first group symbol plus the words "with clay" or "with silt" to indicate the plasticity characteristics of the fines. For example: "well-graded gravel with clay, GW-GC" or "poorly graded sand with silt, SP-SM" (see Fig. 2).

15.6 If the specimen is predominantly sand or gravel but contains an estimated 15 % or more of the other coarse-grained constituent, the words "with gravel" or "with sand" shall be added to the group name. For example: "poorly graded gravel with sand, GP" or "clayey sand with gravel, SC" (see Fig. 2).

15.7 If the field sample contains any cobbles or boulders, or both, the words "with cobbles" or "with cobbles and boulders" shall be added to the group name. For example: "silty gravel with cobbles, GM."

16. Report

16.1 The report shall include the information as to origin, and the items indicated in Table 13.

NOTE 13—*Example: Clayey Gravel with Sand and Cobbles, GC*—About 50 % fine to coarse, subrounded to subangular gravel; about 30 % fine to coarse, subrounded sand; about 20 % fines with medium plasticity, high dry strength, no dilatancy, medium toughness; weak reaction with HCl; original field sample had about 5 % (by volume) subrounded cobbles, maximum dimension, 150 mm.

In-Place Conditions—Firm, homogeneous, dry, brown

Geologic Interpretation—Alluvial fan

TABLE 13 [illegible]cklist for Description of Soils

1. Group name
2. Group symbol
3. Percent of cobbles or boulders, or both (by volume)
4. Percent of gravel, sand, or fines, or all three (by dry weight)
5. Particle-size range:
   Gravel—fine, coarse
   Sand—fine, medium, coarse
6. Particle angularity: angular, subangular, subrounded, rounded
7. Particle shape: (if appropriate) flat, elongated, flat and elongated
8. Maximum particle size or dimension
9. Hardness of coarse sand and larger particles
10. Plasticity of fines: nonplastic, low, medium, high
11. Dry strength: none, low, medium, high, very high
12. Dilatancy: none, slow, rapid
13. Toughness: low, medium, high
14. Color (in moist condition)
15. Odor (mention only if organic or unusual)
16. Moisture: dry, moist, wet
17. Reaction with HCl: none, weak, strong

For intact samples:

18. Consistency (fine-grained soils only): very soft, soft, firm, hard, very hard
19. Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous
20. Cementation: weak, moderate, strong
21. Local name
22. Geologic interpretation
23. Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc.

NOTE 14—Other examples of soil descriptions and identification are given in Appendixes X1 and X2.

NOTE 15—If desired, the percentages of gravel, sand, and fines may be stated in terms indicating a range of percentages, as follows:

Trace—Particles are present but estimated to be less than 5 %
Few—5 to 10 %
Little—15 to 25 %
Some—30 to 45 %
Mostly—50 to 100 %

16.2 If, in the soil description, the soil is identified using a classification group symbol and name as described in Test Method D 2487, it must be distinctly and clearly stated in log forms, summary tables, reports, and the like, that the symbol and name are based on visual-manual procedures.

17. Precision and Bias

17.1 This practice provides qualitative information only, therefore, a precision and bias statement is not applicable.

18. Keywords

18.1 classification; clay; gravel; organic soils; sand; silt; soil classification; soil description; visual classification

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES OF VISUAL SOIL DESCRIPTIONS

X1.1 The following examples show how the information required in 16.1 can be reported. The information that is included in descriptions should be based on individual circumstances and need.

X1.1.1 *Well-Graded Gravel with Sand (GW)*—About 75 % fine to coarse, hard, subangular gravel; about 25 % fine to coarse, hard, subangular sand; trace of fines; maximum size, 75 mm, brown, dry; no reaction with HCl.

X1.1.2 *Silty Sand with Gravel (SM)*—About 60 % predominantly fine sand; about 25 % silty fines with low plasticity, low dry strength, rapid dilatancy, and low toughness; about 15 % fine, hard, subrounded gravel, a few gravel-size particles fractured with hammer blow; maximum size, 25 mm; no reaction with HCl (Note—Field sample size smaller than recommended).

In-Place Conditions—Firm, stratified and contains lenses of silt 1 to 2 in. (25 to 50 mm) thick, moist, brown to gray; in-place density 106 lb/ft^3; in-place moisture 9 %.

X1.1.3 *Organic Soil (OL/OH)*—About 100 % fines with low plasticity, slow dilatancy, low dry strength, and low toughness; wet, dark brown, organic odor; weak reaction with HCl.

X1.1.4 *Silty Sand with Organic Fines (SM)*—About 75 % fine to coarse, hard, subangular reddish sand; about 25 % organic and silty dark brown nonplastic fines with no dry strength and slow dilatancy; wet; maximum size, coarse sand; weak reaction with HCl.

X1.1.5 *Poorly Graded Gravel with Silt, Sand, Cobbles and Boulders (GP-GM)*—About 75 % fine to coarse, hard, subrounded to subangular gravel; about 15 % fine, hard, subrounded to subangular sand; about 10 % silty nonplastic fines; moist, brown; no reaction with HCl; original field sample had about 5 % (by volume) hard, subrounded cobbles and a trace of hard, subrounded boulders, with a maximum dimension of 18 in. (450 mm).

X2. USING THE IDENTIFICATION PROCEDURE AS A DESCRIPTIVE SYSTEM FOR SHALE, CLAYSTONE, SHELLS, SLAG, CRUSHED ROCK, AND THE LIKE

X2.1 The identification procedure may be used as a descriptive system applied to materials that exist in-situ as shale, claystone, sandstone, siltstone, mudstone, etc., but convert to soils after field or laboratory processing (crushing, slaking, and the like).

X2.2 Materials such as shells, crushed rock, slag, and the like, should be identified as such. However, the procedures used in this practice for describing the particle size and plasticity characteristics may be used in the description of the material. If desired, an identification using a group name and symbol according to this practice may be assigned to aid in describing the material.

X2.3 The group symbol(s) and group names should be placed in quotation marks or noted with some type of distinguishing symbol. See examples.

X2.4 Examples of how group names and symbols can be incororated into a descriptive system for materials that are not naturally occurring soils are as follows:

X2.4.1 *Shale Chunks*—Retrieved as 2 to 4-in. (50 to 100-mm) pieces of shale from power auger hole, dry, brown, no reaction with HCl. After slaking in water for 24 h, material identified as "Sandy Lean Clay (CL)"; about 60 % fines with medium plasticity, high dry strength, no dilatancy, and medium toughness; about 35 % fine to medium, hard sand; about 5 % gravel-size pieces of shale.

X2.4.2 *Crushed Sandstone*—Product of commercial crushing operation; "Poorly Graded Sand with Silt (SP-SM)"; about 90 % fine to medium sand; about 10 % nonplastic fines; dry, reddish-brown, strong reaction with HCl.

X2.4.3 *Broken Shells*—About 60 % gravel-size broken shells; about 30 % sand and sand-size shell pieces; about 10 % fines; "Poorly Graded Gravel with Sand (GP)."

X2.4.4 *Crushed Rock*—Processed from gravel and cobbles in Pit No. 7; "Poorly Graded Gravel (GP)"; about 90 % fine, hard, angular gravel-size particles; about 10 % coarse, hard, angular sand-size particles; dry, tan; no reaction with HCl.

X3. SUGGESTED PROCEDURE FOR USING A BORDERLINE SYMBOL FOR SOILS WITH TWO POSSIBLE IDENTIFICATIONS.

X3.1 Since this practice is based on estimates of particle size distribution and plasticity characteristics, it may be difficult to clearly identify the soil as belonging to one category. To indicate that the soil may fall into one of two possible basic groups, a borderline symbol may be used with the two symbols separated by a slash. For example: SC/CL or CL/CH.

X3.1.1 A borderline symbol may be used when the percentage of fines is estimated to be between 45 and 55 %. One symbol should be for a coarse-grained soil with fines and the other for a fine-grained soil. For example: GM/ML or CL/SC.

X3.1.2 A borderline symbol may be used when the percentage of sand and the percentage of gravel are estimated to be about the same. For example: GP/SP, SC/GC, GM/SM. It is practically impossible to have a soil that would have a borderline symbol of GW/SW.

X3.1.3 A borderline symbol may be used when the soil could be either well graded or poorly graded. For example: GW/GP, SW/SP.

X3.1.4 A borderline symbol may be used when the soil could either be a silt or a clay. For example: CL/ML, CH/MH, SC/SM.

X3.1.5 A borderline symbol may be used when a fine-grained soil has properties that indicate that it is at the boundary between a soil of low compressibility and a soil of high compressibility. For example: CL/CH, MH/ML.

X3.2 The order of the borderline symbols should reflect similarity to surrounding or adjacent soils. For example: soils in a borrow area have been identified as CH. One sample is considered to have a borderline symbol of CL and CH. To show similarity, the borderline symbol should be CH/CL.

X3.3 The group name for a soil with a borderline symbol should be the group name for the first symbol, except for:

CL/CH lean to fat clay
ML/CL clayey silt
CL/ML silty clay

X3.4 The use of a borderline symbol should not be used indiscriminately. Every effort shall be made to first place the soil into a single group.

X4. SUGGESTED PROCEDURES FOR ESTIMATING THE PERCENTAGES OF GRAVEL, SAND, AND FINES IN A SOIL SAMPLE

X4.1 *Jar Method*—The relative percentage of coarse- and fine-grained material may be estimated by thoroughly shaking a mixture of soil and water in a test tube or jar, and then allowing the mixture to settle. The coarse particles will fall to the bottom and successively finer particles will be deposited with increasing time; the sand sizes will fall out of suspension in 20 to 30 s. The relative proportions can be estimated from the relative volume of each size separate. This method should be correlated to particle-size laboratory determinations.

X4.2 *Visual Method*—Mentally visualize the gravel size particles placed in a sack (or other container) or sacks. Then, do the same with the sand size particles and the fines. Then, mentally compare the number of sacks to estimate the percentage of plus No. 4 sieve size and minus No. 4 sieve size present. The percentages of sand and fines in the minus sieve size No. 4 material can then be estimated from the wash test (X4.3).

X4.3 *Wash Test (for relative percentages of sand and fines)*—Select and moisten enough minus No. 4 sieve size material to form a 1-in (25-mm) cube of soil. Cut the cube in half, set one-half to the side, and place the other half in a small dish. Wash and decant the fines out of the material in the dish until the wash water is clear and then compare the two samples and estimate the percentage of sand and fines. Remember that the percentage is based on weight, not volume. However, the volume comparison will provide a reasonable indication of grain size percentages.

X4.3.1 While washing, it may be necessary to break down lumps of fines with the finger to get the correct percentages.

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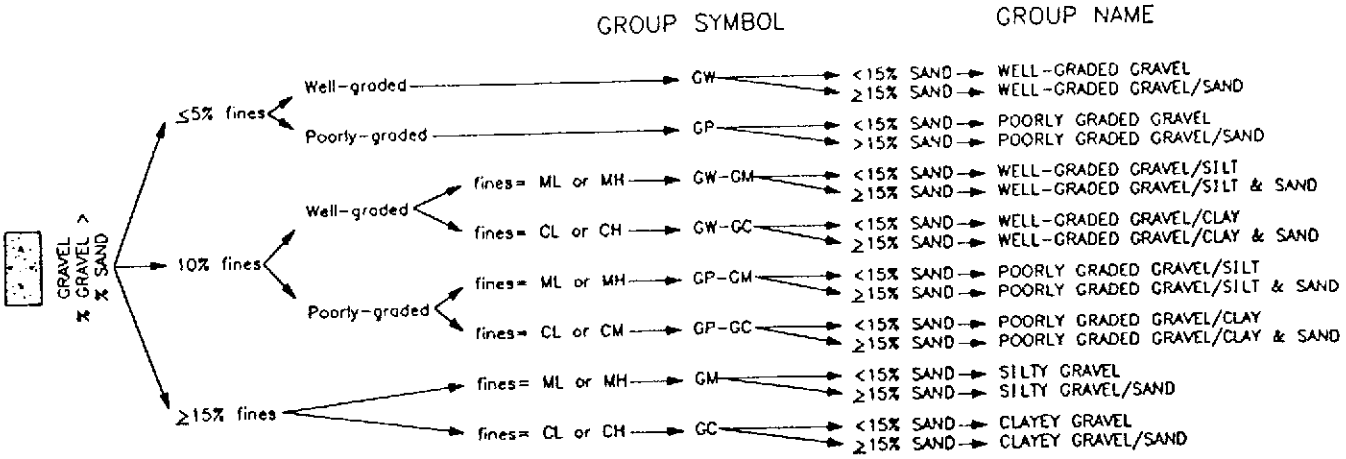
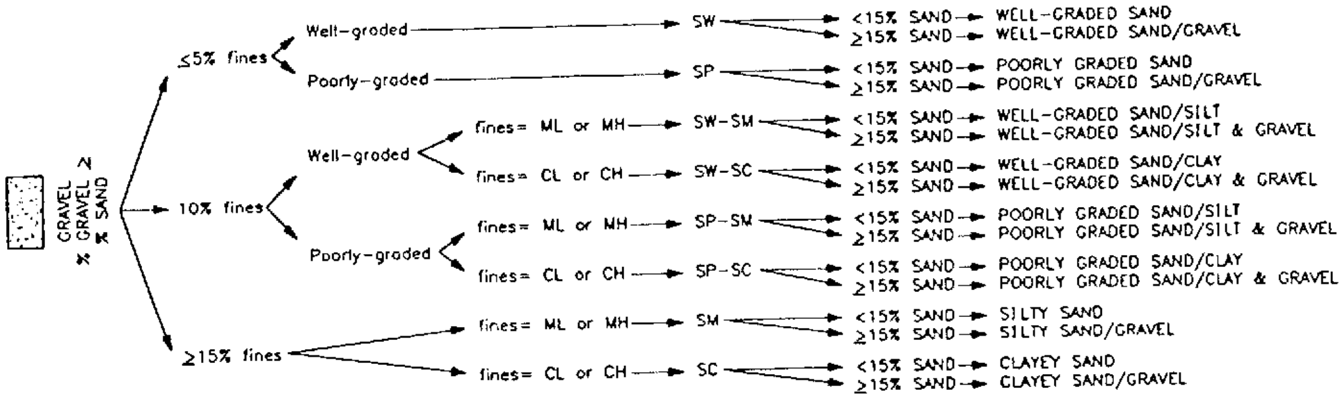
METHOD OF SOIL CLASSIFICATION

FLOW CHART FOR IDENTIFYING COARSE-GRAINED SOIL (<50% FINES)





NOTE: Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5%.

CLASSIFICATION	RANGE OF GRAIN SIZES	
	US STANDARD SIEVE SIZE	GRAIN SIZE IN MILLIMETERS
BOULDERS	ABOVE 12'	ABOVE 13'
COBBLES	12' TO 3'	305 TO 76.2
GRAVEL coarse fine	3' TO NO. 4 3' TO 1/4" 3/4" TO NO. 4	76.2 TO 4.76 76.2 TO 193 19.1 TO 4.76
SAND coarse medium fine	NO. 4 TO NO. 200 NO. 4 TO NO. 10 NO. 10 TO NO. 40 NO. 40 TO NO. 200	4,760 TO 0.074 4,760 TO 2.000 2.000 TO 0.420 0.420 TO 0.074
SILT & CLAY	BELOW NO. 200	BELOW 0.074

GRAIN SIZE CHART

SANDS + GRAVELS	BLOWS/FOOT•
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS + CLAYS	BLOWS/FOOT•
VERY SOFT	0-2
SOFT	2-4
MEDIUM SOFT	4-8
STIFF	8-16
VERY STIFF	16-32
HARD	OVER 32

CONSISTENCY

• NUMBER OF BLOWS OF 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH OD (1 3/8" I.D.) SPLIT SPOON CASTM D-1386).

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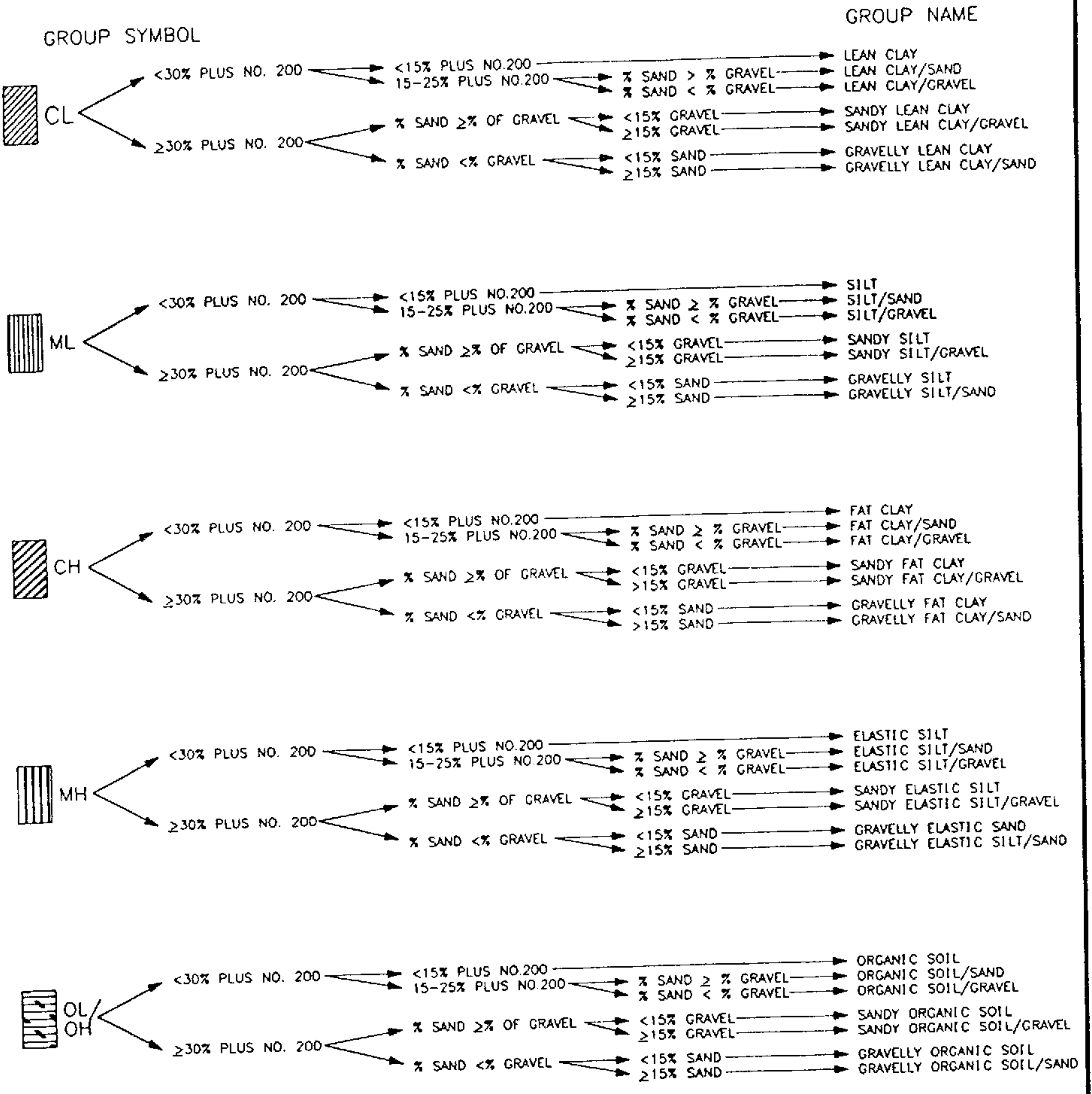
AMERICAN SOCIETY FOR TESTING AND MATERIALS D2488-90
METHOD OF SOIL CLASSIFICATION

FLOW CHART FOR IDENTIFYING FINE-GRAINED SOIL (50% OR MORE FINES)



NOTE: PERCENTAGES ARE BASED ON ESTIMATING AMOUNTS OF FINES, SAND, AND GRAVEL TO THE NEAREST 5%.

01/11/93 at 13:07 K:\9212\96124\96124F32

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01/29/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: UPMF Oakland,Ca
Date Received: 01/12/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that these analysis were added per as requested by Chris Byerman.

Reporting Limits (R.L.) represent Practical Quantitation Limits (PQL's).

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks

Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Data Reports

Client Net Acct No: 29650
NET Job No: 93.00054

NET®

Client Name: USPCI
Client Ref.: UPMF Oakland,Ca
Date Reported: 01/29/1993
NET Job No.: 93.00054

LAB ID: 52038
SAMPLE ID: OKS-1
MATRIX: SOIL
DATE TAKEN: 01/12/1993

ANALYTES/METHOD	RESULTS	R.L.	UNITS	DATE ANALYZED
METHOD 418.1 (IR,TRPH)	370	10	mg/Kg	01/25/1993

LAB ID: 52039
SAMPLE ID: OKS-2A
MATRIX: SOIL
DATE TAKEN: 01/12/1993

ANALYTES/METHOD	RESULTS	R.L.	UNITS	DATE ANALYZED
METHOD 418.1 (IR,TRPH)	80	10	mg/Kg	01/21/1993

LAB ID: 52040
SAMPLE ID: OKS-4A
MATRIX: SOIL
DATE TAKEN: 01/12/1993

ANALYTES/METHOD	RESULTS	R.L.	UNITS	DATE ANALYZED
METHOD 418.1 (IR,TRPH)	71	10	mg/Kg	01/21/1993

LAB ID: 52041
SAMPLE ID: OKS-5
MATRIX: SOIL
DATE TAKEN: 01/12/1993

ANALYTES/METHOD	RESULTS	R.L.	UNITS	DATE ANALYZED
METHOD 418.1 (IR,TRPH)	ND	10	mg/Kg	01/21/1993

ND - Not Detected at the Reporting Limit

Soil Samples

USPCI
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Ship To: USPCI Analytical Services
4322 South 49th West Avenue
Tulsa, OK 74107
(918) 446-1162

002550

REPORT TO
CONTACT ~~Christopher~~ Byerman
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ADDRESS 24125 Aldine Westfield
CITY Spring ST. TX ZIP 77373
PHONE (713) 350-7266 FAX (713) 350-7246

BILL TO
CONTACT
COMPANY SAME
ADDRESS
CITY ST. ZIP
PHONE PO #

CHAIN OF CUSTODY RECORD

PROJ. NO. 96120-844
PROJECT NAME UPMF OAKLAND, CA
[illegible]AMPLERS ([illegible]IGNATURE) Christopher Byerman

STANDARD TURNAROUND
RUSH TURNAROUND (specify required date) 3 DAYS 1-15-92

CUSTOMER SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS	BTEX 8020	TPH-G 8015	TPH-D 8015	METALS	8010	SEMI VOA 8270							LABORATORY SAMPLE I.D.	REMARKS
OKS-1	1-12-92	9:10	Soil	1	X	X	X	1										*
OKS-2a	↓	10:00	↓	1	X	X	X	2										*
OKS-2b	↓	10:00	↓	1				X	X	X	6							
OKS-3	↓	14:15	↓	1	X	X	X	3										*
OKS-4a	↓	14:30	↓	1	X	X	X	4		on bottle ~~wrote~~ says Metals, 8010, 8270								* ICP Metals -
OKS-4b	↓	14:30	↓	1				X	X	X	7	~~wrote~~ says GBTXE & Diesel on bottle						* Cd, Cr, Pb, Zn
[illegible]S-5	↓	15:00	↓	1	X	X	X	5										10180, 10272 10200, 10470
																		* 418.1 added at
																		the request of Chris Byerman 1/13/93 KSB
																		10°C

RELINQUISHED BY Christopher Byerman	DATE / TIME 1-12-93 18:45	RECEIVED BY	DATE / TIME	COURIER Fed X.
RELINQUISHED BY	DATE / TIME	RECEIVED BY Helen Brown NET log-in	DATE / TIME 1/12 9:30	AIRBILL NO. 2902TT9EES

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

01/18/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: UPMF Oakland,CA
Date Received: 01/13/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that Motor Oil was detected in the following samples during by method 8015 Mod/DOHS LUFT: 51756, 51757, 51759.

Reporting Limits (R.L.) represent Practical Quatitation Limits (PQL's) unless otherwise specified. If a dilution factor greater than 1 (one) is reported, the actual R.L. for that sample is equal to the dilution factor multiplied by the default R.L..

Should you have any questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Data Reports

Client Net Acct No: 29650
NET Job No: 93.00015

NET®

Client Name: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-1
Lab No. : 51756

Date Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		87.5	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/14/1993
Date Extracted		1-13-93			01/14/1993
Date Analyzed		1-14-93			01/14/1993
Dilution Factor		1			01/14/1993
TOT. PET. HYDROCARBONS		--			01/14/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/14/1993
Surrogate Spike-TPH		--			01/14/1993
Chlorobenzene	8015 MOD.	110	% Rec.		01/14/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/14/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-13-93			01/13/1993
Date Analyzed		01-13-93			01/13/1993
Dilution Factor		1			01/13/1993
AROMATIC VOLATILES		--			01/13/1993
Benzene	8020	ND	mg/Kg	0.005	01/13/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/13/1993
Toluene	8020	ND	mg/Kg	0.005	01/13/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/13/1993
TOT. PET. HYDROCARBONS		--			01/13/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/13/1993
comment		NONE			01/13/1993
Surrogate Spike		--			01/13/1993
Bromofluorobenzene	8020/8015	93	% Rec.		01/13/1993

* Motor Oil detected at 96 mg/Kg.

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-2a
Lab No. : 51757

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		72.8	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/14/1993
Date Extracted		1-13-93			01/14/1993
Date Analyzed		1-14-93			01/14/1993
Dilution Factor		1			01/14/1993
TOT. PET. HYDROCARBONS		--			01/14/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/14/1993
Surrogate Spike-TPH		--			01/14/1993
Chlorobenzene	8015 MOD.	106	% Rec.		01/14/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/14/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-13-93			01/13/1993
Date Analyzed		01-13-93			01/13/1993
Dilution Factor		1			01/13/1993
AROMATIC VOLATILES		--			01/13/1993
Benzene	8020	ND	mg/Kg	0.005	01/13/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/13/1993
Toluene	8020	ND	mg/Kg	0.005	01/13/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/13/1993
TOT. PET. HYDROCARBONS		--			01/13/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/13/1993
comment		NONE			01/13/1993
Surrogate Spike		--			01/13/1993
Bromofluorobenzene	8020/8015	116	% Rec.		01/13/1993

* Motor Oil was detected at 46 mg/Kg.

ND - Not Detected at the Reporting Limit

NET®

Clien ame: USPCI
Date Taken: 01/12/1993
Sample ID : OKS-3
Lab No. : 51758

e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		92.7	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/14/1993
Date Extracted		1-13-93			01/14/1993
Date Analyzed		1-14-93			01/14/1993
Dilution Factor		1			01/14/1993
TOT. PET. HYDROCARBONS		--			01/14/1993
as Diesel	8015 MOD.	ND	mg/Kg	1	01/14/1993
Surrogate Spike-TPH		--			01/14/1993
Chlorobenzene	8015 MOD.	105	% Rec.		01/14/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/14/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	ND	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8020/8015	90	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI
Date Taken: 01/12/1993
Sample ID : OKS-4a
Lab No. : 51759

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		75.1	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/14/1993
Date Extracted		1-13-93			01/14/1993
Date Analyzed		1-14-93			01/14/1993
Dilution Factor		1			01/14/1993
TOT. PET. HYDROCARBONS		--			01/14/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/14/1993
Surrogate Spike-TPH		--			01/14/1993
Chlorobenzene	8015 MOD.	105	% Rec.		01/14/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/14/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	ND	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.1	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8020/8015	106	% Rec.		01/15/1993

* Motor Oil detected at 17 mg/Kg.

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible] Name: USPCI
Date Taken: 01/12/1993
Sample ID : OKS-5
Lab No. : 51760

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		83.4	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/14/1993
Date Extracted		1-13-93			01/14/1993
Date Analyzed		1-14-93			01/14/1993
Dilution Factor		1			01/14/1993
TOT. PET. HYDROCARBONS		--			01/14/1993
as Diesel	8015 MOD.	ND	mg/Kg	1	01/14/1993
Surrogate Spike-TPH		--			01/14/1993
Chlorobenzene	8015 MOD.	105	% Rec.		01/14/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/14/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	ND	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.01	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8020/8015	98	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-2b
Lab No. : 51761

Date Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD		METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids			79.2	%	0.1	01/15/1993
Acid Digestion (ICP/AA)		3050	DONE			01/13/1993
Acid Digestion (GFAA)		3050	DONE			01/13/1993
ICP METALS						
Cadmium	(FLAA)	7130	1.70	mg/Kg	0.5	01/15/1993
Chromium	(ICP)	6010	16.7	mg/Kg	0.5	01/15/1993
Lead	(GFAA)	7421	580	mg/Kg	0.2	01/15/1993
Zinc	(ICP)	6010	381	mg/Kg	1.0	01/15/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-2b
Lab No. : 51761

Date Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8010 (GC,Solid)					
Extraction Method		5030			01/15/1993
Date Extracted		01-13-93			01/15/1993
Date Analyzed		01-13-93			01/15/1993
Dilution Factor		1			01/15/1993
Bromodichloromethane	8010	ND	ug/Kg	5	01/15/1993
Bromoform	8010	ND	ug/Kg	10	01/15/1993
Bromomethane	8010	ND	ug/Kg	10	01/15/1993
Carbon tetrachloride	8010	ND	ug/Kg	5	01/15/1993
Chlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Chloroethane	8010	ND	ug/Kg	10	01/15/1993
2-Chloroethylvinyl ether	8010	ND	ug/Kg	10	01/15/1993
Chloroform	8010	ND	ug/Kg	5	01/15/1993
Chloromethane	8010	ND	ug/Kg	10	01/15/1993
Dibromochloromethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,3-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,4-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Dichlorodifluoromethane	8010	ND	ug/Kg	10	01/15/1993
1,1-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
trans-1,2-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloropropane	8010	ND	ug/Kg	5	01/15/1993
cis-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
trans-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
Methylene chloride	8010	ND	ug/Kg	10	01/15/1993
1,1,2,2-Tetrachloroethane	8010	ND	ug/Kg	5	01/15/1993
Tetrachloroethene	8010	ND	ug/Kg	5	01/15/1993
1,1,1-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1,2-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
Trichloroethene	8010	ND	ug/Kg	5	01/15/1993
Trichlorofluoromethane	8010	ND	ug/Kg	10	01/15/1993
Vinyl chloride	8010	ND	ug/Kg	10	01/15/1993
Surrogate Spike		--			01/15/1993
2-Chlorotoluene	8010	ND	%		01/15/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-2b
Lab No. : 51761

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8270(GCMS,Solid)					
DATE EXTRACTED		01-13-93			01/14/1993
DATE ANALYZED		01-14-93			01/14/1993
Dilution Factor		5			01/14/1993
Acenaphthene	8270	ND	ug/Kg	330	01/14/1993
Acenaphthylene	8270	1,900	ug/Kg	330	01/14/1993
Aldrin	8270	ND	ug/Kg	1600	01/14/1993
Anthracene	8270	ND	ug/Kg	330	01/14/1993
Benzidine	8270	ND	ug/Kg	1600	01/14/1993
Benzo(a)anthracene	8270	4,000	ug/Kg	330	01/14/1993
Benzo(b)fluoranthene	8270	3,800	ug/Kg	330	01/14/1993
Benzo(k)fluoranthene	8270	ND	ug/Kg	330	01/14/1993
Benzo(a)pyrene	8270	4,100	ug/Kg	330	01/14/1993
Benzo(g,h,i)perylene	8270	5,600	ug/Kg	330	01/14/1993
Benzoic acid	8270	ND	ug/Kg	1600	01/14/1993
Benyzl alcohol	8270	ND	ug/Kg	330	01/14/1993
Butyl benzyl phthalate	8270	ND	ug/Kg	330	01/14/1993
beta-BHC	8270	ND	ug/Kg	1600	01/14/1993
gamma-BHC	8270	ND	ug/Kg	1600	01/14/1993
bis(2-Chloroethyl)ether	8270	ND	ug/Kg	330	01/14/1993
bis(2-Chloroethoxy)methane	8270	ND	ug/Kg	330	01/14/1993
bis(2-Chloroisopropyl)ether	8270	ND	ug/Kg	330	01/14/1993
bis(2-Ethylhexyl)phthalate	8270	ND	ug/Kg	330	01/14/1993
4-Bromophenyl phenyl ether	8270	ND	ug/Kg	330	01/14/1993
4-Chloroanaline	8270	ND	ug/Kg	330	01/14/1993
2-Chloronaphthalene	8270	ND	ug/Kg	330	01/14/1993
4-Chlorophenyl phenyl ether	8270	ND	ug/Kg	330	01/14/1993
Chrysene	8270	4,600	ug/Kg	330	01/14/1993
4,4'-DDD	8270	ND	ug/Kg	1600	01/14/1993
4,4'-DDE	8270	ND	ug/Kg	1600	01/14/1993
4,4'-DDT	8270	ND	ug/Kg	1600	01/14/1993
Dibenzo(a,h)anthracene	8270	ND	ug/Kg	330	01/14/1993
Dibenzofuran	8270	ND	ug/Kg	330	01/14/1993
Di-n-butylphthalate	8270	ND	ug/Kg	330	01/14/1993
1,2-Dichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
1,3-Dichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
1,4-Dichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
3,3'-Dichlorobenzidine	8270	ND	ug/Kg	660	01/14/1993
Dieldrin	8270	ND	ug/Kg	1600	01/14/1993
Diethylphthalate	8270	ND	ug/Kg	330	01/14/1993
Dimethyl phthalate	8270	ND	ug/Kg	330	01/14/1993
2,4-Dinitrotoluene	8270	ND	ug/Kg	330	01/14/1993
2,6-Dinitrotoluene	8270	ND	ug/Kg	330	01/14/1993
Endrin	8270	ND	ug/Kg	1600	01/14/1993
Endosulfan II	8270	ND	ug/Kg	1600	01/14/1993
Endrin aldehyde	8270	ND	ug/Kg	1600	01/14/1993
Fluorene	8270	ND	ug/Kg	330	01/14/1993
Heptachlor	8270	ND	ug/Kg	1600	01/14/1993
Heptachlor epoxide	8270	ND	ug/Kg	1600	01/14/1993
Hexachlorobenzene	8270	ND	ug/Kg	330	01/14/1993
Hexachlorobutadiene	8270	ND	ug/Kg	330	01/14/1993
Hexachlorocyclopentadiene	8270	ND	ug/Kg	330	01/14/1993

ND - Not Detected at the Reporting Limit

NET®

Clien ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-2b
Lab No. : 51761

e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Hexachloroethane	8270	ND	ug/Kg	330	01/14/1993
Indeno(1,2,3-cd)pyrene	8270	4,200	ug/Kg	330	01/14/1993
Isophorone	8270	ND	ug/Kg	330	01/14/1993
2-Methylnaphthalene	8270	ND	ug/Kg	330	01/14/1993
Naphthalene	8270	1,800	ug/Kg	330	01/14/1993
2-Nitroaniline	8270	ND	ug/Kg	1600	01/14/1993
3-Nitroaniline	8270	ND	ug/Kg	1600	01/14/1993
4-Nitroaniline	8270	ND	ug/Kg	1600	01/14/1993
Nitrobenzene	8270	ND	ug/Kg	330	01/14/1993
N-Nitroso-Di-N-propylamine	8270	ND	ug/Kg	330	01/14/1993
N-Nitrosodiphenylamine	8270	ND	ug/Kg	330	01/14/1993
Phenanthrene	8270	11,000	ug/Kg	330	01/14/1993
Pyrene	8270	18,000	ug/Kg	330	01/14/1993
1,2,4-Trichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
ACID EXTRACTABLES		--			01/14/1993
4-Chloro-3-methylphenol	8270	ND	ug/Kg	330	01/14/1993
2-Chlorophenol	8270	ND	ug/Kg	330	01/14/1993
2,4-Dichlorophenol	8270	ND	ug/Kg	330	01/14/1993
2,4-Dimethylphenol	8270	ND	ug/Kg	330	01/14/1993
2,4-Dinitrophenol	8270	ND	ug/Kg	1600	01/14/1993
4,6-Dinitro-2-methylphenol	8270	ND	ug/Kg	1600	01/14/1993
2-Nitrophenol	8270	ND	ug/Kg	1600	01/14/1993
4-Nitrophenol	8270	ND	ug/Kg	1600	01/14/1993
Pentachlorophenol	8270	ND	ug/Kg	1600	01/14/1993
Phenol	8270	ND	ug/Kg	330	01/14/1993
2,4,6-Trichlorophenol	8270	ND	ug/Kg	330	01/14/1993
2-Methylphenol	8270	ND	ug/Kg	330	01/14/1993
4-Methylphenol	8270	ND	ug/Kg	330	01/14/1993
2,4,5-Trichlorophenol	8270	ND	ug/Kg	1600	01/14/1993
SURROGATE RESULTS		--			01/14/1993
Nitrobenzene-d5	8270	46	%		01/14/1993
2-Fluorobiphenyl	8270	58	%		01/14/1993
p-Terphenyl-d14	8270	78	%		01/14/1993
Phenol-d5	8270	84	%		01/14/1993
2-Fluorophenol	8270	50	%		01/14/1993
2,4,6-Tribromophenol	8270	49	%		01/14/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-4b
Lab No. : 51762

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD		METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids			52.4	%	0.1	01/15/1993
Acid Digestion (ICP/AA)		3050	DONE			01/13/1993
Acid Digestion (GFAA)		3050	DONE			01/13/1993
ICP METALS						
Cadmium	(FLAA)	7130	ND	mg/Kg	0.5	01/15/1993
Chromium	(ICP)	6010	29.0	mg/Kg	0.5	01/15/1993
Lead	(GFAA)	7421	23	mg/Kg	0.2	01/15/1993
Zinc	(ICP)	6010	39.9	mg/Kg	1.0	01/15/1993

ND - Not Detected at the Reporting Limit

Clier ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-4b
Lab No. : 51762

e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8010 (GC,Solid)					
Extraction Method		5030			01/15/1993
Date Extracted		01-13-93			01/15/1993
Date Analyzed		01-13-93			01/15/1993
Dilution Factor		5			01/15/1993
Bromodichloromethane	8010	ND	ug/Kg	5	01/15/1993
Bromoform	8010	ND	ug/Kg	10	01/15/1993
Bromomethane	8010	ND	ug/Kg	10	01/15/1993
Carbon tetrachloride	8010	ND	ug/Kg	5	01/15/1993
Chlorobenzene	8010	110	ug/Kg	5	01/15/1993
Chloroethane	8010	ND	ug/Kg	10	01/15/1993
2-Chloroethylvinyl ether	8010	ND	ug/Kg	10	01/15/1993
Chloroform	8010	410	ug/Kg	5	01/15/1993
Chloromethane	8010	ND	ug/Kg	10	01/15/1993
Dibromochloromethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,3-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,4-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Dichlorodifluoromethane	8010	ND	ug/Kg	10	01/15/1993
1,1-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
trans-1,2-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloropropane	8010	ND	ug/Kg	5	01/15/1993
cis-1,3-Dichloropropene	8010	28	ug/Kg	5	01/15/1993
trans-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
Methylene chloride	8010	ND	ug/Kg	10	01/15/1993
1,1,2,2-Tetrachloroethane	8010	ND	ug/Kg	5	01/15/1993
Tetrachloroethene	8010	28	ug/Kg	5	01/15/1993
1,1,1-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1,2-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
Trichloroethene	8010	ND	ug/Kg	5	01/15/1993
Trichlorofluoromethane	8010	ND	ug/Kg	10	01/15/1993
Vinyl chloride	8010	ND	ug/Kg	10	01/15/1993
Surrogate Spike		--			01/15/1993
2-Chlorotoluene	8010	108	%		01/15/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-4b
Lab No. : 51762

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8270(GCMS,Solid)					
DATE EXTRACTED		01-13-93			01/14/1993
DATE ANALYZED		01-15-93			01/14/1993
Dilution Factor		1			01/14/1993
Acenaphthene	8270	ND	ug/Kg	330	01/14/1993
Acenaphthylene	8270	ND	ug/Kg	330	01/14/1993
Aldrin	8270	ND	ug/Kg	1600	01/14/1993
Anthracene	8270	ND	ug/Kg	330	01/14/1993
Benzidine	8270	ND	ug/Kg	1600	01/14/1993
Benzo(a)anthracene	8270	ND	ug/Kg	330	01/14/1993
Benzo(b)fluoranthene	8270	ND	ug/Kg	330	01/14/1993
Benzo(k)fluoranthene	8270	ND	ug/Kg	330	01/14/1993
Benzo(a)pyrene	8270	ND	ug/Kg	330	01/14/1993
Benzo(g,h,i)perylene	8270	ND	ug/Kg	330	01/14/1993
Benzoic acid	8270	ND	ug/Kg	1600	01/14/1993
Benyzl alcohol	8270	ND	ug/Kg	330	01/14/1993
Butyl benzyl phthalate	8270	ND	ug/Kg	330	01/14/1993
beta-BHC	8270	ND	ug/Kg	1600	01/14/1993
gamma-BHC	8270	ND	ug/Kg	1600	01/14/1993
bis(2-Chloroethyl)ether	8270	ND	ug/Kg	330	01/14/1993
bis(2-Chloroethoxy)methane	8270	ND	ug/Kg	330	01/14/1993
bis(2-Chloroisopropyl)ether	8270	ND	ug/Kg	330	01/14/1993
bis(2-Ethylhexyl)phthalate	8270	ND	ug/Kg	330	01/14/1993
4-Bromophenyl phenyl ether	8270	ND	ug/Kg	330	01/14/1993
4-Chloroanaline	8270	ND	ug/Kg	330	01/14/1993
2-Chloronaphthalene	8270	ND	ug/Kg	330	01/14/1993
4-Chlorophenyl phenyl ether	8270	ND	ug/Kg	330	01/14/1993
Chrysene	8270	ND	ug/Kg	330	01/14/1993
4,4'-DDD	8270	ND	ug/Kg	1600	01/14/1993
4,4'-DDE	8270	ND	ug/Kg	1600	01/14/1993
4,4'-DDT	8270	ND	ug/Kg	1600	01/14/1993
Dibenzo(a,h)anthracene	8270	ND	ug/Kg	330	01/14/1993
Dibenzofuran	8270	ND	ug/Kg	330	01/14/1993
Di-n-butylphthalate	8270	ND	ug/Kg	330	01/14/1993
1,2-Dichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
1,3-Dichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
1,4-Dichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
3,3'-Dichlorobenzidine	8270	ND	ug/Kg	660	01/14/1993
Dieldrin	8270	ND	ug/Kg	1600	01/14/1993
Diethylphthalate	8270	ND	ug/Kg	330	01/14/1993
Dimethyl phthalate	8270	ND	ug/Kg	330	01/14/1993
2,4-Dinitrotoluene	8270	ND	ug/Kg	330	01/14/1993
2,6-Dinitrotoluene	8270	ND	ug/Kg	330	01/14/1993
Endrin	8270	ND	ug/Kg	1600	01/14/1993
Endosulfan II	8270	ND	ug/Kg	1600	01/14/1993
Endrin aldehyde	8270	ND	ug/Kg	1600	01/14/1993
Fluorene	8270	ND	ug/Kg	330	01/14/1993
Heptachlor	8270	ND	ug/Kg	1600	01/14/1993
Heptachlor epoxide	8270	ND	ug/Kg	1600	01/14/1993
Hexachlorobenzene	8270	ND	ug/Kg	330	01/14/1993
Hexachlorobutadiene	8270	ND	ug/Kg	330	01/14/1993
Hexachlorocyclopentadiene	8270	ND	ug/Kg	330	01/14/1993

ND - Not Detected at the Reporting Limit

NET®

Clier[illegible]ame: USPCI

Date Taken: 01/12/1993
Sample ID : OKS-4b
Lab No. : 51762

[illegible]e Reported: 01/18/1993
NET Job No.: 93.00015

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Hexachloroethane	8270	ND	ug/Kg	330	01/14/1993
Indeno(1,2,3-cd)pyrene	8270	ND	ug/Kg	330	01/14/1993
Isophorone	8270	ND	ug/Kg	330	01/14/1993
2-Methylnaphthalene	8270	ND	ug/Kg	330	01/14/1993
Naphthalene	8270	ND	ug/Kg	330	01/14/1993
2-Nitroaniline	8270	ND	ug/Kg	1600	01/14/1993
3-Nitroaniline	8270	ND	ug/Kg	1600	01/14/1993
4-Nitroaniline	8270	ND	ug/Kg	1600	01/14/1993
Nitrobenzene	8270	ND	ug/Kg	330	01/14/1993
N-Nitroso-Di-N-propylamine	8270	ND	ug/Kg	330	01/14/1993
N-Nitrosodiphenylamine	8270	ND	ug/Kg	330	01/14/1993
Phenanthrene	8270	ND	ug/Kg	330	01/14/1993
Pyrene	8270	480	ug/Kg	330	01/14/1993
1,2,4-Trichlorobenzene	8270	ND	ug/Kg	330	01/14/1993
ACID EXTRACTABLES		--			01/14/1993
4-Chloro-3-methylphenol	8270	ND	ug/Kg	330	01/14/1993
2-Chlorophenol	8270	ND	ug/Kg	330	01/14/1993
2,4-Dichlorophenol	8270	ND	ug/Kg	330	01/14/1993
2,4-Dimethylphenol	8270	ND	ug/Kg	330	01/14/1993
2,4-Dinitrophenol	8270	ND	ug/Kg	1600	01/14/1993
4,6-Dinitro-2-methylphenol	8270	ND	ug/Kg	1600	01/14/1993
2-Nitrophenol	8270	ND	ug/Kg	1600	01/14/1993
4-Nitrophenol	8270	ND	ug/Kg	1600	01/14/1993
Pentachlorophenol	8270	ND	ug/Kg	1600	01/14/1993
Phenol	8270	ND	ug/Kg	330	01/14/1993
2,4,6-Trichlorophenol	8270	ND	ug/Kg	330	01/14/1993
2-Methylphenol	8270	ND	ug/Kg	330	01/14/1993
4-Methylphenol	8270	ND	ug/Kg	330	01/14/1993
2,4,5-Trichlorophenol	8270	ND	ug/Kg	1600	01/14/1993
SURROGATE RESULTS		--			01/14/1993
Nitrobenzene-d5	8270	49	%		01/14/1993
2-Fluorobiphenyl	8270	50	%		01/14/1993
p-Terphenyl-d14	8270	72	%		01/14/1993
Phenol-d5	8270	46	%		01/14/1993
2-Fluorophenol	8270	57	%		01/14/1993
2,4,6-Tribromophenol	8270	49	%		01/14/1993

ND - Not Detected at the Reporting Limit

USPCI

A Subsidiary of
Union Pacific Corporation

Ship To: USPCI Analytical Services
4322 South 49th West Avenue
Tulsa, OK 74107
(918) 446-1162

002550

REPORT TO

CONTACT ~~[illegible]~~ [illegible]
COMPANY USPCI
ADDRESS 24125 Aldine Westfield
CITY Spring ST. TX ZIP 77373
PHONE (713) 350-7266 FAX (713) 350-7246

BILL TO

CONTACT
COMPANY Same
ADDRESS
CITY ST. ZIP
PHONE PO #

CHAIN OF CUSTODY RECORD

PROJ. NO. 96120-844
PROJECT NAME UPMF Oakland, CA
SAMPLERS (SIGNATURE) Christopher Byrne

STANDARD TURNAROUND
RUSH TURNAROUND (specify required date) 3 Days 1-15-92

CUSTOMER SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS	BTEX 8020	TPH-G 8015	TPH-D 8015	METALS	8010	SEMI VOA 8270							LABORATORY SAMPLE I.D.	REMARKS
OKS-1	1-12-92	9:10	Soil	1	X	X	X	1										
OKS-2a		10:00		1	X	X	X	2										
OKS-2b		10:00		1				X	X	X	6							
OKS-3		14:15		1	X	X	X	3										
OKS-4a		14:30		1	X	X	X	4		on	bottle ~~waste~~ Says metals, 8010, 8270							ICP Metals -
OKS-4b		14:30		1				X	X	X	7	~~waste~~ Says BTXE+ Diesel						Cd, Cr, Pb, Zn 10180, 10272
OKS-5	↓	15:00	↓	1	X	X	X	5					on bottle.					10200, 10470
																		10°C

RELINQUISHED BY Christopher Byrne DATE / TIME 1-12-93 18:45 RECEIVED BY DATE / TIME COURIER Fed X.
RELINQUISHED BY DATE / TIME RECEIVED BY Helen Brown NET log-in DATE / TIME 1/12 9:30 AIRBILL NO. 2902229EE5

WHITE COPY — LABORATORY YELLOW COPY — LABORATORY PINK COPY — SAMPLER

NET®

QUALITY CONTROL REPORT

USPCI
24125 Aldine West Road
Spring, TX 77373

02/01/1993

NET Job Number: 93.00054

Eric Taylor

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
52038	OKS-1	01/12/1993	01/12/1993
52039	OKS-2A	01/12/1993	01/12/1993
52040	OKS-4A	01/12/1993	01/12/1993
52041	OKS-5	01/12/1993	01/12/1993

This Quality Control report is generated on a batch basis. Al information contained in this report is for the analytical batch(es in which your sample(s) were analyzed.

QUALITY CONTROL REPORT
BLANKS

USPCI
24125 Aldine West Road
Spring, TX 77373

02/01/1993

Eric Taylor

NET Job Number: 93.00054

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
METHOD 418.1 (IR,TRPH) SOIL		153	ND	mg/Kg

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

02/01/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00054

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
METHOD 418.1 (IR,TRPH) SOIL		153	9,300	9,300	52	mg/Kg	0*	9,300	52	0*	NA

* Due to high sample concentration no matrix spike recoveries were reportable, please refer to LSC results for further quality control information.

NOTE: Matrix Spike Samples may not be samples from this job.

NA = Not Available
MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

02/01/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00054

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
METHOD 418.1 (IR,TRPH) SOIL		153	52	51	98.10	mg/Kg

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NET®

QUALITY CONTROL REPORT

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

NET Job Number: 93.00015

Eric Taylor

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
51756	OKS-1	01/12/1993	01/13/1993
51757	OKS-2a	01/12/1993	01/13/1993
51758	OKS-3	01/12/1993	01/13/1993
51759	OKS-4a	01/12/1993	01/13/1993
51760	OKS-5	01/12/1993	01/13/1993
51761	OKS-2b	01/12/1993	01/13/1993
51762	OKS-4b	01/12/1993	01/13/1993

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

NET®

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD 8010 (GC,Solid)						
Bromodichloromethane		23		10.0	11.2	112.00
Bromoform		23		10.0	10.3	103.00
Bromomethane		23		10.0	8.4	84.00
Carbon tetrachloride		23		10.0	11.2	112.00
Chlorobenzene		23		10.0	11.4	114.00
Chloroethane		23		10.0	10.8	108.00
2-Chloroethylvinyl ether		23		10.0	10.8	108.00
Chloroform		23		10.0	11.0	110.00
Chloromethane		23		10.0	10.8	108.00
Dibromochloromethane		23		10.0	9.8	98.00
1,2-Dichlorobenzene		23		10.0	10.9	109.00
1,3-Dichlorobenzene		23		10.0	10.9	109.00
1,4-Dichlorobenzene		23		10.0	10.9	109.00
Dichlorodifluoromethane		23		10.0	8.9	89.00
1,1-Dichloroethane		23		10.0	11.2	112.00
1,2-Dichloroethane		23		10.0	10.7	107.00
1,1-Dichloroethene		23		10.0	10.7	107.00
trans-1,2-Dichloroethene		23		10.0	10.6	106.00
1,2-Dichloropropane		23		10.0	11.3	113.00
cis-1,3-Dichloropropene		23		10.0	11.1	111.00
trans-1,3-Dichloropropene		23		10.0	10.9	109.00
Methylene chloride		23		10.0	11.9	119.00
1,1,2,2-Tetrachloroethane		23		10.0	10.5	105.00
Tetrachloroethene		23		10.0	11.5	115.00

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
1,1,1-Trichloroethane		23		10.0	10.9	109.00
1,1,2-Trichloroethane		23		10.0	11.1	111.00
Trichloroethene		23		10.0	10.8	108.00
Trichlorofluoromethane		23		10.0	12.0	120.00
Vinyl chloride		23		10.0	10.5	105.00

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
BLANKS

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Chromium (ICP)	145	101	ND	mg/Kg
Zinc (ICP)	145	101	ND	mg/Kg
METHOD 8010 (GC,Solid)				
Bromodichloromethane		23	ND	ug/Kg
Bromoform		23	ND	ug/Kg
Bromomethane		23	ND	ug/Kg
Carbon tetrachloride		23	ND	ug/Kg
Chlorobenzene		23	ND	ug/Kg
Chloroethane		23	ND	ug/Kg
2-Chloroethylvinyl ether		23	ND	ug/Kg
Chloroform		23	ND	ug/Kg
Chloromethane		23	ND	ug/Kg
Dibromochloromethane		23	ND	ug/Kg
1,2-Dichlorobenzene		23	ND	ug/Kg
1,3-Dichlorobenzene		23	ND	ug/Kg
1,4-Dichlorobenzene		23	ND	ug/Kg
Dichlorodifluoromethane		23	ND	ug/Kg
1,1-Dichloroethane		23	ND	ug/Kg
1,2-Dichloroethane		23	ND	ug/Kg
1,1-Dichloroethene		23	ND	ug/Kg
trans-1,2-Dichloroethene		23	ND	ug/Kg
1,2-Dichloropropane		23	ND	ug/Kg
cis-1,3-Dichloropropene		23	ND	ug/Kg
trans-1,3-Dichloropropene		23	ND	ug/Kg
Methylene chloride		23	ND	ug/Kg
1,1,2,2-Tetrachloroethane		23	ND	ug/Kg
Tetrachloroethene		23	ND	ug/Kg
1,1,1-Trichloroethane		23	ND	ug/Kg
1,1,2-Trichloroethane		23	ND	ug/Kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
BLANKS

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Trichloroethene		23	ND	ug/Kg
Trichlorofluoromethane		23	ND	ug/Kg
Vinyl chloride		23	ND	ug/Kg
2-Chlorotoluene		23	93	% Rec.
Cadmium (FLAA)	145	3	ND	mg/Kg
METHOD DOHS/LUFT				
as Diesel		109	ND	mg/Kg
Chlorobenzene		109	99	% Rec.
Di-n-octyl-phthalate		109	NA	% Rec.

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	%RPD	Units
Zinc (ICP)	145	101	50	43.0	86.00	0.12	mg/Kg
	145	101	50	43.1	86.2		
METHOD 8010 (GC,Solid)							
Bromodichloromethane		23	200	255	127.50		ug/Kg
Bromoform		23	200	232	116.00		ug/Kg
Carbon tetrachloride		23	200	255	127.50		ug/Kg
Chlorobenzene		23	200	245	122.50		ug/Kg
Chloroform		23	200	227	113.50		ug/Kg
Dibromochloromethane		23	200	208	104.00		ug/Kg
1,2-Dichlorobenzene		23	200	197	98.50		ug/Kg
1,3-Dichlorobenzene		23	200	208	104.00		ug/Kg
1,4-Dichlorobenzene		23	200	215	107.50		ug/Kg
Dichlorodifluoromethane		23	200	172	86.00		ug/Kg
1,1-Dichloroethane		23	200	231	115.50		ug/Kg
1,2-Dichloroethane		23	200	232	116.00		ug/Kg
1,1-Dichloroethene		23	200	231	115.50		ug/Kg
trans-1,2-Dichloroethene		23	200	230	115.00		ug/Kg
1,2-Dichloropropane		23	200	231	115.50		ug/Kg
cis-1,3-Dichloropropene		23	200	238	119.00		ug/Kg
trans-1,3-Dichloropropene		23	200	238	119.00		ug/Kg
Methylene chloride		23	200	239	119.50		ug/Kg
1,1,2,2-Tetrachloroethane		23	200	205	102.50		ug/Kg
Tetrachloroethene		23	200	240	120.00		ug/Kg
1,1,1-Trichloroethane		23	200	240	120.00		ug/Kg
1,1,2-Trichloroethane		23	200	235	117.50		ug/Kg
Trichloroethene		23	200	231	115.50		ug/Kg
Trichlorofluoromethane		23	200	226	113.00		ug/Kg
2-Chlorotoluene		23	200	200	100.00		% Rec.
Cadmium (FLAA)	145	3	20	17.9	89.50	0.56	mg/Kg
Cadmium (FLAA)	145	3	20	17.7	88.50		mg/Kg
METHOD DOHS/LUFT							
as Diesel		109	400	418	104.50		mg/Kg
Chlorobenzene		109	50	50.8	101.60		% Rec.

LCS - Laboratory Control Standard
Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	%RPD	Units
Di-n-octyl-phthalate		109	50	38.1	76.20		% Rec.
METHOD DOHS/LUFT							
as Diesel		109	400	428	107.00		mg/Kg
Chlorobenzene		109	50	50.9	101.80		% Rec.
Di-n-octyl-phthalate		109	50	40.0	80.00		% Rec.
Chromium	145	101	50	42.3	84.6	1.32	mg/Kg
			50	41.2	82.4		mg/Kg

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
METHOD 8010 (GC,Solid)											
Chlorobenzene		23	300.0	ND	250.0	ug/Kg	118.00	240.0	250.0	97.00	19.40
1,1-Dichloroethene		23	280.0	ND	250.0	ug/Kg	109.00	200.0	250.0	80.00	30.60
Trichloroethene		23	320.0	ND	250.0	ug/Kg	126.50	260.0	250.0	101.00	22.40
METHOD DOHS/LUFT											
as Diesel		109	500.0	ND	480.0	mg/Kg	103.50	500.0	480.0	104.80	1.20

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
DUPLICATES

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00015

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	Flags	RPD
Percent Solids		8	79.2	80.8	%		2.00

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

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QUALITY CONTROL DATA
METHOD 8270/625

Lab.No.	Analyte	Units	*Blank Data	Spike 1 % Rec	Spike 2 % Rec	AVG. %Rec	RPD
LCS011393							
	ACN ACENAPHTHENE	MG/KG	ND	74.0	80.2	77.1	8.0
	CMP 4-CHLORO-3-METHYLPHENOL	MG/KG	ND	80.2	89.8	85.0	11.3
	CPH 2-CHLOROPHENOL	MG/KG	ND	49.1	61.5	55.3	22.4
	DCB 1,4-DICHLOROBENZENE	MG/KG	ND	34.4	39.4	36.9	13.6
	DNT 2,4-DINITROTOLUENE	MG/KG	ND	72.0	77.6	74.8	7.5
	NDP N-NITROSODI-N-PROPYLAMINE	MG/KG	ND	53.6	54.6	54.1	1.8
	NPH 4-NITROPHENOL	MG/KG	ND	109.0	114.0	111.5	4.5
	PCP PENTACHLOROPHENOL	MG/KG	ND	106.0	88.4	97.2	18.1
	PHE PHENOL	MG/KG	ND	43.3	54.1	48.7	22.2
	PYR PYRENE	MG/KG	ND	92.0	92.6	92.3	0.7
	TBZ 1,2,4-TRICHLOROBENZENE	MG/KG	ND	62.4	61.4	61.9	1.6

*COMMENT: Blank results were ND on all other analytes tested.

QC BATCH SAMPLES : JOB NO. 93.00015

**LCS/ LCS DUPLICATE WERE DONE TO MEASURE ACCURACY AND PRECISION.

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NATIONAL
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TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

01/25/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: 96120-894
Date Received: 01/14/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that 418.1 was added per Chris Byerman. Also, samples 51853 and 51859 showed detectable amounts of Motor Oil when analyzing for diesel by Mod. 8015/DOHS LUFT.

Reporting Limits (R.L.) represent Practical Quantitation Limits (PQL's) unless otherwise noted. If a dilution factor greater than 1 (one) is reported, the actual R.L. for that sample is equal to the dilution factor multiplied by the default R.L.

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks

Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Reports

Client Net Acct No: 29650
NET Job No: 93.00036

NET®

Clie[illegible]ame: USPCI

Date Taken: 01/13/1993
Sample ID : OKS-6 (6-8)
Lab No. : 51853

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		89.7	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	580	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/19/1993
Date Extracted		1-18-93			01/19/1993
Date Analyzed		1-19-93			01/19/1993
Dilution Factor		10			01/19/1993
TOT. PET. HYDROCARBONS		--			01/19/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/19/1993
Surrogate Spike-TPH		--			01/19/1993
Chlorobenzene	8015 MOD.	96	% Rec.		01/19/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/19/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	0.011	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	ND	mg/Kg	0.0005	01/15/1993
Toluene	8020	ND	mg/Kg	0.0005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	94	% Rec.		01/15/1993

* Motor Oil detected at 600 mg/Kg.

ND - Not Detected at the Reporting Limit

Clier[illegible]ame: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-7A (10-12)
Lab No. : 51854

[illegible]e Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		84.8	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	ND	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/18/1993
Date Extracted		1-18-93			01/18/1993
Date Analyzed		1-18-93			01/18/1993
Dilution Factor		1			01/18/1993
TOT. PET. HYDROCARBONS		--			01/18/1993
as Diesel	8015 MOD.	ND	mg/Kg	1	01/18/1993
Surrogate Spike-TPH		--			01/18/1993
Chlorobenzene	8015 MOD.	101	% Rec.		01/18/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/18/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	0.007	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.022	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	94	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

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Cli[illegible]ame: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-8 (18-20)
Lab No. : 51855

[illegible]ate Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		84.5	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	ND	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/18/1993
Date Extracted		1-18-93			01/18/1993
Date Analyzed		1-18-93			01/18/1993
Dilution Factor		1			01/18/1993
TOT. PET. HYDROCARBONS		--			01/18/1993
as Diesel	8015 MOD.	ND	mg/Kg	1	01/18/1993
Surrogate Spike-TPH		--			01/18/1993
Chlorobenzene	8015 MOD.	102	% Rec.		01/18/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/18/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	0.059	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.67	mg/Kg	0.005	01/15/1993
Toluene	8020	0.016	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	2.1	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	109	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

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Clie[illegible]ame: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-9 (8-9)
Lab No. : 51856

[illegible]e Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		80.9	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	ND	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/18/1993
Date Extracted		1-18-93			01/18/1993
Date Analyzed		1-18-93			01/18/1993
Dilution Factor		1			01/18/1993
TOT. PET. HYDROCARBONS		--			01/18/1993
as Diesel	8015 MOD.	ND	mg/Kg	1	01/18/1993
Surrogate Spike-TPH		--			01/18/1993
Chlorobenzene	8015 MOD.	99	% Rec.		01/18/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/18/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-18-93			01/15/1993
Date Analyzed		01-18-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	0.006	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.032	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	112	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-10A (8-9)
Lab No. : 51857

Date Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		81.0	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	45	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/18/1993
Date Extracted		1-18-93			01/18/1993
Date Analyzed		1-18-93			01/18/1993
Dilution Factor		1			01/18/1993
TOT. PET. HYDROCARBONS		--			01/18/1993
as Diesel	8015 MOD.	19	mg/Kg	1	01/18/1993
Surrogate Spike-TPH		--			01/18/1993
Chlorobenzene	8015 MOD.	102	% Rec.		01/18/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/18/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	0.026	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.35	mg/Kg	0.005	01/15/1993
Toluene	8020	0.006	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	0.019	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	97	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

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Clien[illegible]ame: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-11 (4-5)
Lab No. : 51858

[illegible]e Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		73.5	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	32	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/19/1993
Date Extracted		1-18-93			01/19/1993
Date Analyzed		1-19-93			01/19/1993
Dilution Factor		1			01/19/1993
TOT. PET. HYDROCARBONS		--			01/19/1993
as Diesel	8015 MOD.	ND	mg/Kg	1	01/19/1993
Surrogate Spike-TPH		--			01/19/1993
Chlorobenzene	8015 MOD.	99	% Rec.		01/19/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/19/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	ND	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	77	% Rec.		01/15/1993

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible]ame: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-12 (7-8)
Lab No. : 51859

[illegible]ate Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		77.6	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	45	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/19/1993
Date Extracted		1-18-93			01/19/1993
Date Analyzed		1-19-93			01/19/1993
Dilution Factor		1			01/19/1993
TOT. PET. HYDROCARBONS		--			01/19/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/19/1993
Surrogate Spike-TPH		--			01/19/1993
Chlorobenzene	8015 MOD.	103	% Rec.		01/19/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/19/1993
METHOD 8020/8015 MOD. (SOIL)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	ND	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	0.016	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8015 MOD.	95	% Rec.		01/15/1993

* Motor Oil detected at 87 mg/Kg.

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible]Name: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-7B
Lab No. : 51860

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD		METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids			84.1	%	0.1	01/18/1993
Acid Digestion (ICP/AA)		3050	DONE			01/20/1993
Acid Digestion (GFAA)		3050	DONE			01/16/1993
ICP METALS						
Cadmium	(ICP)	6010	ND	mg/Kg	0.5	01/22/1993
Chromium	(ICP)	6010	21.0	mg/Kg	0.5	01/22/1993
Lead	(GFAA)	7421	38.0	mg/Kg	0.2	01/19/1993
Zinc	(ICP)	6010	21.8	mg/Kg	1.0	01/22/1993

ND - Not Detected at the Reporting Limit

Clie[illegible]ame: USPCI

Date Taken: 01/13/1993
Sample ID : OKS-7B
Lab No. : 51860

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8010 (GC,Solid)					
Extraction Method		5030			01/15/1993
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
Bromodichloromethane	8010	ND	ug/Kg	5	01/15/1993
Bromoform	8010	ND	ug/Kg	10	01/15/1993
Bromomethane	8010	ND	ug/Kg	10	01/15/1993
Carbon tetrachloride	8010	ND	ug/Kg	5	01/15/1993
Chlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Chloroethane	8010	ND	ug/Kg	10	01/15/1993
2-Chloroethylvinyl ether	8010	ND	ug/Kg	10	01/15/1993
Chloroform	8010	ND	ug/Kg	5	01/15/1993
Chloromethane	8010	ND	ug/Kg	10	01/15/1993
Dibromochloromethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,3-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,4-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Dichlorodifluoromethane	8010	ND	ug/Kg	10	01/15/1993
1,1-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
trans-1,2-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloropropane	8010	ND	ug/Kg	5	01/15/1993
cis-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
trans-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
Methylene chloride	8010	ND	ug/Kg	10	01/15/1993
1,1,2,2-Tetrachloroethane	8010	ND	ug/Kg	5	01/15/1993
Tetrachloroethene	8010	ND	ug/Kg	5	01/15/1993
1,1,1-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1,2-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
Trichloroethene	8010	ND	ug/Kg	5	01/15/1993
Trichlorofluoromethane	8010	ND	ug/Kg	10	01/15/1993
Vinyl chloride	8010	ND	ug/Kg	10	01/15/1993
Surrogate Spike		--			01/15/1993
2-Chlorotoluene	8010	130.0	%		01/15/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-7B
Lab No. : 51860

Date Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8270(GCMS,Solid)					
DATE EXTRACTED		01-18-93			01/19/1993
DATE ANALYZED		01-19-93			01/19/1993
Dilution Factor		1			01/19/1993
Acenaphthene	8270	ND	ug/Kg	330	01/19/1993
Acenaphthylene	8270	ND	ug/Kg	330	01/19/1993
Aldrin	8270	ND	ug/Kg	1600	01/19/1993
Anthracene	8270	ND	ug/Kg	330	01/19/1993
Benzidine	8270	ND	ug/Kg	1600	01/19/1993
Benzo(a)anthracene	8270	ND	ug/Kg	330	01/19/1993
Benzo(b)fluoranthene	8270	ND	ug/Kg	330	01/19/1993
Benzo(k)fluoranthene	8270	ND	ug/Kg	330	01/19/1993
Benzo(a)pyrene	8270	ND	ug/Kg	330	01/19/1993
Benzo(g,h,i)perylene	8270	ND	ug/Kg	330	01/19/1993
Benzoic acid	8270	ND	ug/Kg	1600	01/19/1993
Benyzl alcohol	8270	ND	ug/Kg	330	01/19/1993
Butyl benzyl phthalate	8270	ND	ug/Kg	330	01/19/1993
beta-BHC	8270	ND	ug/Kg	1600	01/19/1993
gamma-BHC	8270	ND	ug/Kg	1600	01/19/1993
bis(2-Chloroethyl)ether	8270	ND	ug/Kg	330	01/19/1993
bis(2-Chloroethoxy)methane	8270	ND	ug/Kg	330	01/19/1993
bis(2-Chloroisopropyl)ether	8270	ND	ug/Kg	330	01/19/1993
bis(2-Ethylhexyl)phthalate	8270	ND	ug/Kg	330	01/19/1993
4-Bromophenyl phenyl ether	8270	ND	ug/Kg	330	01/19/1993
4-Chloroanaline	8270	ND	ug/Kg	330	01/19/1993
2-Chloronaphthalene	8270	ND	ug/Kg	330	01/19/1993
4-Chlorophenyl phenyl ether	8270	ND	ug/Kg	330	01/19/1993
Chrysene	8270	ND	ug/Kg	330	01/19/1993
4,4'-DDD	8270	ND	ug/Kg	1600	01/19/1993
4,4'-DDE	8270	ND	ug/Kg	1600	01/19/1993
4,4'-DDT	8270	ND	ug/Kg	1600	01/19/1993
Dibenzo(a,h)anthracene	8270	ND	ug/Kg	330	01/19/1993
Dibenzofuran	8270	ND	ug/Kg	330	01/19/1993
Di-n-butylphthalate	8270	ND	ug/Kg	330	01/19/1993
1,2-Dichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
1,3-Dichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
1,4-Dichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
3,3'-Dichlorobenzidine	8270	ND	ug/Kg	660	01/19/1993
Dieldrin	8270	ND	ug/Kg	1600	01/19/1993
Diethylphthalate	8270	ND	ug/Kg	330	01/19/1993
Dimethyl phthalate	8270	ND	ug/Kg	330	01/19/1993
2,4-Dinitrotoluene	8270	ND	ug/Kg	330	01/19/1993
2,6-Dinitrotoluene	8270	ND	ug/Kg	330	01/19/1993
Endrin	8270	ND	ug/Kg	1600	01/19/1993
Endosulfan II	8270	ND	ug/Kg	1600	01/19/1993
Endrin aldehyde	8270	ND	ug/Kg	1600	01/19/1993
Fluorene	8270	ND	ug/Kg	330	01/19/1993
Heptachlor	8270	ND	ug/Kg	1600	01/19/1993
Heptachlor epoxide	8270	ND	ug/Kg	1600	01/19/1993
Hexachlorobenzene	8270	ND	ug/Kg	330	01/19/1993
Hexachlorobutadiene	8270	ND	ug/Kg	330	01/19/1993
Hexachlorocyclopentadiene	8270	ND	ug/Kg	330	01/19/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-7B
Lab No. : 51860

Date Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Hexachloroethane	8270	ND	ug/Kg	330	01/19/1993
Indeno(1,2,3-cd)pyrene	8270	ND	ug/Kg	330	01/19/1993
Isophorone	8270	ND	ug/Kg	330	01/19/1993
2-Methylnaphthalene	8270	ND	ug/Kg	330	01/19/1993
Naphthalene	8270	ND	ug/Kg	330	01/19/1993
2-Nitroaniline	8270	ND	ug/Kg	1600	01/19/1993
3-Nitroaniline	8270	ND	ug/Kg	1600	01/19/1993
4-Nitroaniline	8270	ND	ug/Kg	1600	01/19/1993
Nitrobenzene	8270	ND	ug/Kg	330	01/19/1993
N-Nitroso-Di-N-propylamine	8270	ND	ug/Kg	330	01/19/1993
N-Nitrosodiphenylamine	8270	ND	ug/Kg	330	01/19/1993
Phenanthrene	8270	ND	ug/Kg	330	01/19/1993
Pyrene	8270	ND	ug/Kg	330	01/19/1993
1,2,4-Trichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
ACID EXTRACTABLES		--			01/19/1993
4-Chloro-3-methylphenol	8270	ND	ug/Kg	330	01/19/1993
2-Chlorophenol	8270	ND	ug/Kg	330	01/19/1993
2,4-Dichlorophenol	8270	ND	ug/Kg	330	01/19/1993
2,4-Dimethylphenol	8270	ND	ug/Kg	330	01/19/1993
2,4-Dinitrophenol	8270	ND	ug/Kg	1600	01/19/1993
4,6-Dinitro-2-methylphenol	8270	ND	ug/Kg	1600	01/19/1993
2-Nitrophenol	8270	ND	ug/Kg	1600	01/19/1993
4-Nitrophenol	8270	ND	ug/Kg	1600	01/19/1993
Pentachlorophenol	8270	ND	ug/Kg	1600	01/19/1993
Phenol	8270	ND	ug/Kg	330	01/19/1993
2,4,6-Trichlorophenol	8270	ND	ug/Kg	330	01/19/1993
2-Methylphenol	8270	ND	ug/Kg	330	01/19/1993
4-Methylphenol	8270	ND	ug/Kg	330	01/19/1993
2,4,5-Trichlorophenol	8270	ND	ug/Kg	1600	01/19/1993
SURROGATE RESULTS		--			01/19/1993
Nitrobenzene-d5	8270	46	%		01/19/1993
2-Fluorobiphenyl	8270	52	%		01/19/1993
p-Terphenyl-d14	8270	76	%		01/19/1993
Phenol-d5	8270	105	%		01/19/1993
2-Fluorophenol	8270	102	%		01/19/1993
2,4,6-Tribromophenol	8270	56	%		01/19/1993

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible]Name: USPCI

Date Taken: 01/13/1993
Sample ID : OKS-10B
Lab No. : 51861

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD		METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids			79.7	%	0.1	01/18/1993
Acid Digestion (ICP/AA)		3050	DONE			01/20/1993
Acid Digestion (GFAA)		3050	DONE			01/16/1993
ICP METALS						
Cadmium	(ICP)	6010	ND	mg/Kg	0.5	01/22/1993
Chromium	(ICP)	6010	17.4	mg/Kg	0.5	01/22/1993
Lead	(GFAA)	7421	9.0	mg/Kg	0.2	01/19/1993
Zinc	(ICP)	6010	26.2	mg/Kg	1.0	01/22/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]lame: USPCI

Date Taken: 01/13/1993
Sample ID : OKS-10B
Lab No. : 51861

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8010 (GC,Solid)					
Extraction Method		5030			01/15/1993
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
Bromodichloromethane	8010	ND	ug/Kg	5	01/15/1993
Bromoform	8010	ND	ug/Kg	10	01/15/1993
Bromomethane	8010	ND	ug/Kg	10	01/15/1993
Carbon tetrachloride	8010	ND	ug/Kg	5	01/15/1993
Chlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Chloroethane	8010	ND	ug/Kg	10	01/15/1993
2-Chloroethylvinyl ether	8010	ND	ug/Kg	10	01/15/1993
Chloroform	8010	ND	ug/Kg	5	01/15/1993
Chloromethane	8010	ND	ug/Kg	10	01/15/1993
Dibromochloromethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,3-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
1,4-Dichlorobenzene	8010	ND	ug/Kg	5	01/15/1993
Dichlorodifluoromethane	8010	ND	ug/Kg	10	01/15/1993
1,1-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
trans-1,2-Dichloroethene	8010	ND	ug/Kg	5	01/15/1993
1,2-Dichloropropane	8010	ND	ug/Kg	5	01/15/1993
cis-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
trans-1,3-Dichloropropene	8010	ND	ug/Kg	5	01/15/1993
Methylene chloride	8010	ND	ug/Kg	10	01/15/1993
1,1,2,2-Tetrachloroethane	8010	ND	ug/Kg	5	01/15/1993
Tetrachloroethene	8010	ND	ug/Kg	5	01/15/1993
1,1,1-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
1,1,2-Trichloroethane	8010	ND	ug/Kg	5	01/15/1993
Trichloroethene	8010	ND	ug/Kg	5	01/15/1993
Trichlorofluoromethane	8010	ND	ug/Kg	10	01/15/1993
Vinyl chloride	8010	ND	ug/Kg	10	01/15/1993
Surrogate Spike		--			01/15/1993
2-Chlorotoluene	8010	108	%		01/15/1993

ND - Not Detected at the Reporting Limit

Clie[illegible]Name: USPCI
Date Taken: 01/13/1993
Sample ID : OKS-10B
Lab No. : 51861

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00036

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8270(GCMS,Solid)					
DATE EXTRACTED		01-18-93			01/19/1993
DATE ANALYZED		01-19-93			01/19/1993
Dilution Factor		1			01/19/1993
Acenaphthene	8270	ND	ug/Kg	330	01/19/1993
Acenaphthylene	8270	ND	ug/Kg	330	01/19/1993
Aldrin	8270	ND	ug/Kg	1600	01/19/1993
Anthracene	8270	ND	ug/Kg	330	01/19/1993
Benzidine	8270	ND	ug/Kg	1600	01/19/1993
Benzo(a)anthracene	8270	ND	ug/Kg	330	01/19/1993
Benzo(b)fluoranthene	8270	ND	ug/Kg	330	01/19/1993
Benzo(k)fluoranthene	8270	ND	ug/Kg	330	01/19/1993
Benzo(a)pyrene	8270	ND	ug/Kg	330	01/19/1993
Benzo(g,h,i)perylene	8270	ND	ug/Kg	330	01/19/1993
Benzoic acid	8270	ND	ug/Kg	1600	01/19/1993
Benyzl alcohol	8270	ND	ug/Kg	330	01/19/1993
Butyl benzyl phthalate	8270	ND	ug/Kg	330	01/19/1993
beta-BHC	8270	ND	ug/Kg	1600	01/19/1993
gamma-BHC	8270	ND	ug/Kg	1600	01/19/1993
bis(2-Chloroethyl)ether	8270	ND	ug/Kg	330	01/19/1993
bis(2-Chloroethoxy)methane	8270	ND	ug/Kg	330	01/19/1993
bis(2-Chloroisopropyl)ether	8270	ND	ug/Kg	330	01/19/1993
bis(2-Ethylhexyl)phthalate	8270	ND	ug/Kg	330	01/19/1993
4-Bromophenyl phenyl ether	8270	ND	ug/Kg	330	01/19/1993
4-Chloroanaline	8270	ND	ug/Kg	330	01/19/1993
2-Chloronaphthalene	8270	ND	ug/Kg	330	01/19/1993
4-Chlorophenyl phenyl ether	8270	ND	ug/Kg	330	01/19/1993
Chrysene	8270	ND	ug/Kg	330	01/19/1993
4,4'-DDD	8270	ND	ug/Kg	1600	01/19/1993
4,4'-DDE	8270	ND	ug/Kg	1600	01/19/1993
4,4'-DDT	8270	ND	ug/Kg	1600	01/19/1993
Dibenzo(a,h)anthracene	8270	ND	ug/Kg	330	01/19/1993
Dibenzofuran	8270	ND	ug/Kg	330	01/19/1993
Di-n-butylphthalate	8270	ND	ug/Kg	330	01/19/1993
1,2-Dichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
1,3-Dichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
1,4-Dichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
3,3'-Dichlorobenzidine	8270	ND	ug/Kg	660	01/19/1993
Dieldrin	8270	ND	ug/Kg	1600	01/19/1993
Diethylphthalate	8270	ND	ug/Kg	330	01/19/1993
Dimethyl phthalate	8270	ND	ug/Kg	330	01/19/1993
2,4-Dinitrotoluene	8270	ND	ug/Kg	330	01/19/1993
2,6-Dinitrotoluene	8270	ND	ug/Kg	330	01/19/1993
Endrin	8270	ND	ug/Kg	1600	01/19/1993
Endosulfan II	8270	ND	ug/Kg	1600	01/19/1993
Endrin aldehyde	8270	ND	ug/Kg	1600	01/19/1993
Fluorene	8270	ND	ug/Kg	330	01/19/1993
Heptachlor	8270	ND	ug/Kg	1600	01/19/1993
Heptachlor epoxide	8270	ND	ug/Kg	1600	01/19/1993
Hexachlorobenzene	8270	ND	ug/Kg	330	01/19/1993
Hexachlorobutadiene	8270	ND	ug/Kg	330	01/19/1993
Hexachlorocyclopentadiene	8270	ND	ug/Kg	330	01/19/1993

ND - Not Detected at the Reporting Limit

Clie[illegible]Name: USPCI
[illegible]te Reported: 01/25/1993
Date Taken: 01/13/1993
NET Job No.: 93.00036
Sample ID : OKS-10B
Lab No. : 51861
Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Hexachloroethane	8270	ND	ug/Kg	330	01/19/1993
Indeno(1,2,3-cd)pyrene	8270	ND	ug/Kg	330	01/19/1993
Isophorone	8270	ND	ug/Kg	330	01/19/1993
2-Methylnaphthalene	8270	ND	ug/Kg	330	01/19/1993
Naphthalene	8270	ND	ug/Kg	330	01/19/1993
2-Nitroaniline	8270	ND	ug/Kg	1600	01/19/1993
3-Nitroaniline	8270	ND	ug/Kg	1600	01/19/1993
4-Nitroaniline	8270	ND	ug/Kg	1600	01/19/1993
Nitrobenzene	8270	ND	ug/Kg	330	01/19/1993
N-Nitroso-Di-N-propylamine	8270	ND	ug/Kg	330	01/19/1993
N-Nitrosodiphenylamine	8270	ND	ug/Kg	330	01/19/1993
Phenanthrene	8270	ND	ug/Kg	330	01/19/1993
Pyrene	8270	ND	ug/Kg	330	01/19/1993
1,2,4-Trichlorobenzene	8270	ND	ug/Kg	330	01/19/1993
ACID EXTRACTABLES		--			01/19/1993
4-Chloro-3-methylphenol	8270	ND	ug/Kg	330	01/19/1993
2-Chlorophenol	8270	ND	ug/Kg	330	01/19/1993
2,4-Dichlorophenol	8270	ND	ug/Kg	330	01/19/1993
2,4-Dimethylphenol	8270	ND	ug/Kg	330	01/19/1993
2,4-Dinitrophenol	8270	ND	ug/Kg	1600	01/19/1993
4,6-Dinitro-2-methylphenol	8270	ND	ug/Kg	1600	01/19/1993
2-Nitrophenol	8270	ND	ug/Kg	1600	01/19/1993
4-Nitrophenol	8270	ND	ug/Kg	1600	01/19/1993
Pentachlorophenol	8270	ND	ug/Kg	1600	01/19/1993
Phenol	8270	ND	ug/Kg	330	01/19/1993
2,4,6-Trichlorophenol	8270	ND	ug/Kg	330	01/19/1993
2-Methylphenol	8270	ND	ug/Kg	330	01/19/1993
4-Methylphenol	8270	ND	ug/Kg	330	01/19/1993
2,4,5-Trichlorophenol	8270	ND	ug/Kg	1600	01/19/1993
SURROGATE RESULTS		--			01/19/1993
Nitrobenzene-d5	8270	52	%		01/19/1993
2-Fluorobiphenyl	8270	46	%		01/19/1993
p-Terphenyl-d14	8270	64	%		01/19/1993
Phenol-d5	8270	81	%		01/19/1993
2-Fluorophenol	8270	114	%		01/19/1993
2,4,6-Tribromophenol	8270	56	%		01/19/1993

ND - Not Detected at the Reporting Limit

U.S. POLLUTION CONTROL, INC.

ERIC TAYLOR
24125 ALDINE WESTFIELD
SPRING, TX
77373

~~5665 Flatiron Parkway~~
~~Boulder, Colorado 80301~~
(303) 938-5500

CHAIN OF CUSTODY RECORD

PROJ. NO. 9620-894

PROJECT NAME UPMF OAKLAND, CA

SAMPLERS: *(Signature)*

STAT. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH-G	TPH-D	BTEX	METALS	8010	8270	REMARKS
OKS-6	1-13-93	8:20		X	OKUS-W3 (6-8')	1	X	X	X				* CALL ERIC TAYLOR
OKS-7a		8:45		X	OKUS-W3 (10-12')	1	X	X	X				* 713-350-7266 TO PROCEED
OKS-7b		8:45		X	OKUS-W3 (10-12)	1				X	X	X	W/ METALS, 8010 & 8270
OKS-8		9:05		X	OKUS-W3 (18-20)	1	X	X	X				* TESTS
OKS-9		10:25		✓	OKUS-B1 (8-9)	1	X	X	X				*
OKS-10a		11:50		X	OKUS-W4 (8-9)	1	X	X	X				*
OKS-10b		11:50		X	OKUS-W4 (8-9)	1				X	X	X	
OKS-11		15:30		X	OKUS-B7 (4-5)	1	X	X	X				*
OKS-12	↓	15:50		X	OKUS-B2 (7-8)	1	X	X	X				*
													* 418.1 added per Chris Bycemen
													1/18/93 KSB

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*
	1-13-93 19:00				

Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date/Time	Received by: *(Signature)*

Relinquished by: *(Signature)*	Date/Time	Received for Laboratory by: *(Signature)*	Date/Time	Remarks
			1-14-93 10:10	SEND COPY OF REPORT TO: TERESA VAN 5665 FLATIRON PKWY BOULDER CO 80301

Split Samples:
☐ Accepted ☐ Declined
Signature

Distribution: Original Accompanies Shipment, First Copy to Coordinator Field Files; Second Copy to Representative of Inspected Facility

QUALITY CONTROL REPORT

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

NET Job Number: 93.00036

Eric Taylor

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
51853	OKS-6 (6-8)	01/13/1993	01/14/1993
51854	OKS-7A (10-12)	01/13/1993	01/14/1993
51855	OKS-8 (18-20)	01/13/1993	01/14/1993
51856	OKS-9 (8-9)	01/13/1993	01/14/1993
51857	OKS-10A (8-9)	01/13/1993	01/14/1993
51858	OKS-11 (4-5)	01/13/1993	01/14/1993
51859	OKS-12 (7-8)	01/13/1993	01/14/1993
51860	OKS-7B	01/13/1993	01/14/1993
51861	OKS-10B	01/13/1993	01/14/1993

This Quality Control report is generated on a batch basis. Al information contained in this report is for the analytical batch(es in which your sample(s) were analyzed.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD 8010 (GC,Solid)						
Bromodichloromethane		24		10.0	10.6	106.00
Bromoform		24		10.0	9.4	94.00
Bromomethane		24		10.0	7.0	70.00
Carbon tetrachloride		24		10.0	10.9	109.00
Chlorobenzene		24		10.0	9.9	99.00
Chloroethane		24		10.0	9.8	98.00
2-Chloroethylvinyl ether		24		10.0	9.5	95.00
Chloroform		24		10.0	10.4	104.00
Chloromethane		24		10.0	8.5	85.00
Dibromochloromethane		24		10.0	9.5	95.00
1,2-Dichlorobenzene		24		10.0	8.6	86.00
1,3-Dichlorobenzene		24		10.0	8.6	86.00
1,4-Dichlorobenzene		24		10.0	8.7	87.00
Dichlorodifluoromethane		24		10.0	5.2	52.00
1,1-Dichloroethane		24		10.0	10.6	106.00
1,2-Dichloroethane		24		10.0	10.3	103.00
1,1-Dichloroethene		24		10.0	10.6	106.00
trans-1,2-Dichloroethene		24		10.0	9.7	97.00
1,2-Dichloropropane		24		10.0	10.5	105.00
cis-1,3-Dichloropropene		24		10.0	10.1	101.00
trans-1,3-Dichloropropene		24		10.0	9.7	97.00
Methylene chloride		24		10.0	10.6	106.00
1,1,2,2-Tetrachloroethane		24		10.0	9.1	91.00
Tetrachloroethene		24		10.0	11.0	110.00

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
1,1,1-Trichloroethane		24		10.0	10.9	109.00
1,1,2-Trichloroethane		24		10.0	10.0	100.00
Trichloroethene		24		10.0	10.5	105.00
Trichlorofluoromethane		24		10.0	10.4	104.00
Vinyl chloride		24		10.0	8.9	89.00
METHOD 8020/8015 MOD. (SOIL)						
Benzene		15		0.020	0.018	90.00
Ethylbenzene		15		0.020	0.019	95.00
Toluene		15		0.020	0.018	90.00
Xylenes, total		15		0.060	0.052	86.70
as Gasoline		15		0.120	0.130	108.30
Bromofluorobenzene		15		0.020	0.020	100.00
Lead (GFAA)		MP1941S1		0.025	0.0248	99.0

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
BLANKS

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Cadmium (ICP)	148	105	ND	mg/Kg
Chromium (ICP)	148	105	ND	mg/Kg
Zinc (ICP)	148	105	ND	mg/Kg
METHOD 8010 (GC,Solid)				
Bromodichloromethane		24	ND	ug/Kg
Bromoform		24	ND	ug/Kg
Bromomethane		24	ND	ug/Kg
Carbon tetrachloride		24	ND	ug/Kg
Chlorobenzene		24	ND	ug/Kg
Chloroethane		24	ND	ug/Kg
2-Chloroethylvinyl ether		24	ND	ug/Kg
Chloroform		24	ND	ug/Kg
Chloromethane		24	ND	ug/Kg
Dibromochloromethane		24	ND	ug/Kg
1,2-Dichlorobenzene		24	ND	ug/Kg
1,3-Dichlorobenzene		24	ND	ug/Kg
1,4-Dichlorobenzene		24	ND	ug/Kg
Dichlorodifluoromethane		24	ND	ug/Kg
1,1-Dichloroethane		24	ND	ug/Kg
1,2-Dichloroethane		24	ND	ug/Kg
1,1-Dichloroethene		24	ND	ug/Kg
trans-1,2-Dichloroethene		24	ND	ug/Kg
1,2-Dichloropropane		24	ND	ug/Kg
cis-1,3-Dichloropropene		24	ND	ug/Kg
trans-1,3-Dichloropropene		24	ND	ug/Kg
Methylene chloride		24	ND	ug/Kg
1,1,2,2-Tetrachloroethane		24	ND	ug/Kg
Tetrachloroethene		24	ND	ug/Kg
1,1,1-Trichloroethane		24	5.8*	ug/Kg

*Sample results was ND (< 5 ug/Kg) for 1,1,1-Trichloroethane.

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
BLANKS

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
1,1,2-Trichloroethane		24	ND	ug/Kg
Trichloroethene		24	ND	ug/Kg
Trichlorofluoromethane		24	ND	ug/Kg
Vinyl chloride		24	ND	ug/Kg
2-Chlorotoluene		24	84	% Rec.
METHOD 418.1 (IR,TRPH) SOIL		153	ND	mg/Kg
METHOD DOHS/LUFT				
as Diesel		110	ND	mg/Kg
Chlorobenzene		110	102	% Rec.
Di-n-octyl-phthalate		110	88	% Rec.
METHOD 8020/8015 MOD. (SOIL)				
Benzene		15	ND	mg/Kg
Ethylbenzene		15	ND	mg/Kg
Toluene		15	ND	mg/Kg
Xylenes, total		15	ND	mg/Kg
as Gasoline		15	ND	mg/Kg
Bromofluorobenzene		15	100	% Rec.
METHOD 8020/8015 MOD. (SOIL)				
Benzene		15	ND	mg/Kg
Ethylbenzene		15	ND	mg/Kg
Toluene		15	ND	mg/Kg
Xylenes, total		15	ND	mg/Kg
as Gasoline		15	ND	mg/Kg
Bromofluorobenzene		15	107	% Rec.
Lead (GFAA)		MP1941S1	ND	mg/kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

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QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Cadmium (ICP)	148	105	20	16.4	82.00	mg/Kg
Chromium (ICP)	148	105	50	43.0	86.00	mg/Kg
Zinc (ICP)	148	105	50	44.0	88.00	mg/Kg
METHOD 8010 (GC,Solid)						
Bromodichloromethane		24	200	240	120.00	ug/Kg
Bromoform		24	200	250	125.00	ug/Kg
Carbon tetrachloride		24	200	206	103.00	ug/Kg
Chlorobenzene		24	200	222	111.00	ug/Kg
Chloroform		24	200	208	104.00	ug/Kg
Dibromochloromethane		24	200	220	110.00	ug/Kg
1,2-Dichlorobenzene		24	200	201	100.50	ug/Kg
1,3-Dichlorobenzene		24	200	186	93.00	ug/Kg
1,4-Dichlorobenzene		24	200	190	95.00	ug/Kg
Dichlorodifluoromethane		24	200	88	44.00	ug/Kg
1,1-Dichloroethane		24	200	214	107.00	ug/Kg
1,2-Dichloroethane		24	200	240	120.00	ug/Kg
1,1-Dichloroethene		24	200	194	97.00	ug/Kg
trans-1,2-Dichloroethene		24	200	198	99.00	ug/Kg
1,2-Dichloropropane		24	200	230	115.00	ug/Kg
cis-1,3-Dichloropropene		24	200	230	115.00	ug/Kg
trans-1,3-Dichloropropene		24	200	232	116.00	ug/Kg
Methylene chloride		24	200	220	110.00	ug/Kg
1,1,2,2-Tetrachloroethane		24	200	240	120.00	ug/Kg
Tetrachloroethene		24	200	200	100.00	ug/Kg
1,1,1-Trichloroethane		24	200	208	104.00	ug/Kg
1,1,2-Trichloroethane		24	200	248	124.00	ug/Kg
Trichloroethene		24	200	206	103.00	ug/Kg
Trichlorofluoromethane		24	200	180	90.00	ug/Kg
2-Chlorotoluene		24	200	188	94.00	% Rec.
METHOD 418.1 (IR,TRPH) SOIL		153	52	51	98.10	mg/Kg
METHOD DOHS/LUFT						
as Diesel		110	400	425	106.30	mg/Kg

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

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QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Chlorobenzene		110	50	51.5	103	% Rec.
Di-n-octyl-phthalate		110	50	NA	NA	% Rec.
METHOD DOHS/LUFT						
as Diesel		110	400	436	109.00	mg/Kg
Chlorobenzene		110	50	51.5	103.00	% Rec.
Di-n-octyl-phthalate		110	50	NA	NA	% Rec.
METHOD 8020/8015 MOD. (SOIL)						
Benzene		15	0.20	0.16	80.00	mg/Kg
Ethylbenzene		15	0.20	0.16	80.00	mg/Kg
Toluene		15	0.20	0.16	80.00	mg/Kg
Xylenes, total		15	0.60	0.45	75.00	mg/Kg
as Gasoline		15	1.20	1.20	100.00	mg/Kg
Bromofluorobenzene		15	0.020	0.0199	99.50	% Rec.
METHOD 8020/8015 MOD. (SOIL)						
Benzene		15	0.2	0.16	80.00	mg/Kg
Ethylbenzene		15	0.2	0.16	80.00	mg/Kg
Toluene		15	0.2	0.16	80.00	mg/Kg
Xylenes, total		15	0.2	0.15	75.00	mg/Kg
as Gasoline		15	1.0	1.2	120.00	mg/Kg
Bromofluorobenzene		15	1	1	100.00	% Rec.

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
Cadmium (ICP)	148	105	16.0	ND	20	mg/Kg	80.00	16.4	20	82.00	2.50
Chromium (ICP)	148	105	60.4	21.0	50	mg/Kg	78.80*	63.5	50	85.00	7.60
Zinc (ICP)	148	105	69.2	21.8	50	mg/Kg	94.80	66.8	50	90.00	5.20
METHOD 8010 (GC,Solid)											
Chlorobenzene		24	240.0	ND	240.0	ug/Kg	100.00	240.0	240.0	99.00	0.90
1,1-Dichloroethene		24	260.0	ND	240.0	ug/Kg	108.00	260.0	240.0	108.50	0.50
Trichloroethene		24	250.0	ND	240.0	ug/Kg	106.00	250.0	240.0	107.00	0.90
METHOD 418.1 (IR,TRPH) SOIL		153	1800	9,300	52.0	mg/Kg	-----*	1900	52.0	------*	----*
METHOD DOHS/LUFT											
as Diesel		110	500.0	ND	470.0	mg/Kg	106.80	500.0	470.0	105.00	1.70
METHOD 8020/8015 MOD. (SOIL											
Benzene		15	0.16	ND	0.20	mg/Kg	80.00	0.18	0.20	90.00	11.80
Toluene		15	0.16	ND	0.20	mg/Kg	80.00	0.18	0.20	90.00	11.80
Lead (GFAA)		MP1941S1	0.0435	0.0129	0.030	mg/kg	102.00	0.0438	0.025	103.00	1.00

NOTE: Matrix Spike Samples may not be samples from this job.

* MS/MSD % recovery did not meet QC Limits due to high initial analyte values.
The batch was passed since LCS were within limits.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
DUPLICATES

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00036

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	Flags	RPD
Percent Solids		9	83.4	82.4	%		1.20

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

01/26/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: UPMF Oakland,CA
Date Received: 01/15/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that the following samples were analyzed for 418.1 per Chris Byerman's request: OKS-13, OKS-14, OKS-15. Also, sample OKS-16b was analyzed for metals. No 8270 or 8010 analyses were performed, also at the request of Chris Byerman.

Samples OKS-18 and OKS-20 were broken in transit.

Sample OK-13A, OK-14, & OK-16a showed the presence of hydrocarbons which were atypical of diesel. Motor Oil was detected in samples OK-15 and OKUS-W1.

Reporting Limits (R.L.) represent Practical Quantitation Limits (PQL's) unless otherwise specified. If a dilution factor greater than 1 (one) is reported, the actual R.L. for that sample is equal to the dilution factor multiplied by the default R.L..

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks

Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Reports

Client Net Acct No: 29650
NET Job No: 93.00040

NET®

Client Name: USPCI

Dat[illegible]aken: 01/14/1993
Sample ID : OK-13A
Lab No. : 51927

[illegible]ate Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		82.0	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	19,000	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/22/1993
Date Extracted		1-21-93			01/22/1993
Date Analyzed		1-22-93			01/22/1993
Dilution Factor		50			01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Diesel	8015 MOD.	15,000*	mg/Kg	1	01/22/1993
Surrogate Spike-TPH		--			01/22/1993
Chlorobenzene	8015 MOD.	99	% Rec.		01/22/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/22/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-20-93			01/20/1993
Date Analyzed		01-20-93			01/20/1993
Dilution Factor		50			01/20/1993
AROMATIC VOLATILES		--			01/20/1993
Benzene	8020	ND	mg/Kg	0.005	01/20/1993
Ethylbenzene	8020	0.30	mg/Kg	0.005	01/20/1993
Toluene	8020	0.42	mg/Kg	0.005	01/20/1993
Xylenes, total	8020	1.5	mg/Kg	0.015	01/20/1993
TOT. PET. HYDROCARBONS		--			01/20/1993
as Gasoline	8015 MOD.	194	mg/Kg	1.0	01/20/1993
comment		NONE			01/20/1993
Surrogate Spike		--			01/20/1993
Bromofluorobenzene	8020/8015	88	% Rec.		01/20/1993

* Atypical of Diesel, hydrocarbon range is C7-C30.

ND - Not Detected at the Reporting Limit

Clie Name: USPCI

Date Taken: 01/14/1993
Sample ID : OK-13B
Lab No. : 51928

ate Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD		METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids			79.0	%	0.1	01/18/1993
Acid Digestion (ICP/AA)		3050	DONE			01/20/1993
Acid Digestion (GFAA)		3050	DONE			01/19/1993
ICP METALS						
Cadmium	(ICP)	6010	1.55	mg/Kg	0.5	01/22/1993
Chromium	(ICP)	6010	41.2	mg/Kg	0.5	01/22/1993
Lead	(GFAA)	7421	1200	mg/Kg	0.2	01/20/1993
Zinc	(ICP)	6010	1,090	mg/Kg	1.0	01/22/1993
METHOD 418.1 (IR,TRPH) SOIL		418.1	14,000	mg/Kg	10	01/21/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI
Date Taken: 01/14/1993
Sample ID : OK-14
Lab No. : 51929

Date Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		82.0	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/22/1993
Date Extracted		1-21-93			01/22/1993
Date Analyzed		1-22-93			01/22/1993
Dilution Factor		100			01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Diesel	8015 MOD.	1,400*	mg/Kg	1	01/22/1993
Surrogate Spike-TPH		--			01/22/1993
Chlorobenzene	8015 MOD.	94	% Rec.		01/22/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/22/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	0.014	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/15/1993
Toluene	8020	0.009	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	0.036	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	8.6	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8020/8015	98	% Rec.		01/15/1993

* Atypical of Diesel, hydrocarbon range is C7-C30.

ND - Not Detected at the Reporting Limit

Clien[illegible] Name: USPCI
Date Taken: 01/14/1993
Sample ID : OK-15
Lab No. : 51930

[illegible]te Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		81.9	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	19	mg/Kg	10	01/21/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/22/1993
Date Extracted		1-21-93			01/22/1993
Date Analyzed		1-22-93			01/22/1993
Dilution Factor		1			01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Diesel	8015 MOD.	ND**	mg/Kg	1	01/22/1993
Surrogate Spike-TPH		--			01/22/1993
Chlorobenzene	8015 MOD.	94	% Rec.		01/22/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/22/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-15-93			01/15/1993
Date Analyzed		01-15-93			01/15/1993
Dilution Factor		1			01/15/1993
AROMATIC VOLATILES		--			01/15/1993
Benzene	8020	ND	mg/Kg	0.005	01/15/1993
Ethylbenzene	8020	0.028	mg/Kg	0.005	01/15/1993
Toluene	8020	ND	mg/Kg	0.005	01/15/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/15/1993
TOT. PET. HYDROCARBONS		--			01/15/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/15/1993
comment		NONE			01/15/1993
Surrogate Spike		--			01/15/1993
Bromofluorobenzene	8020/8015	121	% Rec.		01/15/1993

** Motor Oil detected at 18 mg/Kg.

ND - Not Detected at the Reporting Limit

Client Name: USPCI
Date Taken: 01/14/1993
Sample ID : OK-16A
Lab No. : 51931

Date Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		78.0	%	0.1	01/18/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/22/1993
Date Extracted		1-21-93			01/22/1993
Date Analyzed		1-22-93			01/22/1993
Dilution Factor		100			01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Diesel	8015 MOD.	47,000*	mg/Kg	1	01/22/1993
Surrogate Spike-TPH		--			01/22/1993
Chlorobenzene	8015 MOD.	95	% Rec.		01/22/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/22/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-21-93			01/21/1993
Date Analyzed		01-21-93			01/21/1993
Dilution Factor		50			01/21/1993
AROMATIC VOLATILES		--			01/21/1993
Benzene	8020	ND	mg/Kg	0.005	01/21/1993
Ethylbenzene	8020	0.34	mg/Kg	0.005	01/21/1993
Toluene	8020	0.28	mg/Kg	0.005	01/21/1993
Xylenes, total	8020	0.76	mg/Kg	0.015	01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Gasoline	8015 MOD.	154	mg/Kg	1.0	01/21/1993
comment		NONE			01/21/1993
Surrogate Spike		--			01/21/1993
Bromofluorobenzene	8020/8015	86	% Rec.		01/21/1993

* Atypical of Diesel, hydrocarbon range is C7-C30.

ND - Not Detected at the Reporting Limit

Clie[illegible] Name: USPCI
Date Taken: 01/14/1993
Sample ID : OK-16B
Lab No. : 51932

[illegible]ate Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		80.0	%	0.1	01/18/1993
Acid Digestion (ICP/AA)	3050	DONE			01/20/1993
Acid Digestion (GFAA)	3050	DONE			01/22/1993
ICP METALS					
Cadmium (ICP)	6010	7.15	mg/Kg	0.5	01/22/1993
Chromium (ICP)	6010	27.4	mg/Kg	0.5	01/22/1993
Lead (GFAA)	7421	600	mg/Kg	0.2	01/26/1993
Zinc (ICP)	6010	1,440	mg/Kg	1.0	01/22/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	17,000	mg/Kg	10	01/21/1993

ND - Not Detected at the Reporting Limit

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Clie[illegible] Name: USPCI

Date Taken: 01/14/1993
Sample ID : OK-19
Lab No.   : 51933

[illegible]te Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		64.0	%	0.1	01/18/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	74	mg/Kg	10	01/21/1993

ND - Not Detected at the Reporting Limit

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Chain of Custody / Request for Analysis

2 of 3

Client: USPCI
Address (line 1): 24125 Aldine Westfield
Address (line 2): Spring, TX 77373
Contact: Eric Taylor

Project: 96120-844
P.O. #:
Phone #: 713-350-7266
Fax #: 713-350-7296

Additional Reports to: SAME
Attn:
Fax #:

Send Invoice to: SAME
Attn:
Phone #:

LAB USE ONLY
Job #: 93.00040
Report Format:
Storage Location:

Method of shipment:
NET Courier ☐
Fed. Ex. ☒
UPS ☐
Other ________ ☐
Hand Deliver ☐

Airbill #:

Remarks:

	Matrix			Container				Sampling Information		Analyses Requested											
Sample Identification	Soil	Water	Other	#/Type	1) HNO₃ 2) H₂SO₄ 3) Na OH 4) Other (Specify)	Grab	Composite	Date	Time	BTEX	TPH-G	TPH-D	TPH 418	8010	8270	METALS					
OKUS-W3	1	X		2-1L		X		1-14-93	15:05			X									
OKUS-W3	2	X		1-1L		X		|	15:10				X								
						X		|													
OKS-13a 5	|			1		X		|	11:00	X	X	X									
OKS-13b 2	|			1		X		|	11:00					X	X	X	12				
OKS-14 6	|			1		X		|	11:15	X	X	X									
OKS-15 7	|			1		X		|	1445	X	X	X	11								
[illegible]S-16a 8	|			1		X		|	15:30	X	X	X	11								
OKS-16b 4	|			1		X		|	15:30				X	X	16						
OKS-17 3	↓			1		X		↓	15:42				X				Not received				

Comments:

Special QA/QC:

Special Detection Limits:

Subcontracting allowed:
Yes☐ no☐ with approval☐

Turnaround time
Fax☒ Verbal☐ Final☐
Priority Rush
1 Business Day ☐
Date/Time ________
Rush
2 Business Days ☐
Date/Time ________
[✓ 5 Business Days] ☐
Date/Time ________
10 Business Days ☐
Date/Time ________

Condition of sample: Bottles Intact? yes / no COC seals present and intact? yes / no Temperatures upon receipt: ________ Volatiles free of headspace? yes / no

Sampled by: (print name) CHRISTOPHER BYERMAN	Date: 1-14-93	Time: 19:00	Received by:	Date:	Time:
Relinquished by: Christopher Byerman	Date: 1-14-93	Time: 19:00	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory: Helen Brada	Date: 1/15	Time: 10:00

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

Page 2 of 3 COC #: [illegible]646

NET®

NATIONAL
ENVIRONMENTAL
TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

Client: USPCI

Address (line 1): 24125 ALDINE WESTFIELD

Address (line 2): SPRING TX 77373

Contact: ERIC TAYLOR

Project: 96120-814

P.O. #:

Phone #: (713) 350 7266

Fax #: (713) 350-7246

Additional Reports to: SAME

Attn:

Fax #:

Send Invoice to: SAME

Attn:

Phone #:

LAB USE ONLY

Job #: 93.00090

Report Format:

Storage Location:

Method of shipment:
- NET Courier ☐
- Fed. Ex. ☐
- UPS ☐
- Other ________ ☐
- Hand Deliver ☐

Airbill #:

Remarks:

Sample Identification	Matrix: Soil	Matrix: Water	Matrix: Other	Container #/Type	1) HNO₃ 2) H₂SO₄ 3) Na OH 4) Other (Specify)	Grab	Composite	Sampling Information: Date	Sampling Information: Time	Analyses Requested: TPH 418.1	8010	
OKS-18 *	|	—	—	1		✓		1-14-93	16:00	X		[illegible]
OKS-19	|			1		✓		↓	16:10	X	X	
OKS-20	✓			1		✓		↓	16:50	X		[illegible]

Comments: * See above

Special QA/QC:

Special Detection Limits:

Subcontracting allowed: Yes☐ no☐ with approval☐

Turnaround time
Fax☒ Verbal☐ Final☐

Priority Rush
1 Business Day ☐
Date/Time ________

Rush
2 Business Days ☐
Date/Time ________

[✓ 5] Business Days ☐
Date/Time ________

10 Business Days ☐
Date/Time ________

Condition of sample: Bottles Intact? yes / [✓ no]* COC seals present and intact? yes / no Temperatures upon receipt: chilled Volatiles free of headspace? [✓ yes] / no

	Date:	Time:		Date:	Time:
Sampled by: (print name) CHRISTOPHER BYERMAN	1-19-93	19:00	Received by:		
Relinquished by: Christopher Byerman	1-19-93	19:00	Received by:		
Relinquished by:			Received by laboratory: [illegible]	1/15	10:00

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

Page 3 of 3 COC #: 1647

QUALITY CONTROL REPORT

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

NET Job Number: 93.00040

Eric Taylor

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
51926	OKUS-W3	01/14/1993	01/15/1993
51927	OKUS-13A	01/14/1993	01/15/1993
51928	OKUS-13B	01/14/1993	01/15/1993
51929	OKUS-14	01/14/1993	01/15/1993
51930	OKUS-15	01/14/1993	01/15/1993
51931	OKUS-16A	01/14/1993	01/15/1993
51932	OKUS-16B	01/14/1993	01/15/1993
51933	OKUS-19	01/14/1993	01/15/1993
52004	Trip Blank		01/15/1993
52005	OKUS-W1	01/14/1993	01/15/1993
52006	OKUS-W2	01/14/1993	01/15/1993

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD DOHS/LUFT						
as Diesel				500.0	497	99.40
Chlorobenzene				50.0	49.7	99.40
Di-n-octyl phthalate				50.0	52.0	104.00
METHOD 8020/8015 MOD. (LDLS)						
Benzene		18		20.0	20.9	104.50
Ethylbenzene		18		20.0	22.7	113.50
Toluene		18		20.0	21.6	108.00
Xylenes, total		18		60.0	62.6	104.30
as Gasoline		18		120.0	150	125.00
METHOD 8020/8015 COMB.						
Benzene		77		20.0	21.2	106.00
Ethylbenzene		77		20.0	21.1	105.50
Toluene		77		20.0	20.5	102.50
Xylenes, total		77		60.0	61.4	102.30

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
as Gasoline		77		120.0	134	111.70
Bromofluorobenzene		77		20.0	21.1	105.50
Lead (GFAA)		MP194981		0.025	0.0257	103.00

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
BLANKS

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Cadmium (ICP)	148	105	ND	mg/Kg
Chromium (ICP)	148	105	ND	mg/Kg
Zinc (ICP)	148	105	ND	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	ND	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	ND	mg/Kg
METHOD DOHS/LUFT				
as Diesel		112	ND	mg/Kg
Chlorobenzene		112	100	% Rec.
Di-n-octyl-phthalate		112	82	% Rec.
METHOD DOHS/LUFT				
as Diesel		32	ND	mg/L
Chlorobenzene		32	96	% Rec.
Di-n-octyl phthalate		32	96	% Rec.
METHOD 8020/8015 MOD. (LDLS)				
Benzene		18	ND	mg/Kg
Ethylbenzene		18	ND	mg/Kg
Toluene		18	ND	mg/Kg
Xylenes, total		18	ND	mg/Kg
as Gasoline		18	ND	mg/Kg
Bromofluorobenzene		18	138	% Rec.
METHOD 8020 (BTXE)				
Benzene		77	ND	ug/L
Ethylbenzene		77	ND	ug/L
Toluene		77	ND	ug/L
Xylenes (Total)		77	ND	ug/L
Bromofluorobenzene		77	99	% Rec.

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
BLANKS

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
METHOD 8020/8015 COMB.				
Benzene		77	ND	ug/L
Ethylbenzene		77	ND	ug/L
Toluene		77	ND	ug/L
Xylenes, total		77	ND	ug/L
as Gasoline		77	ND	ug/L
Bromofluorobenzene		77	99	% Rec.
Lead (GFAA)		MP194981	ND	mg/kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Cadmium (ICP)	148	105	20	16.4	82.00	mg/Kg
Chromium (ICP)	148	105	50	43.0	86.00	mg/Kg
Zinc (ICP)	148	105	50	44.0	88.00	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	5.2	5.2	100.00	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	52	51	98.10	mg/Kg
METHOD DOHS/LUFT						
as Diesel		112	400	413	103.30	mg/Kg
Chlorobenzene		112	50	50.35	100.70	% Rec.
Di-n-octyl-phthalate		112	50	49.38	98.80	% Rec.
METHOD DOHS/LUFT						
as Diesel		112	400	423	105.80	mg/Kg
Chlorobenzene		112	50	50.23	100.50	% Rec.
Di-n-octyl-phthalate		112	50	43.93	87.90	% Rec.
METHOD DOHS/LUFT						
as Diesel		32	40	38.4	96.0	mg/L
Chlorobenzene		32	5	4.6	92.0	% Rec.
Di-n-octyl phthalate		32	5	5.05	101.0	% Rec.
METHOD 8020/8015 MOD. (LDLS)						
Benzene		18	0.2	0.18	90.00	mg/Kg
Ethylbenzene		18	0.2	0.20	100.00	mg/Kg
Toluene		18	0.2	0.19	95.00	mg/Kg
Xylenes, total		18	0.6	0.56	93.30	mg/Kg
as Gasoline		18	1.2	1.4	116.70	mg/Kg
Bromofluorobenzene		18	0.2	0.26	130.00	% Rec.
METHOD 8020 (BTXE)						
Benzene		77	20	22.6	113.00	ug/L

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Ethylbenzene		77	20	22.6	113.00	ug/L
Toluene		77	20	21.8	109.00	ug/L
Xylenes (Total)		77	60	66.6	111.00	ug/L
Bromofluorobenzene		77	20	19.3	96.50	% Rec.

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

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QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
Cadmium (ICP)	148	105	16.0	ND	20	mg/Kg	80.00	16.4	20	82.00	2.50
Chromium (ICP)	148	105	60.4	21.0	50	mg/Kg	78.80*	63.5	50	85.00	7.60
Zinc (ICP)	148	105	69.2	21.8	50	mg/Kg	94.80	66.8	50	90.00	5.20
METHOD 418.1 (IR,TRPH) WATER		23	5.1	ND	5.2	mg/L	98.10	4.5	5.2	86.50	12.60
METHOD 418.1 (IR,TRPH) SOIL		153	1800	9,300	52.0	mg/Kg	-----*	1900	52.0	-----*	-----*
METHOD DOHS/LUFT											
as Diesel		112	640.0	ND**	480.0	mg/Kg	------**	610.0	480.0	-----**	-----**
METHOD 8020/8015 MOD. (LDLS)											
Benzene		18	0.17	ND	0.2	mg/Kg	85.00	0.18	0.2	90.00	5.70
Toluene		18	0.18	ND	0.2	mg/Kg	90.00	0.19	0.2	95.00	5.40
as Gasoline		18	1.3	ND	1.2	mg/Kg	108.30	1.3	1.2	108.30	0.00
METHOD 8020 (BTXE)											
Benzene		77	21.2	ND	20	ug/L	106.00	19.8	20	99.00	6.70
Toluene		77	20.6	ND	20	ug/L	103.00	19.1	20	95.50	7.50
Lead (GFAA)		MP194981	0.0404	0.012	0.030	mg/kg	95.00	0.041	0.030	97.00	1.7

NOTE: Matrix Spike Samples may not be samples from this job.

* MS/MSD % Recovery did not meet QC Limits due to high initial analyte values. Batch was passed since LCS were within QC Limits.

** MS/MSD % Recovery did not meet QC Limits due to matrix interference. Batch was passed since LCS was within QC Limits.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
DUPLICATES

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	Flags	RPD
Percent Solids		10	82.0	81.0	%		1.20

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NET
NATIONAL
ENVIRONMENTAL
® TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

01/25/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: UPMF Oakland,CA
Date Received: 01/18/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that Motor Oil was detected in the two soil samples analyzed for Mod 8015/DOHS LUFT. Also, a BTXE Trip Blank was received in the shipment with the samples reported but it was not listed on COC. This sample was not analyzed. On the second page of the Chain of Custody document TPH 418.1 was lined out, we proceeded to run 418.1 per Chris Byerman.

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Reports

Client Net Acct No: 29650
NET Job No: 93.00047

OCEAN GROUP

NET®

Clie[illegible]Name: USPCI

Date Taken: 01/15/1993
Sample ID : OKS-21
Lab No. : 52011

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00047

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		81.7	%	0.1	01/22/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	510	mg/Kg	10	01/25/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/22/1993
Date Extracted		1-21-93			01/22/1993
Date Analyzed		1-22-93			01/22/1993
Dilution Factor		10			01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/22/1993
Surrogate Spike-TPH		--			01/22/1993
Chlorobenzene	8015 MOD.	97	% Rec.		01/22/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/22/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-22-93			01/22/1993
Date Analyzed		01-22-93			01/22/1993
Dilution Factor		1			01/22/1993
AROMATIC VOLATILES		--			01/21/1993
Benzene	8020	ND	mg/Kg	0.005	01/21/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/21/1993
Toluene	8020	ND	mg/Kg	0.005	01/21/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/21/1993
comment		NONE			01/21/1993
Surrogate Spike		--			01/21/1993
Bromofluorobenzene	8020/8015	97	% Rec.		01/21/1993

* Motor Oil detected at 140 mg/Kg.

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible] Name: USPCI

[illegible]te Reported: 01/25/1993

Date Taken: 01/15/1993

NET Job No.: 93.00047

Sample ID : OKS-22

Lab No. : 52012

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		83.1	%	0.1	01/22/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	9,300	mg/Kg	10	01/25/1993
METHOD DOHS/LUFT					
Extraction Method		3550			01/22/1993
Date Extracted		1-21-93			01/22/1993
Date Analyzed		1-22-93			01/22/1993
Dilution Factor		10			01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Diesel	8015 MOD.	ND*	mg/Kg	1	01/22/1993
Surrogate Spike-TPH		--			01/22/1993
Chlorobenzene	8015 MOD.	105	% Rec.		01/22/1993
Di-n-octyl-phthalate	8015 MOD.	NA	% Rec.		01/22/1993
METHOD 8020/8015 MOD. (LDLS)					
Date Extracted		01-21-93			01/21/1993
Date Analyzed		01-21-93			01/21/1993
Dilution Factor		1			01/21/1993
AROMATIC VOLATILES		--			01/21/1993
Benzene	8020	ND	mg/Kg	0.005	01/21/1993
Ethylbenzene	8020	ND	mg/Kg	0.005	01/21/1993
Toluene	8020	ND	mg/Kg	0.005	01/21/1993
Xylenes, total	8020	ND	mg/Kg	0.015	01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Gasoline	8015 MOD.	ND	mg/Kg	1.0	01/21/1993
comment		NONE			01/21/1993
Surrogate Spike		--			01/21/1993
Bromofluorobenzene	8020/8015	78	% Rec.		01/21/1993

* Motor Oil detected at 630 mg/Kg.

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible]Name: USPCI
Date Taken: 01/15/1993
Sample ID : OKS-23
Lab No. : 52013

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00047

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		75.1	%	0.1	01/22/1993
Acid Digestion (ICP/AA)	3050	DONE			01/20/1993
Acid Digestion (GFAA)	3050	DONE			01/19/1993
ICP METALS					
Cadmium (ICP)	6010	17.2	mg/Kg	0.5	01/22/1993
Chromium (ICP)	6010	1.55	mg/Kg	0.5	01/22/1993
Lead (GFAA)	7421	1300	mg/Kg	2.5	01/20/1993
Zinc (ICP)	6010	373	mg/Kg	1.0	01/22/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	750	mg/Kg	10	01/25/1993

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible] Name: USPCI
Date Taken: 01/17/1993
Sample ID : OKUS-B5(2-4)
Lab No. : 52042

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00047

Sample Matrix: SOIL

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Percent Solids		90.8	%	0.1	01/22/1993
METHOD 418.1 (IR,TRPH) SOIL	418.1	4,800	mg/Kg	10	01/25/1993

ND - Not Detected at the Reporting Limit

NET NATIONAL ENVIRONMENTAL TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

Client: USPCI
Address (line 1): 24125 Aldine Westfield
Address (line 2): Spring TX
Contact: Eric Taylor

Project: 96120-844
P.O. #:
Phone #: (713) 350-7260
Fax #: (713) 350-7291

Additional Reports to: SAME
Attn:
Fax #:

Send Invoice to: SAME
Attn:
Phone #:

LAB USE ONLY
Job #: 93.00047
Report Format:
Storage Location:

Method of shipment:
NET Courier ☐
Fed. Ex. ☒
UPS ☐
Other ☐
Hand Deliver ☐

Airbill #:

Sample Identification	Matrix: Soil	Matrix: Water	Matrix: Other	Container: #/Type	1) HNO₃ 2) H₂SO₄ 3) Na OH 4) Other (Specify)	Grab	Composite	Sampling Information: Date	Sampling Information: Time	BTEX	TPH-G	TPH-D	METALS	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~		Remarks:
OKS-21				1		X		1-15-93	7:30	X	X	X										
OKS-22				1		X			7:30	X	X	X										MS/MSD
OKS-23									7:30				X	X					X			Rep (OKS-22)
~~DRUM-1A~~				1		X									X							OKUS-B7
~~DRUM-1B~~						X										X						marked on
~~DRUM-1C~~						X											X	X				L10
~~DRUM-1D~~				1	CB	X		CB								CB			X	X		client actually
		CB																				dont want all
																						as per call from
																						client 1/18 1:40.

Comments: Very wet when sampling

Special QA/QC: Sample OKS-22 6' from OKUS-B7 is for MS/MSD analysis

Special Detection Limits:

Subcontracting allowed:
Yes☐ no☐ with approval☐

Turnaround time
Fax☒ Verbal☐ Final☐

Priority Rush
1 Business Day ☐
Date/Time

Rush
2 Business Days ☐
Date/Time
[✓ 5 Business Days] ☐
Date/Time
10 Business Days ☐
Date/Time

Condition of sample: Bottles intact? yes / no COC seals present and intact? yes / no Temperatures upon receipt: Volatiles free of headspace? yes / no

Sampled by: (print name) Christopher Byerman	Date: 1-15-93	Time: 13:50	Received by:	Date:	Time:
Relinquished by: Christoph Byerman	Date: 1-15-93	Time: 13:50	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory: Helen Brown	Date: 1/18	Time: 10

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

USPCI
A Subsidiary of
Union Pacific Corporation

Ship To: USPCI Analytical Services
4322 South 49th West Avenue
Tulsa, OK 74107
(918) 446-1162

002544

REPORT TO
CONTACT ERIC TAYLOR
COMPANY USPCI
ADDRESS 24125 ALDINE WESTFIELD
CITY SPRING ST. TX ZIP 77373
PHONE (717) 355-7266 FAX (713) 350-7246

BILL TO
CONTACT SAME
COMPANY
ADDRESS
CITY ST. ZIP
PHONE PO #

CHAIN OF CUSTODY RECORD

PROJ. NO. 96120-844
PROJECT NAME ⑧ UPMF OAKLAND, CA
SAMPLERS (SIGNATURE) Christopher Byer

STANDARD TURNAROUND yes
RUSH TURNAROUND (specify required date)

CUSTOMER SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS	TPH 418.1												LABORATORY SAMPLE I.D.	REMARKS
DKUS-B5 (2-4)	1/14/93	15:54	Soil	1	X													

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME	COURIER
Christopher Byer	1-18-93 12:05			
RELINQUISHED BY	**DATE / TIME**	**RECEIVED BY**	**DATE / TIME**	**AIRBILL NO.**

QUALITY CONTROL REPORT

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

NET Job Number: 93.00047

Eric Taylor

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
52008	OKUS-W4	01/15/1993	01/18/1993
52009	OKUS-W5	01/15/1993	01/18/1993
52010	OKUS-W6	01/15/1993	01/18/1993
52011	OKS-21	01/15/1993	01/18/1993
52012	OKS-22	01/15/1993	01/18/1993
52013	OKS-23	01/15/1993	01/18/1993
52042	OKUS-B5(2-4)	01/17/1993	01/18/1993

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD DOHS/LUFT						
as Diesel		32		500.0	497	99.40
Chlorobenzene		32		50.0	49.7	99.40
Di-n-octyl phthalate		32		50.0	52.0	104.00
METHOD 8020/8015 COMB.						
Benzene		77		20.0	21.2	106.00
Ethylbenzene		77		20.0	21.1	105.50
Toluene		77		20.0	20.5	102.50
Xylenes, total		77		60.0	61.4	102.30
as Gasoline		77		120.0	134	111.70
Bromofluorobenzene		77		20.0	21.1	105.50
Lead (GFAA)		M2204381		0.025	0.0254	102.00

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
BLANKS

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Lead (ICP, Dissolved)	95	104	ND	mg/L
Cadmium (ICP)	148	105	ND	mg/Kg
Chromium (ICP)	148	105	ND	mg/Kg
Zinc (ICP)	148	105	ND	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	ND	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	ND	mg/Kg
METHOD DOHS/LUFT				
as Diesel		112	ND	mg/Kg
Chlorobenzene		112	100	% Rec.
Di-n-octyl-phthalate		112	82	% Rec.
METHOD DOHS/LUFT				
as Diesel		32	ND	mg/L
Chlorobenzene		32	96	% Rec.
Di-n-octyl phthalate		32	96	% Rec.
METHOD 8020/8015 COMB.				
Benzene		77	ND	ug/L
Ethylbenzene		77	ND	ug/L
Toluene		77	ND	ug/L
Xylenes, total		77	ND	ug/L
as Gasoline		77	ND	ug/L
Bromofluorobenzene		77	99	% Rec.
Lead (GFAA)		M2204381	ND	mg/kg

Advisory Control Limits for Blanks:
Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.
GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.
Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

01/27/1993

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Lead (ICP, Dissolved)	95	104	1	0.80	80.00	mg/L
Cadmium (ICP)	148	105	20	16.4	82.00	mg/Kg
Chromium (ICP)	148	105	50	43.0	86.00	mg/Kg
Zinc (ICP)	148	105	50	44.0	88.00	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	5.2	5.2	100.00	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	52	51	98.10	mg/Kg
METHOD DOHS/LUFT						
as Diesel		112	400	413	103.30	mg/Kg
Chlorobenzene		112	50	50.35	100.70	% Rec.
Di-n-octyl-phthalate		112	50	49.38	98.80	% Rec.
METHOD DOHS/LUFT						
as Diesel		112	400	423	105.80	mg/Kg
Chlorobenzene		112	50	50.23	100.50	% Rec.
Di-n-octyl-phthalate		112	50	43.93	87.90	% Rec.
METHOD DOHS/LUFT						
as Diesel		32	40	38.4	96.00	mg/L
Chlorobenzene		32	5	4.6	92.00	% Rec.
Di-n-octyl phthalate		32	5	5.05	101.00	% Rec.
METHOD 8020/8015 COMB.						
Benzene		77	20	22.6	113.00	ug/L
Ethylbenzene		77	20	22.6	113.00	ug/L
Toluene		77	20	21.8	109.00	ug/L
Xylenes, total		77	60	66.6	111.00	ug/L
as Gasoline		77	120	150	125.00	ug/L
Bromofluorobenzene		77	20	19.3	96.50	% Rec.

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NET®

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
Cadmium (ICP)	148	105	16.0	ND	20	mg/Kg	80.00	16.4	20	82.00	2.50
Chromium (ICP)	148	105	60.4	21.0	50	mg/Kg	78.80*	63.5	50	85.00	7.60
Zinc (ICP)	148	105	69.2	21.8	50	mg/Kg	94.80	66.8	50	90.00	5.20
METHOD 418.1 (IR,TRPH) WATE		23	5.1	ND	5.2	mg/L	98.10	4.5	5.2	86.50	12.60
METHOD 418.1 (IR,TRPH) SOIL		153	1800	9,300	52.0	mg/Kg	-----*	1900	52.0	-----*	-----*
METHOD DOHS/LUFT											
as Diesel		112	640.0	ND**	480.0	mg/Kg	-----**	610.0	480.0	-----**	-----**
METHOD 8020/8015 COMB.											
Benzene		77	21.2	ND	20	ug/L	106.00	19.8	20	99.00	6.70
Toluene		77	20.6	ND	20	ug/L	103.00	19.1	20	95.50	7.50
Lead (GFAA)		M2204381	0.0306	0.004	0.025	mg/kg	107.00	0.0305	0.025	106.00	<1

NOTE: Matrix Spike Samples may not be samples from this job.

* MS/MSD % Recovery did not meet QC Limits due to high initial analyte values. The batch was passed since LCS were within QC Limits.
* MS/MSD % Recovery did not meet QC Limits due to matrix interference. The batch was passed since LCS was within QC Limits.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
DUPLICATES

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	Flags	RPD
Percent Solids		11	83.1	83.7	%		0.70

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

January 27, 1993

ACCEPTANCE LIMITS

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE

		SOIL/SLUDGE MATRIX		WATER	
ANALYTE	ANALYTICAL METHOD	%R (RANGE)	MAX % RPD	%R (RANGE)	MAX % RPD
Cadmium	6010	80-120*	20	------	--
	7130	80-115	10	------	--
	200.7	------	--	80-120*	15
Chromium	6010	80-115	20	------	--
	200.7	------	--	85-110	10
Lead	7421(GFAA)	75-125	20	------	---
	239.1	------	--	85-115	15
	200.7	------	--	80-120*	20
Zinc	6010	75-120*	20	------	--
	200.7	------	--	80-120*	15
TRPH	418.1	80-115	15	80-115*	15
Volatiles	601/8010				
Dichloroethene		55-125	25	40-110	35
Trichloroethene		70-125	20	55-120	20
Chlorobenzene		60-135	25	55-105	20
Surrogate					
2-Chlorotoluene		60-145	NA	60-145	NA
Benzene	8020/8015	70-135	20	60-150	20
Toluene		75-135	20	60-135	20
Surrogate					
Bromofluorobenzene		60-130	NA	60-130	NA
Diesel	DOHS/LUFT	75-110	10	75-110*	10*
Surrogate					
Chlorobenzene		60-150	NA	80-125	NA
Di-octylphthalate		75-140	NA	80-125	NA

* Advisory Limits

usr\qa\acclim.USPCI

ACCEPTANCE LIMITS

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE

ANALYTE	ANALYTICAL METHOD	SOIL/SLUDGE MATRIX %R (RANGE)	SOIL/SLUDGE MATRIX MAX % RPD	WATER %R (RANGE)	WATER MAX % RPD
Semi-VOAs	8270 /625				
1,2,4-TRICHLOROBENZENE		38-107	23	39-98	28
ACENAPHTHENE		31-187	19	46-118	31
2,4-DINITROTOLUENE		28- 89	47	24-96	38
PYRENE		35-142	36	26-127	31
N-NITROSODI-N-PROPYLAMINE		41-126	38	41-116	38
1,4-DICHLOROBENZENE		28-104	27	36- 97	28
PENTACHLOROPHENOL		17-109	47	9-103	50
PHENOL		26- 90	35	12- 89	42
2-CHLOROPHENOL		25-102	50	27-123	40
4-CHLORO-3-METHYLPHENOL		26-103	33	23- 97	42
4-NITROPHENOL		11-114	50	10- 80	50
SURROGATE SPIKE RECOVERIES					
2-FLUOROPHENOL		25-121	-	21-100	-
PHENOL-d5		24-113	-	10- 94	-
NITROBENZENE - d5		23-120	-	35-114	-
2-FLUROBIPHENYL		30-115	-	43-116	-
2,4,6-TRIBROMOPHENOL		19-122	-	10-123	-
TERPHENYL-d14		18-137	-	33-141	-

NET®

January 27, 1993

USEPA 418.1/ Petroleum Hydrocarbons, Total Recoverable Determination

Re: Silica Gel Clean-up/ Silica Gel Absorptive Capacity

This step in the preparation of the samples for the analysis of total petroleum hydrocarbons is necessary to remove any polar fats, oils or greases from the samples. These oils and greases are bound to the polar surface of the silica gel thus being removed from solution.

The clean up process is done after extraction of the sample with freon. 3 grams of silica gel is added to 50 ml sample extract. The solution is stirred to keep the silica gel dispersed during stirring. The silica gel is allowed to settle and a portion of the sample is drawn to fill a sample cuvette for IR determination. If the absorbance for the sample is greater than the absorbance of the highest standard, the sample is then diluted with Freon. Upon diluting the original silica gel treated extract with freon, the silica gel clean up procedure is repeated (i.e. maintaining the ratio 3 grams/50 ml solution) before the sample is read for IR absorbance.

usr\qa\418.1silica

WELL CONSTRUCTION AND STABILIZATION REPORTS

ALONG WITH ANALYTICAL RESULTS AND COC'S

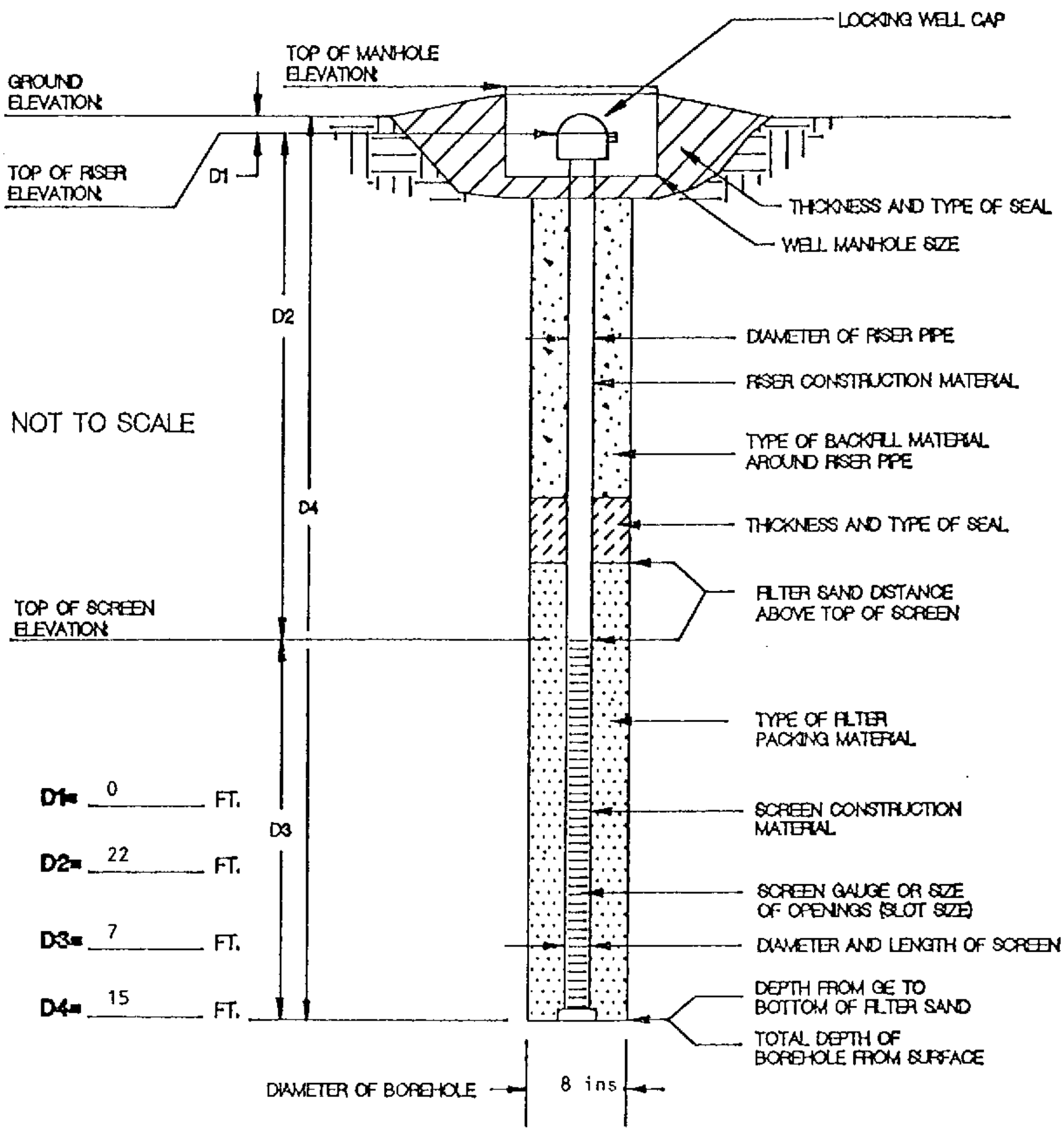
JANUARY 14 - 15, 1993

USPCI MONITORING WELL CONSTRUCTION AND INSTALLATION DIAGRAM

USPCI PROJECT NO. 96281

PROJECT NAME: UPMF Oakland, CA - UST Site

MONITORING WELL NO. OKUS-W1



THICKNESS AND TYPE OF SEAL	Flush Mount Concrete
WELL MANHOLE SIZE	14"
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Portland Cement
THICKNESS AND TYPE OF SEAL	2' Bentonite
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	2'
TYPE OF FILTER PACKING MATERIAL	12/20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	0.011
DIAMETER AND LENGTH OF SCREEN	2" 15'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	22'
TOTAL DEPTH OF BOREHOLE FROM SURFACE	22'

D1= 0 FT.

D2= 22 FT.

D3= 7 FT.

D4= 15 FT.

DIAMETER OF BOREHOLE 8 ins

MONITORING WELL INSTALLATION INFORMATION

DRILLING CONTRACTOR Layne-Western

DRILLER Ross

DRILLING RIG TYPE Mobile 61

DATE STARTED 1-12-93

DATE COMPLETED 1-12-93

DRILLING METHOD Hollow Stem Auger

USPCI
A Subsidiary of Union Pacific Corporation

USPCI SAMPLING AND WELL STABILIZATION FORM

USPCI Project Name: UPRR TOFC RAILYARD / UPMF - UST SITE

USPCI Project Number: 96281

Measuring Point (MP): TOP OF CASING

Well No. OKUS-W1

Well Depth: (Below MP): 21.85 Feet

Casing diameter: 2 Inches

Sampling Date: 01-14-93

Depth To Ground Water(Below MP): 8.42 Feet

Sample ID No: OKUS-W1

Method Of Well Development

Time: 13:30

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): 9.17 Feet

☒ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: 6.85 Feet

Sampling Collection Method:

Sample Appearance: TURBID

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Odor: NONE

☒ Bailer Type: ☐ Teflon ☐ Stainless Steel

Sampling Problems (if any): NONE

☒ ABS Plastic ☐ PVC

Pump Intake Or Bailer Set At _________ Feet Below MP

Decontamination Performed: YES

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected: BTEX, TPH-IR, TPH-D, TPH-G

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
13:33	6.2	3900	21		2.5	
13:36	6.1	3800	21		2.5	
13:39	6.3	3800	21		2.5	
13:40	samples	taken				

At Least 3 Well Volumes Were Purged Before Sampling

Discharge Rate = GPM x 0.00223 = cfs

Comments: 10 well volumes were removed for well development on 1-13-92.

[Comments may continue on back]

Form Completed By: C. S. Byerman

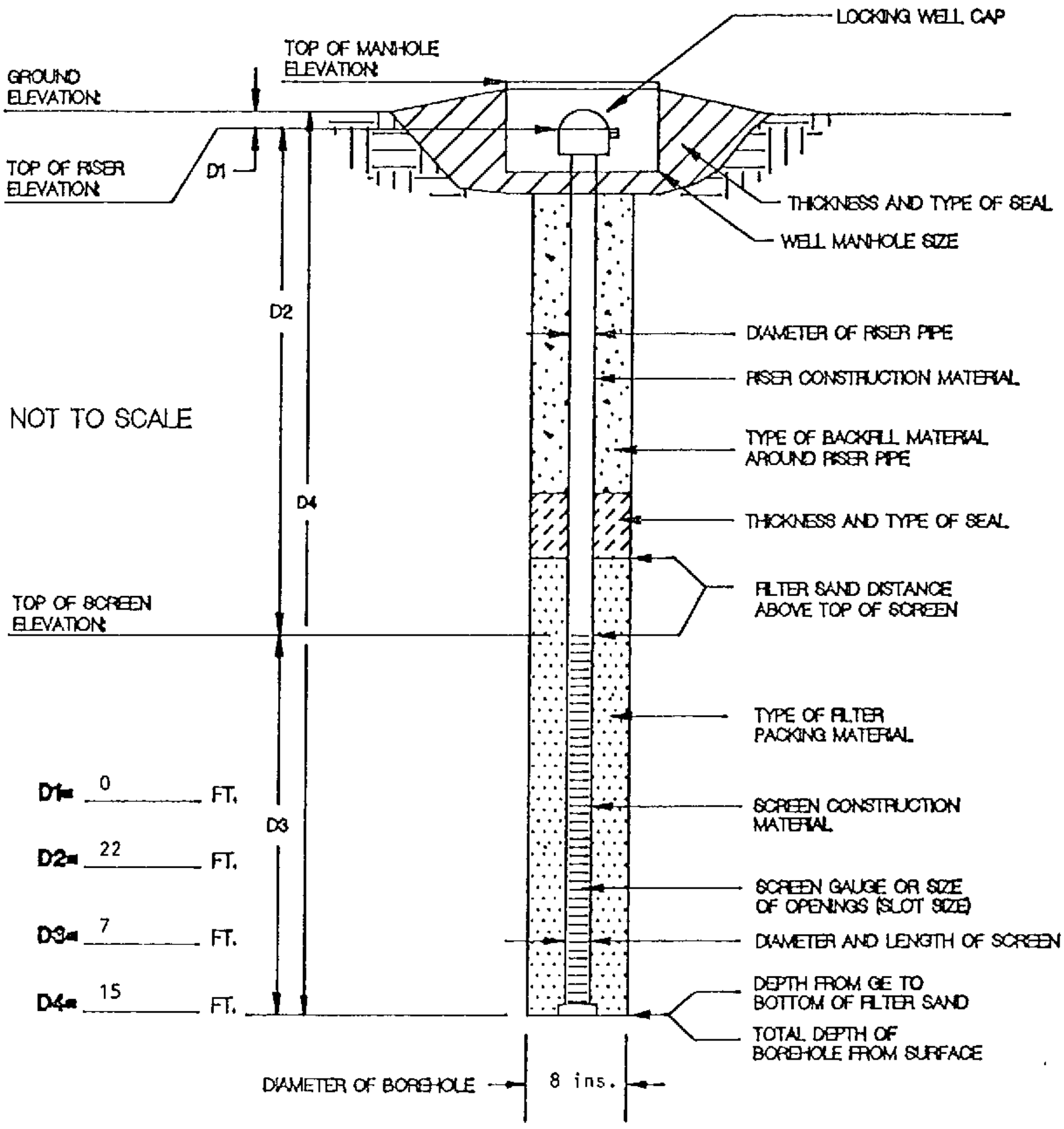
Witnessed By:

USPCI MONITORING WELL CONSTRUCTION AND INSTALLATION DIAGRAM

USPCI PROJECT NO. 96281

PROJECT NAME: UPMF Oakland, CA - UST Site

MONITORING WELL NO. OKUS-W2



NOT TO SCALE

THICKNESS AND TYPE OF SEAL: Flush Mount Concrete

WELL MANHOLE SIZE: 14"

DIAMETER OF RISER PIPE: 2"

RISER CONSTRUCTION MATERIAL: PVC

TYPE OF BACKFILL MATERIAL AROUND RISER PIPE: Portland Cement

THICKNESS AND TYPE OF SEAL: 2" Bentonite

FILTER SAND DISTANCE ABOVE TOP OF SCREEN: 2'

TYPE OF FILTER PACKING MATERIAL: 12/20 Sand

SCREEN CONSTRUCTION MATERIAL: PVC

SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE): 0.010

DIAMETER AND LENGTH OF SCREEN: 2" 15'

DEPTH FROM GE TO BOTTOM OF FILTER SAND: 22'

TOTAL DEPTH OF BOREHOLE FROM SURFACE: 22'

DIAMETER OF BOREHOLE: 8 ins.

D1= 0 FT.
D2= 22 FT.
D3= 7 FT.
D4= 15 FT.

MONITORING WELL INSTALLATION INFORMATION

DRILLING CONTRACTOR Layne-Western		
DRILLER Ross	DRILLING RIG TYPE Mobile 61	
DATE STARTED 1-12-93	DATE COMPLETED 1-12-93	DRILLING METHOD Hollow Stem Auger

USPCI
A Subsidiary of
Union Pacific Corporation

USPCI SAMPLING AND WELL STABILIZATION FORM

USPCI Project Name: UPRR TOFC RAILYARD / UPMF - UST SITE
USPCI Project Number: 96281

Measuring Point (MP) Location: TOP OF CASING

Well No. OKUS-W2

Well Depth: (Below MP): 22.05 Feet

Casing diameter: 2 Inches
Sampling Date: 01-14-93

Depth To Ground Water (Below MP): 9.08 Feet
Sample ID No. OKUS-W2

<u>Method Of Well Development:</u>
Time: 14:05

☐ Tap ☐ Submersible Pump ☐ Bladder Pump
Riser Elevation (MP): 9.71 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other
Top of Screen Elevation: 7.05 Feet

<u>Sampling Collection Method:</u>
Sample Appearance: TURBID

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample
Odor: MODERATE

■ Bailer <u>Type:</u> ☐ Teflon ☐ Stainless Steel
Sampling Problems (if any): NONE

■ ABS Plastic ☐ PVC

Pump Intake Or Bailer Set At ________ Feet Below MP
Decontamination Performed: YES

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests
Samples Collected: BTEX, TPH-IR, TPH-D, TPH-G

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
14:15	6.0	3400	22		2.5	
14:18	5.9	3400	23		2.5	
14:25	6.1	3700	23		2.5	
14:30	samples	taken				

At Least 3 Well Bore Volumes Were Purged Before Sampling
Discharge Rate = GPM x 0.00223 = cfs

Comments: 10 well volumes were removed for well development on 1-13-93.

[Comments may continue on back]

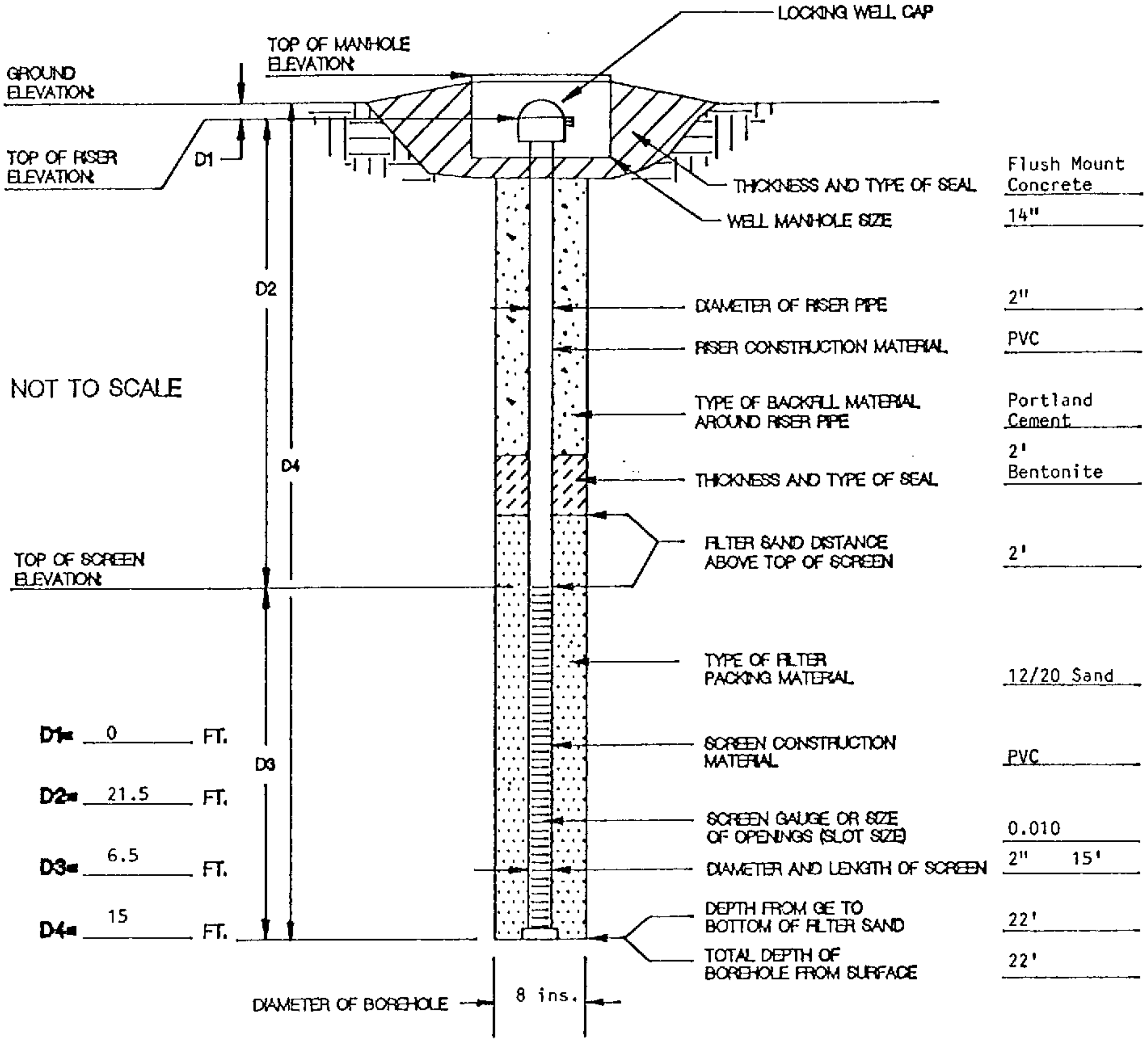
Form Completed By: C. S. Byerman
Witnessed By:

USPCI MONITORING WELL CONSTRUCTION AND INSTALLATION DIAGRAM

USPCI PROJECT NO. 96281

PROJECT NAME: UPMF Oakland, CA - UST Site

MONITORING WELL NO. OKUS-W3



THICKNESS AND TYPE OF SEAL: Flush Mount Concrete

WELL MANHOLE SIZE: 14"

DIAMETER OF RISER PIPE: 2"

RISER CONSTRUCTION MATERIAL: PVC

TYPE OF BACKFILL MATERIAL AROUND RISER PIPE: Portland Cement

THICKNESS AND TYPE OF SEAL: 2' Bentonite

FILTER SAND DISTANCE ABOVE TOP OF SCREEN: 2'

TYPE OF FILTER PACKING MATERIAL: 12/20 Sand

SCREEN CONSTRUCTION MATERIAL: PVC

SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE): 0.010

DIAMETER AND LENGTH OF SCREEN: 2" 15'

DEPTH FROM GE TO BOTTOM OF FILTER SAND: 22'

TOTAL DEPTH OF BOREHOLE FROM SURFACE: 22'

D1= 0 FT.

D2= 21.5 FT.

D3= 6.5 FT.

D4= 15 FT.

MONITORING WELL INSTALLATION INFORMATION

DRILLING CONTRACTOR Layne-Western		
DRILLER Ross	DRILLING RIG TYPE Mobile 61	
DATE STARTED 1-13-93	DATE COMPLETED 1-13-93	DRILLING METHOD Hollow Stem Auger

USPCI
A Subsidiary of Union Pacific Corporation

USPCI SA[illegible]LING AND WELL STABILIZATION [illegible]RM

USPCI Project Name: UPRR TOFC RAILYARD / UPMF - UST SITE

USPCI Project Number: 96281

Measuring Point (MP) Location TOP OF CASING

Well No. OKUS-W3

Well Depth: (Below MP): 21.55 Feet

Casing diameter: 2 Inches

Sampling Date: 01-14-93

Depth To Ground Water (Below MP): 9.39 Feet

Sample ID No. OKUS-W3

Method Of Well Development:

Time: 14:47

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): 9.80 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: 6.55 Feet

Sampling Collection Method:

Sample Appearance: TURBID

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample

Odor: MODERATE

■ Bailer Type: ☐ Teflon ☐ Stainless Steel

Sampling Problems (if any): NONE

■ ABS Plastic ☐ PVC

Pump Intake Or Bailer Set At ________ Feet Below MP

Decontamination Performed: YES

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected: BTEX,TPH-IR, TPH-D,TPH-G

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed from well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
14:50	5.7	4500	23		2.5	
14:55	5.7	4100	23		2.5	
14:59	5.5	4200	23		2.5	
15:00	sample	taken				

At Least 3 Well Bore Volumes Were Purged Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: 10 well volumes were removed for well development on 1-13-93.

[Comments may continue on back]

Form Completed By: C. S. Byerman

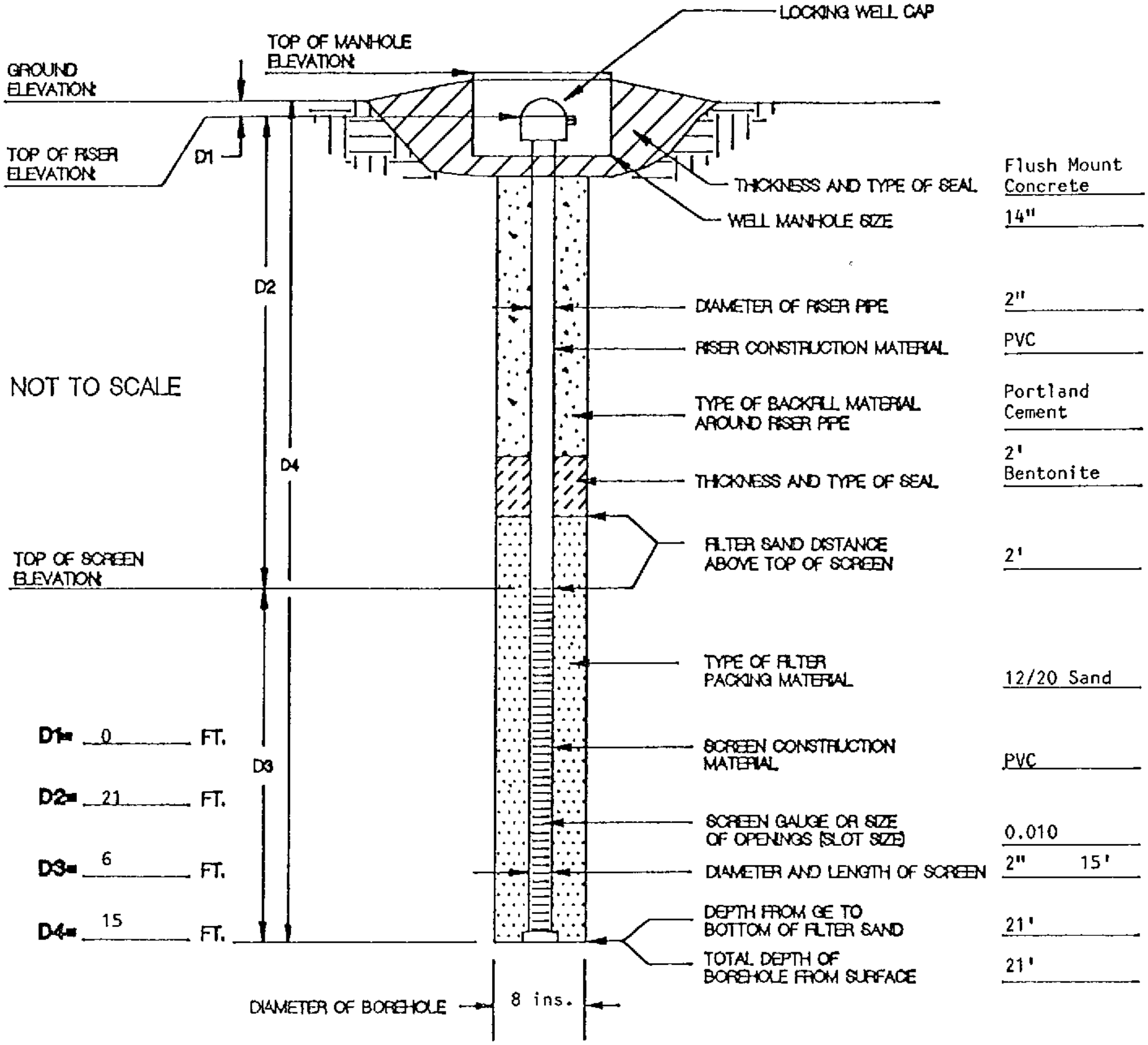
Witnessed By:

USPCI MONITORING WELL CONSTRUCTION AND INSTALLATION DIAGRAM

USPCI PROJECT NO. 96281

PROJECT NAME: UPMF Oakland, CA - UST Site

MONITORING WELL NO. OKUS-W4



THICKNESS AND TYPE OF SEAL: Flush Mount Concrete

WELL MANHOLE SIZE: 14"

DIAMETER OF RISER PIPE: 2"

RISER CONSTRUCTION MATERIAL: PVC

TYPE OF BACKFILL MATERIAL AROUND RISER PIPE: Portland Cement

THICKNESS AND TYPE OF SEAL: 2' Bentonite

FILTER SAND DISTANCE ABOVE TOP OF SCREEN: 2'

TYPE OF FILTER PACKING MATERIAL: 12/20 Sand

SCREEN CONSTRUCTION MATERIAL: PVC

SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE): 0.010

DIAMETER AND LENGTH OF SCREEN: 2" 15'

DEPTH FROM GE TO BOTTOM OF FILTER SAND: 21'

TOTAL DEPTH OF BOREHOLE FROM SURFACE: 21'

D1= 0 FT.

D2= 21 FT.

D3= 6 FT.

D4= 15 FT.

DIAMETER OF BOREHOLE: 8 ins.

MONITORING WELL INSTALLATION INFORMATION

DRILLING CONTRACTOR: Layne-Western		
DRILLER: Ross	DRILLING RIG TYPE: Mobile 61	
DATE STARTED: 1-13-93	DATE COMPLETED: 1-13-93	DRILLING METHOD: Hollow Stem Auger

USPCI
A Subsidiary of Union Pacific Corporation

USPCI SAMPLING AND WELL STABILIZATION FORM

USPCI Project Name: UPRR TOFC RAILYARD / UPMF - UST SITE

USPCI Project Number: 96120-844

Measuring Point (MP) Location TOP OF CASING

Well No. OKUS-W4

Well Depth: (Below MP): 21.08 Feet

Casing diameter: 2 Inches

Sampling Date: 01-15-93

Depth To Ground Water (Below MP): 6.43 Feet

Sample ID No. OKUS-W4

Method Of Well Development:

Time: 9:00

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): 7.35 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: 6.08 Feet

Sampling Collection Method:

Sample Appearance: TURBID

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample

Odor: MODERATE

■ Bailer Type: ☐ Teflon ☐ Stainless Steel

Sampling Problems (if any): NONE

■ ABS Plastic ☐ PVC

Pump Intake Or Bailer Set At ________ Feet Below MP

Decontamination Performed: YES

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected:BTEX,TPH-IR, TPH-D,TPH-G

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
9:30	5.3	5000	22		10	
10:00	5.5	4700	22		7.5	
10:30	62	4900	22		7.5	
11:00	sample	taken				

At Least 3 Well Bore Volumes Were Purged Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: 10 well volumes were removed for well development and purging on 1-15-93.

[Comments may continue on back]

Form Completed By: C. S. Byerman

Witnessed By:

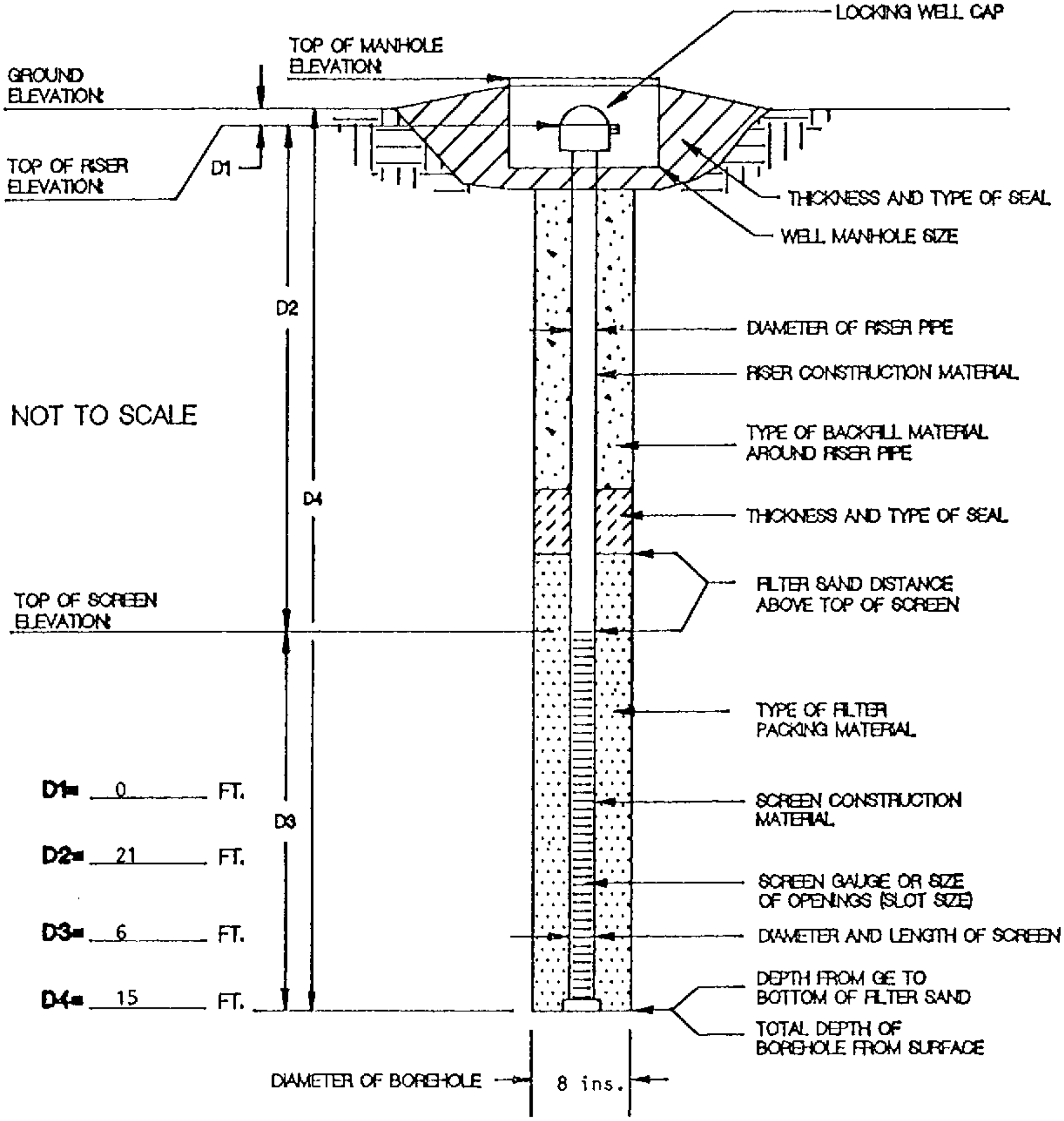
USPCI MONITORING WELL CONSTRUCTION AND INSTALLATION DIAGRAM

USPCI PROJECT NO. 96281

PROJECT NAME: UPMF Oakland, CA - UST Site

MONITORING WELL NO. OKUS-W5

NOT TO SCALE



THICKNESS AND TYPE OF SEAL: Flush Mount Concrete

WELL MANHOLE SIZE: 14"

DIAMETER OF RISER PIPE: 2"

RISER CONSTRUCTION MATERIAL: PVC

TYPE OF BACKFILL MATERIAL AROUND RISER PIPE: Portland Cement

THICKNESS AND TYPE OF SEAL: 2' Bentonite

FILTER SAND DISTANCE ABOVE TOP OF SCREEN: 2'

TYPE OF FILTER PACKING MATERIAL: 12/20 Sand

SCREEN CONSTRUCTION MATERIAL: PVC

SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE): 0.010

DIAMETER AND LENGTH OF SCREEN: 2" 15'

DEPTH FROM GE TO BOTTOM OF FILTER SAND: 21'

TOTAL DEPTH OF BOREHOLE FROM SURFACE: 21'

D1= 0 FT.

D2= 21 FT.

D3= 6 FT.

D4= 15 FT.

MONITORING WELL INSTALLATION INFORMATION

DRILLING CONTRACTOR Layne-Western		
DRILLER Ross	DRILLING RIG TYPE Mobile 61	
DATE STARTED 1-14-93	DATE COMPLETED 1-14-93	DRILLING METHOD Hollow Stem Auger

USPCI
A Subsidiary of Union Pacific Corporation

USPCI S PLING AND WELL STABILIZATIO ORM

USPCI Project Name: UPRR TOFC RAILYARD / UPMF - UST SITE

USPCI Project Number: 96120-844

Measuring Point (MP) Location TOP OF CASING

Well No. OKUS-W5

Well Depth: (Below MP): 20.95 Feet

Casing diameter: 2 Inches

Sampling Date: 01-15-93

Depth To Ground Water (Below MP): 9.45 Feet

Sample ID No. OKUS-W5

Method Of Well Development:

Time: 11:15

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): 9.25 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: 5.95 Feet

Sampling Collection Method:

Sample Appearance: TURBID

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample

Odor: NONE

■ Bailer Type: ☐ Teflon ☐ Stainless Steel

Sampling Problems (if any): NONE

■ ABS Plastic ☐ PVC

Pump Intake Or Bailer Set At ________ Feet Below MP

Decontamination Performed: YES

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected:BTEX,TPH-IR, TPH-D,TPH-G, DISLV. Pb

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
11:18	5.4	5200	23		7	
11:38	5.5	5200	23		7	
11:50	5.5	5300	23		7	
12:00	sample	taken				

At Least 3 Well Bore Volumes Were Purged Before Sampling

Discharge Rate = GPM x 0.00223 = cfs

Comments: 10 well volumes were removed for well development and purging on 1-15-93.

[Comments may continue on back]

Form Completed By: C. S. Byerman

Witnessed By:

NET
NATIONAL
ENVIRONMENTAL
TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

01/26/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: UPMF Oakland,CA
Date Received: 01/15/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that the following samples were analyzed for 418.1 per Chris Byerman's request: OKS-13, OKS-14, OKS-15. Also, sample OKS-16b was analyzed for metals. No 8270 or 8010 analyses were performed, also at the request of Chris Byerman.

Samples OKS-18 and OKS-20 were broken in transit.

Sample OK-13A, OK-14, & OK-16a showed the presence of hydrocarbons which were atypical of diesel. Motor Oil was detected in samples OK-15 and OKUS-W1.

Reporting Limits (R.L.) represent Practical Quantitation Limits (PQL's) unless otherwise specified. If a dilution factor greater than 1 (one) is reported, the actual R.L. for that sample is equal to the dilution factor multiplied by the default R.L..

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks
Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Reports

Client Net Acct No: 29650
NET Job No: 93.00040

NET®

Cli[illegible] Name: USPCI

Date Taken: 01/14/1993
Sample ID : OKUS-W1
Lab No. : 52005

[illegible]e Reported: 01/26/1993
NET Job No.: 93.00040

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 418.1 (IR,TRPH) WATER	418.1	ND	mg/L	1	01/21/1993
METHOD DOHS/LUFT					
DATE ANALYZED		1-21-93			01/21/1993
DATE EXTRACTED		1-21-93			01/21/1993
Dilution Factor		1			01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Diesel	8015 MOD.	ND**	mg/L	1	01/21/1993
Surrogate Spike-TPH		--			01/21/1993
Chlorobenzene	8015 MOD.	97	% Rec.		01/21/1993
Di-n-octyl phthalate	8015 MOD.	NA	% Rec.		01/21/1993
METHOD 8020/8015 COMB.					
Date Analyzed		01-20-93			01/20/1993
Dilution Factor		1			01/20/1993
AROMATIC VOLATILES		--			01/20/1993
Benzene	8020	20	ug/L	0.5	01/20/1993
Ethylbenzene	8020	220	ug/L	0.5	01/20/1993
Toluene	8020	3.6	ug/L	0.5	01/20/1993
Xylenes, total	8020	ND	ug/L	1.5	01/20/1993
TOT. PET. HYDROCARBONS		--			01/20/1993
as Gasoline	8015 MOD.	410	ug/L	10	01/20/1993
comment		NONE			01/20/1993
Surrogate Spike-8020/8015		--			01/20/1993
Bromofluorobenzene	8015 MOD.	69	% Rec.		01/20/1993

** Motor Oil detected at 1.4 mg/L.

ND - Not Detected at the Reporting Limit

Clie[illegible] Name: USPCI
Date Taken: 01/14/1993
Sample ID : OKUS-W2
Lab No. : 52006

[illegible]te Reported: 01/26/1993
[illegible]T Job No.: 93.00040

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 418.1 (IR,TRPH) WATER	418.1	2.5	mg/L	1	01/21/1993
METHOD DOHS/LUFT					
DATE ANALYZED		1-21-93			01/21/1993
DATE EXTRACTED		1-21-93			01/21/1993
Dilution Factor		1			01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Diesel	8015 MOD.	5.4	mg/L	1	01/21/1993
Surrogate Spike-TPH		--			01/21/1993
Chlorobenzene	8015 MOD.	108	% Rec.		01/21/1993
Di-n-octyl phthalate	8015 MOD.	NA	% Rec.		01/21/1993
METHOD 8020/8015 COMB.					
Date Analyzed		01-21-93			01/21/1993
Dilution Factor		100			01/21/1993
AROMATIC VOLATILES		--			01/21/1993
Benzene	8020	480	ug/L	0.5	01/21/1993
Ethylbenzene	8020	8,500	ug/L	0.5	01/21/1993
Toluene	8020	92	ug/L	0.5	01/21/1993
Xylenes, total	8020	ND	ug/L	1.5	01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Gasoline	8015 MOD.	14,000	ug/L	10	01/21/1993
comment		NONE			01/21/1993
Surrogate Spike-8020/8015		--			01/21/1993
Bromofluorobenzene	8015 MOD.	81	% Rec.		01/21/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI

Dat[illegible]aken: 01/14/1993
Samp[illegible] ID : OKUS-W3
Lab No. : 51926

[illegible]ate Reported: 01/26/1993
[illegible]ET Job No.: 93.00040

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 418.1 (IR,TRPH) WATER	418.1	4.5	mg/L	1	01/21/1993
METHOD DOHS/LUFT					
DATE ANALYZED		1-21-93			01/21/1993
DATE EXTRACTED		1-21-93			01/21/1993
Dilution Factor		1			01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Diesel	8015 MOD.	4.4	mg/L	1	01/21/1993
Surrogate Spike-TPH		--			01/21/1993
Chlorobenzene	8015 MOD.	106	% Rec.		01/21/1993
Di-n-octyl phthalate	8015 MOD.	NA	% Rec.		01/21/1993
METHOD 8020/8015 COMB.					
Date Analyzed		01-22-93			01/22/1993
Dilution Factor		10			01/22/1993
AROMATIC VOLATILES		--			01/22/1993
Benzene	8020	230	ug/L	0.5	01/22/1993
Ethylbenzene	8020	2,600	ug/L	0.5	01/22/1993
Toluene	8020	42	ug/L	0.5	01/22/1993
Xylenes, total	8020	44	ug/L	1.5	01/22/1993
TOT. PET. HYDROCARBONS		--			01/22/1993
as Gasoline	8015 MOD.	4,900	ug/L	10	01/22/1993
comment		NONE			01/22/1993
Surrogate Spike-8020/8015		--			01/22/1993
Bromofluorobenzene	8015 MOD.	85	% Rec.		01/22/1993

ND - Not Detected at the Reporting Limit

Clie[illegible] Name: USPCI

[illegible]e Reported: 01/26/1993

N[illegible] Job No.: 93.00040

Date Taken:

Sample ID : Trip Blank

Lab No. : 52004

Sample Matrix: MISC. LIQUID

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 8020 (BTXE)					
DATE ANALYZED		01-20-93			01/20/1993
Dilution Factor		1			01/20/1993
Benzene	8020	ND	ug/L	0.5	01/20/1993
Ethylbenzene	8020	ND	ug/L	0.5	01/20/1993
Toluene	8020	ND	ug/L	0.5	01/20/1993
Xylenes (Total)	8020	ND	ug/L	1.5	01/20/1993
Surrogate Spike	8020	--			01/20/1993
Bromofluorobenzene	8020	94			01/20/1993

ND - Not Detected at the Reporting Limit

NET NATIONAL ENVIRONMENTAL TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

1of3

Client: USPCI	Project: 96120-844	Additional Reports to: USPCI 24125 ALDINE WESTFIELD SPRING, TX 77373	Send Invoice to: SAME
Address (line 1): 24125 ALDINE WESTFIELD	P.O. #:		
Address (line 2): SPRING, TX 77373	Phone #: 713 350-7265	Attn: ERIC TAYLOR	Attn:
Contact: ERIC TAYLOR	Fax #: 713 350-7246	Fax #: 713-350-7266	Phone #:

LAB USE ONLY

Job #:
Report Format:
Storage Location:

Method of shipment:
NET Courier ☐
Fed. Ex. ☒
UPS ☐
Other ☐
Hand Deliver ☐

Airbill #:

Remarks:

Sample Identification	Matrix: Soil	Matrix: Water	Matrix: Other	Container: #/Type	1) HNO₃ 2) H₂SO₄ 3) Na OH 4) Other (Specify)	Grab	Composite	Sampling Information: Date	Sampling Information: Time	Analyses Requested: BTEX	TPH-G	TPH-D	TPH 418.1
OKUS-W1		↓		1 VOA		X		1-14-93	13:40	X			
OKUS-W1				1 VOA		X		↓	13:40		X		
OKUS-W1				2 1L		X			13:50			X	
OKUS-W1				1-1L		X			13:55				X
OKUS-W2				1 VOA		X			14:30	X			
↓ -W2				1 VOA		X			14:30		X		
W2				2 1L		X			14:40			X	
W2				1-1L		X			14:45				X
OKUS-W3				1 VOA		X			15:00	X			
↓ W3		↓		1 VOA		X		↓	15:00		X		

Comments:

Special QA/QC:

Special Detection Limits:

Subcontracting allowed: Yes ☐ no ☐ with approval ☐

Turnaround time
Fax ☒ Verbal ☐ Final ☐

Priority Rush
1 Business Day ☐
Date/Time

Rush
2 Business Days ☐
Date/Time
[✓ 5] Business Days ☐
Date/Time
10 Business Days ☐
Date/Time

Condition of sample: Bottles intact? yes / no COC seals present and intact? yes / no Temperatures upon receipt: Volatiles free of headspace? yes / no

Sampled by: (print name) CHRISTOPHER BJORMAN	Date: 1-14-93	Time: 19:00	Received by: Bjorman	Date: 1/15/93	Time:
Relinquished by: Christopher Bjorman	Date: 1-14-93	Time: 19:00	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory:	Date:	Time:

Distribution: White-[illegible]atory; Canary-Invoicing; Pink-Client

Page 1 of 3 COC #: [illegible]45

QUALITY CONTROL REPORT

USPCI
24125 Aldine West Road
Spring, TX 77373

Eric Taylor

01/27/1993

NET Job Number: 93.00040

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
51926	OKUS-W3	01/14/1993	01/15/1993
51927	OKUS-13A	01/14/1993	01/15/1993
51928	OKUS-13B	01/14/1993	01/15/1993
51929	OKUS-14	01/14/1993	01/15/1993
51930	OKUS-15	01/14/1993	01/15/1993
51931	OKUS-16A	01/14/1993	01/15/1993
51932	OKUS-16B	01/14/1993	01/15/1993
51933	OKUS-19	01/14/1993	01/15/1993
52004	Trip Blank		01/15/1993
52005	OKUS-W1	01/14/1993	01/15/1993
52006	OKUS-W2	01/14/1993	01/15/1993

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD DOHS/LUFT						
as Diesel				500.0	497	99.40
Chlorobenzene				50.0	49.7	99.40
Di-n-octyl phthalate				50.0	52.0	104.00
METHOD 8020/8015 MOD. (LDLS)						
Benzene		18		20.0	20.9	104.50
Ethylbenzene		18		20.0	22.7	113.50
Toluene		18		20.0	21.6	108.00
Xylenes, total		18		60.0	62.6	104.30
as Gasoline		18		120.0	150	125.00
METHOD 8020/8015 COMB.						
Benzene		77		20.0	21.2	106.00
Ethylbenzene		77		20.0	21.1	105.50
Toluene		77		20.0	20.5	102.50
Xylenes, total		77		60.0	61.4	102.30

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
as Gasoline		77		120.0	134	111.70
Bromofluorobenzene		77		20.0	21.1	105.50
Lead (GFAA)		MP194981		0.025	0.0257	103.00

CCV - Continuing Calibration Verification

NET®

QUALITY CONTROL REPORT
BLANKS

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Cadmium (ICP)	148	105	ND	mg/Kg
Chromium (ICP)	148	105	ND	mg/Kg
Zinc (ICP)	148	105	ND	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	ND	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	ND	mg/Kg
METHOD DOHS/LUFT				
as Diesel		112	ND	mg/Kg
Chlorobenzene		112	100	% Rec.
Di-n-octyl-phthalate		112	82	% Rec.
METHOD DOHS/LUFT				
as Diesel		32	ND	mg/L
Chlorobenzene		32	96	% Rec.
Di-n-octyl phthalate		32	96	% Rec.
METHOD 8020/8015 MOD. (LDLS)				
Benzene		18	ND	mg/Kg
Ethylbenzene		18	ND	mg/Kg
Toluene		18	ND	mg/Kg
Xylenes, total		18	ND	mg/Kg
as Gasoline		18	ND	mg/Kg
Bromofluorobenzene		18	138	% Rec.
METHOD 8020 (BTXE)				
Benzene		77	ND	ug/L
Ethylbenzene		77	ND	ug/L
Toluene		77	ND	ug/L
Xylenes (Total)		77	ND	ug/L
Bromofluorobenzene		77	99	% Rec.

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
BLANKS

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
METHOD 8020/8015 COMB.				
Benzene		77	ND	ug/L
Ethylbenzene		77	ND	ug/L
Toluene		77	ND	ug/L
Xylenes, total		77	ND	ug/L
as Gasoline		77	ND	ug/L
Bromofluorobenzene		77	99	% Rec.
Lead (GFAA)		MP194981	ND	mg/kg

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Cadmium (ICP)	148	105	20	16.4	82.00	mg/Kg
Chromium (ICP)	148	105	50	43.0	86.00	mg/Kg
Zinc (ICP)	148	105	50	44.0	88.00	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	5.2	5.2	100.00	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	52	51	98.10	mg/Kg
METHOD DOHS/LUFT						
as Diesel		112	400	413	103.30	mg/Kg
Chlorobenzene		112	50	50.35	100.70	% Rec.
Di-n-octyl-phthalate		112	50	49.38	98.80	% Rec.
METHOD DOHS/LUFT						
as Diesel		112	400	423	105.80	mg/Kg
Chlorobenzene		112	50	50.23	100.50	% Rec.
Di-n-octyl-phthalate		112	50	43.93	87.90	% Rec.
METHOD DOHS/LUFT						
as Diesel		32	40	38.4	96.0	mg/L
Chlorobenzene		32	5	4.6	92.0	% Rec.
Di-n-octyl phthalate		32	5	5.05	101.0	% Rec.
METHOD 8020/8015 MOD. (LDLS)						
Benzene		18	0.2	0.18	90.00	mg/Kg
Ethylbenzene		18	0.2	0.20	100.00	mg/Kg
Toluene		18	0.2	0.19	95.00	mg/Kg
Xylenes, total		18	0.6	0.56	93.30	mg/Kg
as Gasoline		18	1.2	1.4	116.70	mg/Kg
Bromofluorobenzene		18	0.2	0.26	130.00	% Rec.
METHOD 8020 (BTXE)						
Benzene		77	20	22.6	113.00	ug/L

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NET®

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Ethylbenzene		77	20	22.6	113.00	ug/L
Toluene		77	20	21.8	109.00	ug/L
Xylenes (Total)		77	60	66.6	111.00	ug/L
Bromofluorobenzene		77	20	19.3	96.50	% Rec.

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

OKS-1
OKS 2a or b
OKS-4a or b
OKS-5

} TPH 418.1 if possible

93.00040

NET#	USPCI#	
51927	OKS-13	yes
51929	OKS-14	yes
51930	OKS-15	yes

~~OKS~~ OKS-16b should be marked 418.1
93.00047 pls sample for metals instead of 8010
thx

52011	OKS-21	yes
52012	OKS-22	yes

93-00036

51853	OKS-6	yes
51854	OKS-7	yes
51855	OKS-8	yes
51856	OKS-9	yes
51857	OKS-10	yes
51858	OKS-11	yes
51859	OKS-12	yes

OKS-18
19 should be marked
for TPH 418.1 already
pls sample for metals
also
thx you

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
Cadmium (ICP)	148	105	16.0	ND	20	mg/Kg	80.00	16.4	20	82.00	2.50
Chromium (ICP)	148	105	60.4	21.0	50	mg/Kg	78.80*	63.5	50	85.00	7.60
Zinc (ICP)	148	105	69.2	21.8	50	mg/Kg	94.80	66.8	50	90.00	5.20
METHOD 418.1 (IR,TRPH) WATER		23	5.1	ND	5.2	mg/L	98.10	4.5	5.2	86.50	12.60
METHOD 418.1 (IR,TRPH) SOIL		153	1800	9,300	52.0	mg/Kg	-----*	1900	52.0	-----*	-----*
METHOD DOHS/LUFT											
as Diesel		112	640.0	ND**	480.0	mg/Kg	------**	610.0	480.0	-----**	-----**
METHOD 8020/8015 MOD. (LDLS)											
Benzene		18	0.17	ND	0.2	mg/Kg	85.00	0.18	0.2	90.00	5.70
Toluene		18	0.18	ND	0.2	mg/Kg	90.00	0.19	0.2	95.00	5.40
as Gasoline		18	1.3	ND	1.2	mg/Kg	108.30	1.3	1.2	108.30	0.00
METHOD 8020 (BTXE)											
Benzene		77	21.2	ND	20	ug/L	106.00	19.8	20	99.00	6.70
Toluene		77	20.6	ND	20	ug/L	103.00	19.1	20	95.50	7.50
Lead (GFAA)		MP194981	0.0404	0.012	0.030	mg/kg	95.00	0.041	0.030	97.00	1.7

NOTE: Matrix Spike Samples may not be samples from this job.

* MS/MSD % Recovery did not meet QC Limits due to high initial analyte values. Batch was passed since LCS were within QC Limits.

** MS/MSD % Recovery did not meet QC Limits due to matrix interference. Batch was passed since LCS was within QC Limits.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
DUPLICATES

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00040

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	Flags	RPD
Percent Solids		10	82.0	81.0	%		1.20

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NET
NATIONAL
ENVIRONMENTAL
® TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

01/25/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, TX 77373

Client Ref: UPMF Oakland,CA
Date Received: 01/18/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Please note that Motor Oil was detected in the two soil samples analyzed for Mod 8015/DOHS LUFT. Also, a BTXE Trip Blank was received in the shipment with the samples reported but it was not listed on COC. This sample was not analyzed. On the second page of the Chain of Custody document TPH 418.1 was lined out, we proceeded to run 418.1 per Chris Byerman.

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document
  QA/QC Reports

Client Net Acct No: 29650
NET Job No: 93.00047

Clie[illegible] Name: USPCI
Date Taken: 01/15/1993
Sample ID : OKUS-W4
Lab No. : 52008

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00047

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 418.1 (IR,TRPH) WATER	418.1	2.5	mg/L	1	01/21/1993
METHOD DOHS/LUFT					
DATE ANALYZED		1-21-93			01/21/1993
DATE EXTRACTED		1-21-93			01/21/1993
Dilution Factor		1			01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Diesel	8015 MOD.	5.4	mg/L	1.0	01/21/1993
Surrogate Spike-TPH		--			01/21/1993
Chlorobenzene	8015 MOD.	107	% Rec.		01/21/1993
Di-n-octyl phthalate	8015 MOD.	NA	% Rec.		01/21/1993
METHOD 8020/8015 COMB.					
Date Analyzed		01-21-93			01/21/1993
Dilution Factor		100			01/21/1993
AROMATIC VOLATILES		--			01/21/1993
Benzene	8020	300	ug/L	0.5	01/21/1993
Ethylbenzene	8020	4,500	ug/L	0.5	01/21/1993
Toluene	8020	ND	ug/L	0.5	01/21/1993
Xylenes, total	8020	ND	ug/L	1.5	01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Gasoline	8015 MOD.	8,900	ug/L	10	01/21/1993
comment		NONE			01/21/1993
Surrogate Spike-8020/8015		--			01/21/1993
Bromofluorobenzene	8015 MOD.	89	% Rec.		01/21/1993

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible]Name: USPCI

[illegible]e Reported: 01/25/1993

NET Job No.: 93.00047

Date Taken: 01/15/1993

Sample ID : OKUS-W5

Lab No. : 52009

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
ICP METALS					
Lead (ICP, Dissolved)	6010	ND	mg/L	0.04	01/22/1993
METHOD 418.1 (IR,TRPH) WATER	418.1	ND	mg/L	1	01/21/1993
METHOD DOHS/LUFT					
DATE ANALYZED		1-21-93			01/21/1993
DATE EXTRACTED		1-21-93			01/21/1993
Dilution Factor		1			01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Diesel	8015 MOD.	2.9	mg/L	1	01/21/1993
Surrogate Spike-TPH		--			01/21/1993
Chlorobenzene	8015 MOD.	98	% Rec.		01/21/1993
Di-n-octyl phthalate	8015 MOD.	NA	% Rec.		01/21/1993
METHOD 8020/8015 COMB.					
Date Analyzed		01-20-93			01/20/1993
Dilution Factor		1			01/20/1993
AROMATIC VOLATILES		--			01/20/1993
Benzene	8020	53	ug/L	0.5	01/20/1993
Ethylbenzene	8020	180	ug/L	0.5	01/20/1993
Toluene	8020	11	ug/L	0.5	01/20/1993
Xylenes, total	8020	20	ug/L	1.5	01/20/1993
TOT. PET. HYDROCARBONS		--			01/20/1993
as Gasoline	8015 MOD.	550	ug/L	10	01/20/1993
comment		NONE			01/20/1993
Surrogate Spike-8020/8015		--			01/20/1993
Bromofluorobenzene	8015 MOD.	97	% Rec.		01/20/1993

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible] Name: USPCI
Date Taken: 01/15/1993
Sample ID : OKUS-W6
Lab No. : 52010

[illegible]te Reported: 01/25/1993
NET Job No.: 93.00047

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 418.1 (IR,TRPH) WATER	418.1	ND	mg/L	1	01/21/1993
METHOD DOHS/LUFT					
DATE ANALYZED		1-21-93			01/21/1993
DATE EXTRACTED		1-21-93			01/21/1993
Dilution Factor		1			01/21/1993
TOT. PET. HYDROCARBONS		--			01/21/1993
as Diesel	8015 MOD.	2.8	mg/L	1	01/21/1993
Surrogate Spike-TPH		--			01/21/1993
Chlorobenzene	8015 MOD.	99	% Rec.		01/21/1993
Di-n-octyl phthalate	8015 MOD.	NA	% Rec.		01/21/1993
METHOD 8020/8015 COMB.					
Date Analyzed		01-20-93			01/20/1993
Dilution Factor		1			01/20/1993
AROMATIC VOLATILES		--			01/20/1993
Benzene	8020	50	ug/L	0.5	01/20/1993
Ethylbenzene	8020	170	ug/L	0.5	01/20/1993
Toluene	8020	10	ug/L	0.5	01/20/1993
Xylenes, total	8020	19	ug/L	1.5	01/20/1993
TOT. PET. HYDROCARBONS		--			01/20/1993
as Gasoline	8015 MOD.	510	ug/L	10	01/20/1993
comment		NONE			01/20/1993
Surrogate Spike-8020/8015		--			01/20/1993
Bromofluorobenzene	8015 MOD.	99	% Rec.		01/20/1993

ND - Not Detected at the Reporting Limit

NET NATIONAL ENVIRONMENTAL TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

Client: USPCI
Address (line 1): 24125 ALDINE WESTFIELD
Address (line 2): SPRING, TX 77373
Contact: ERIC TAYLOR

Project: 96120-844
P.O. #:
Phone #: (713) 350-7246
Fax #: (713) 350-7246

Additional Reports to: USPCI
24125 Aldine Westfield
Spring, TX
Attn: ERIC TAYLOR
Fax #: 713-350-7246

Send Invoice to: SAME
Attn:
Phone #:

LAB USE ONLY
Job #: 93.00047
Report Format:
Storage Location:

Method of shipment:
- NET Courier ☐
- Fed. Ex. ☒
- UPS ☐
- Other ☐
- Hand Deliver ☐

Airbill #:

Sample Identification	Matrix: Soil	Water	Other	Container: #/Type	1) HNO₃ 2) H₂SO₄ 3) Na OH 4) Other (Specify)	Grab	Composite	Sampling Information: Date	Time	Analyses Requested: BTEX	TPH-G	TPH-D	TPH-418.1
OKUS-W4		|		1 VOA		X		1-15-92	13:00	X			
OKUS-W4				1 VOA		X			13:00		X		
OKUS-W4				2-1L		X			11:05			X	
OKUS-W4				1-1L		X			11:10				X
OKUS-W5				1 VOA		X			12:00	X			
OKUS-W5				1 VOA		X			12:05		X		
OKUS-W5				2-1L		X			12:10			X	
OKUS-W5		V		1-1L		X		V	13:00				X
OKUS-W6				2 VOA		X			13:05	X	X		
OKUS-W6 OKUS-W6		V		2-1L 1-1L		X X		V	13:10			X	X

Remarks:
Add pd by 6010 per client; 1/18 1:20.

Comments: Very wet weather Sampling

Special QA/QC:

Special Detection Limits:

Subcontracting allowed: Yes ☐ no ☐ with approval ☐

Turnaround time
Fax ☒ Verbal ☐ Final ☐

Priority Rush
1 Business Day ☐
Date/Time

Rush
2 Business Days ☐
Date/Time
[✓ 5 Business Days] ☐
Date/Time
10 Business Days ☐
Date/Time

Condition of sample: Bottles intact? yes / no COC seals present and intact? yes / no Temperatures upon receipt: Volatiles free of headspace? yes / no

Sampled by: (print name) CHRISTOPHER BYRAM	Date: 1-15-93	Time: 13:50	Received by:	Date:	Time:
Relinquished by: Christopher Byram	Date: 1-15-93	Time: 13:50	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory: Heidi Brooks	Date: 1/18	Time: 10 —

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

5336112025

Page 1 of 7

COC #: 1648

QUALITY CONTROL REPORT

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

NET Job Number: 93.00047

Eric Taylor

Enclosed is the Quality Control data for the following samples submitted to NET, Inc. - Burbank for analysis:

Sample Number	Sample Description	Date Taken	Date Received
52008	OKUS-W4	01/15/1993	01/18/1993
52009	OKUS-W5	01/15/1993	01/18/1993
52010	OKUS-W6	01/15/1993	01/18/1993
52011	OKS-21	01/15/1993	01/18/1993
52012	OKS-22	01/15/1993	01/18/1993
52013	OKS-23	01/15/1993	01/18/1993
52042	OKUS-B5(2-4)	01/17/1993	01/18/1993

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Run Batch Flags	CCV True Concentration	Concentration Found	Percent Recovery
METHOD DOHS/LUFT						
as Diesel		32		500.0	497	99.40
Chlorobenzene		32		50.0	49.7	99.40
Di-n-octyl phthalate		32		50.0	52.0	104.00
METHOD 8020/8015 COMB.						
Benzene		77		20.0	21.2	106.00
Ethylbenzene		77		20.0	21.1	105.50
Toluene		77		20.0	20.5	102.50
Xylenes, total		77		60.0	61.4	102.30
as Gasoline		77		120.0	134	111.70
Bromofluorobenzene		77		20.0	21.1	105.50
Lead (GFAA)		M2204381		0.025	0.0254	102.00

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
BLANKS

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis	Units
Lead (ICP, Dissolved)	95	104	ND	mg/L
Cadmium (ICP)	148	105	ND	mg/Kg
Chromium (ICP)	148	105	ND	mg/Kg
Zinc (ICP)	148	105	ND	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	ND	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	ND	mg/Kg
METHOD DOHS/LUFT				
as Diesel		112	ND	mg/Kg
Chlorobenzene		112	100	% Rec.
Di-n-octyl-phthalate		112	82	% Rec.
METHOD DOHS/LUFT				
as Diesel		32	ND	mg/L
Chlorobenzene		32	96	% Rec.
Di-n-octyl phthalate		32	96	% Rec.
METHOD 8020/8015 COMB.				
Benzene		77	ND	ug/L
Ethylbenzene		77	ND	ug/L
Toluene		77	ND	ug/L
Xylenes, total		77	ND	ug/L
as Gasoline		77	ND	ug/L
Bromofluorobenzene		77	99	% Rec.
Lead (GFAA)		M2204381	ND	mg/kg

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventionals/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	LCS True Concentration	LCS Concentration Found	LCS % Recovery	Units
Lead (ICP, Dissolved)	95	104	1	0.80	80.00	mg/L
Cadmium (ICP)	148	105	20	16.4	82.00	mg/Kg
Chromium (ICP)	148	105	50	43.0	86.00	mg/Kg
Zinc (ICP)	148	105	50	44.0	88.00	mg/Kg
METHOD 418.1 (IR,TRPH) WATER		23	5.2	5.2	100.00	mg/L
METHOD 418.1 (IR,TRPH) SOIL		153	52	51	98.10	mg/Kg
METHOD DOHS/LUFT						
as Diesel		112	400	413	103.30	mg/Kg
Chlorobenzene		112	50	50.35	100.70	% Rec.
Di-n-octyl-phthalate		112	50	49.38	98.80	% Rec.
METHOD DOHS/LUFT						
as Diesel		112	400	423	105.80	mg/Kg
Chlorobenzene		112	50	50.23	100.50	% Rec.
Di-n-octyl-phthalate		112	50	43.93	87.90	% Rec.
METHOD DOHS/LUFT						
as Diesel		32	40	38.4	96.00	mg/L
Chlorobenzene		32	5	4.6	92.00	% Rec.
Di-n-octyl phthalate		32	5	5.05	101.00	% Rec.
METHOD 8020/8015 COMB.						
Benzene		77	20	22.6	113.00	ug/L
Ethylbenzene		77	20	22.6	113.00	ug/L
Toluene		77	20	21.8	109.00	ug/L
Xylenes, total		77	60	66.6	111.00	ug/L
as Gasoline		77	120	150	125.00	ug/L
Bromofluorobenzene		77	20	19.3	96.50	% Rec.

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NET®

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Percent Recovery	MS/MSD RPD
Cadmium (ICP)	148	105	16.0	ND	20	mg/Kg	80.00	16.4	20	82.00	2.50
Chromium (ICP)	148	105	60.4	21.0	50	mg/Kg	78.80*	63.5	50	85.00	7.60
Zinc (ICP)	148	105	69.2	21.8	50	mg/Kg	94.80	66.8	50	90.00	5.20
METHOD 418.1 (IR,TRPH) WATE		23	5.1	ND	5.2	mg/L	98.10	4.5	5.2	86.50	12.60
METHOD 418.1 (IR,TRPH) SOIL		153	1800	9,300	52.0	mg/Kg	-----*	1900	52.0	-----*	-----*
METHOD DOHS/LUFT as Diesel		112	640.0	ND**	480.0	mg/Kg	-----**	610.0	480.0	-----**	-----**
METHOD 8020/8015 COMB.											
Benzene		77	21.2	ND	20	ug/L	106.00	19.8	20	99.00	6.70
Toluene		77	20.6	ND	20	ug/L	103.00	19.1	20	95.50	7.50
Lead (GFAA)		M2204381	0.0306	0.004	0.025	mg/kg	107.00	0.0305	0.025	106.00	<1

NOTE: Matrix Spike Samples may not be samples from this job.

* MS/MSD % Recovery did not meet QC Limits due to high initial analyte values. The batch was passed since LCS were within QC Limits.

* MS/MSD % Recovery did not meet QC Limits due to matrix interference. The batch was passed since LCS was within QC Limits.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

QUALITY CONTROL REPORT
DUPLICATES

USPCI
24125 Aldine West Road
Spring, TX 77373

01/27/1993

Eric Taylor

NET Job Number: 93.00047

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	Flags	RPD
Percent Solids		11	83.1	83.7	%		0.70

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NET®

January 27, 1993

ACCEPTANCE LIMITS

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE

		SOIL/SLUDGE MATRIX		WATER	
ANALYTE	ANALYTICAL METHOD	%R (RANGE)	MAX % RPD	%R (RANGE)	MAX % RPD
Cadmium	6010	80-120*	20	------	--
	7130	80-115	10	------	--
	200.7	------	--	80-120*	15
Chromium	6010	80-115	20	------	--
	200.7	------	--	85-110	10
Lead	7421(GFAA)	75-125	20	------	---
	239.1	------	--	85-115	15
	200.7	------	--	80-120*	20
Zinc	6010	75-120*	20	------	--
	200.7	------	--	80-120*	15
TRPH	418.1	80-115	15	80-115*	15
Volatiles	601/8010				
Dichloroethene		55-125	25	40-110	35
Trichloroethene		70-125	20	55-120	20
Chlorobenzene		60-135	25	55-105	20
Surrogate					
2-Chlorotoluene		60-145	NA	60-145	NA
Benzene	8020/8015	70-135	20	60-150	20
Toluene		75-135	20	60-135	20
Surrogate					
Bromofluorobenzene		60-130	NA	60-130	NA
Diesel	DOHS/LUFT	75-110	10	75-110*	10*
Surrogate					
Chlorobenzene		60-150	NA	80-125	NA
Di-octylphthalate		75-140	NA	80-125	NA

* Advisory Limits

usr\qa\acclim.USPCI

ACCEPTANCE LIMITS

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE

		SOIL/SLUDGE MATRIX		WATER	
ANALYTE	ANALYTICAL METHOD	%R (RANGE)	MAX % RPD	%R (RANGE)	MAX % RPD
Semi-VOAs	8270 /625				
1,2,4-TRICHLOROBENZENE		38-107	23	39-98	28
ACENAPHTHENE		31-187	19	46-118	31
2,4-DINITROTOLUENE		28- 89	47	24-96	38
PYRENE		35-142	36	26-127	31
N-NITROSODI-N-PROPYLAMINE		41-126	38	41-116	38
1,4-DICHLOROBENZENE		28-104	27	36- 97	28
PENTACHLOROPHENOL		17-109	47	9-103	50
PHENOL		26- 90	35	12- 89	42
2-CHLOROPHENOL		25-102	50	27-123	40
4-CHLORO-3-METHYLPHENOL		26-103	33	23- 97	42
4-NITROPHENOL		11-114	50	10- 80	50
SURROGATE SPIKE RECOVERIES					
2-FLUOROPHENOL		25-121	-	21-100	-
PHENOL-d5		24-113	-	10- 94	-
NITROBENZENE - d5		23-120	-	35-114	-
2-FLUROBIPHENYL		30-115	-	43-116	-
2,4,6-TRIBROMOPHENOL		19-122	-	10-123	-
TERPHENYL-d14		18-137	-	33-141	-

NET®

January 27, 1993

USEPA 418.1/ Petroleum Hydrocarbons, Total Recoverable Determination

Re: Silica Gel Clean-up/ Silica Gel Absorptive Capacity

This step in the preparation of the samples for the analysis of total petroleum hydrocarbons is necessary to remove any polar fats, oils or greases from the samples. These oils and greases are bound to the polar surface of the silica gel thus being removed from solution.

The clean up process is done after extraction of the sample with freon. 3 grams of silica gel is added to 50 ml sample extract. The solution is stirred to keep the silica gel dispersed during stirring. The silica gel is allowed to settle and a portion of the sample is drawn to fill a sample cuvette for IR determination. If the absorbance for the sample is greater than the absorbance of the highest standard, the sample is then diluted with Freon. Upon diluting the original silica gel treated extract with freon, the silica gel clean up procedure is repeated (i.e. maintaining the ratio 3 grams/50 ml solution) before the sample is read for IR absorbance.

usr\qa\418.1silica

CLIENT CONTACT

Acct#

Date: 1/18/93 Time: 9:00 am

Company Name: USPCI

Address: 2412 S. Aldine Westfield

Address:

City, State: Spring Tx Zip 77373

Phone: (713) 350 7265

Fax: (713) 350 7246

Name: Chris Byuim

Type of Contact:
Follow up ✓
Cold Call Vis.
Phoned us ✓
Phoned them
Visited us
Visited them

Referral:
Phone book
Other Client
Other

Client Status: New
Potential
Existing ✓

Client Type:
(MS) Miscellanous
(LB) Laboratory
(CE) Consulting Engineer ✓
(IN) Industrial
(GV) Goverment
(WM) Waste Management
(UT) Utility
(SU) Schools/Univ.

Entry Type: REPT
MARK
BILL

Send information: Yes No ✓
Information Sent: Yes ✓ No ✓
Date Sent:

Send Credit Ap. Yes No
Credit Ap. sent Yes No
Date Sent:

Quoted: Phone:
Written:
Quote #
Amount: $

Next Follow up date: / /

Add to mailing List: Yes No

Comments:

Faxed p1 of 3 of COC for samples that arrived on Friday. Also said delete requested 8010 & 8270 analyses for 93.00046.

Status: Good
Fair
Poor
Delete

INT:

OKS-1
OKS 2a or b
OKS-4a or b
OKS-5
} TPH 418.1 if possible

93.00040

NET#	USPCI#
51927	OKS-13 yes
51929	OKS-14 yes
51930	OKS-15 yes

OKS-16b should be marked 418.1
93.00047 pls sample for metals instead of 8010
thx

52011	OKS-21 yes
52012	OKS-22 yes

93-00036

51853	OKS-6 yes
51854	OKS-7 yes
51855	OKS-8 yes
51856	OKS-9 yes
51857	OKS-10 yes
51858	OKS-11 yes
51859	OKS-12 yes

OKS-18
19 should be marked
for TPH 418.1 already
pls sample for metals
also
thx you

WELL STABILIZATION REPORTS

ALONG WITH ANALYTICAL RESULTS AND COC'S

FEBRUARY 18, 1993

NET NATIONAL ENVIRONMENTAL ® TESTING, INC.

Burbank Division
700 South Flower Street
Burbank, CA 91502
Tel: (213) 849-6591
Fax: (818) 954-0232

DOHS Certificate Number: 1192
LACSD Lab I.D. Number: 10158

03/02/1993

Eric Taylor
USPCI
24125 Aldine West Road
Spring, Texas 77373

Client Ref: UPRR Oakland
Date Received: 02/18/1993

Sample analysis for the project referred to above has been completed and results are located on attached pages.

Should you have questions regarding procedures or results, please feel welcome to contact our Client Services Representatives or the Laboratory Director.

Kimberly S Banks
Kimberly S. Banks
Project Manager

KB:rm
Attachments:
  Analytical Reports
  Chain of Custody Document

Client Net Acct No: 29650
NET Job No: 93.00195

OCEAN GROUP

Client Name: USPCI
Date Taken: 02/18/1993
Sample ID : OKUS-W1
Lab No. : 52624

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
pH	150.1	7.0	pH units		02/17/1993
Conductivity	120.1	1,780	umhos/cm	1.0	02/17/1993
Tot. Dissolved Solids (TFR)	160.1	1,160	mg/L	10	02/19/1993
Tot. Suspended Solids (NFR)	160.2	117	mg/L	4	02/19/1993
Alkalinity (as CaCO3)					
Total		592	mg/L	10	02/23/1993
Bicarbonate		592	mg/L	10	02/23/1993
Carbonate		0	mg/L	10	02/23/1993
Hydroxide		0	mg/L	10	02/23/1993
0.45um Filtration		DONE			02/22/1993
ICP METALS					
Arsenic (GFAA,Dissolved)	7060	ND	mg/L	0.005	03/01/1993
Cadmium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Chromium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Lead (GFAA,Dissolved)	7421	ND	mg/L	0.002	03/01/1993
Mercury (CVAA,Dissolved)	7470	ND	mg/L	0.0005	02/25/1993
Selenium (GFAA,Dissolved)	7740	ND	mg/L	0.01	03/01/1993
Zinc (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W1
Lab No. : 52624

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 601 (GC,Liquid)					
DATE ANALYZED		02-25-93			02/25/1993
Dilution Factor		1			02/25/1993
Bromodichloromethane	601	ND	ug/L	0.5	02/25/1993
Bromoform	601	ND	ug/L	1.0	02/25/1993
Bromomethane	601	ND	ug/L	1.0	02/25/1993
Carbon tetrachloride	601	ND	ug/L	0.5	02/25/1993
Chlorobenzene	601	ND	ug/L	0.5	02/25/1993
Chloroethane	601	ND	ug/L	1.0	02/25/1993
2-Chloroethylvinyl ether	601	ND	ug/L	1.0	02/25/1993
Chloroform	601	ND	ug/L	0.5	02/25/1993
Chloromethane	601	ND	ug/L	1.0	02/25/1993
Dibromochloromethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,3-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,4-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
Dichlorodifluoromethane	601	ND	ug/L	1.0	02/25/1993
1,1-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
trans-1,2-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloropropane	601	ND	ug/L	0.5	02/25/1993
cis-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
trans-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
Methylene chloride	601	ND	ug/L	1.0	02/25/1993
1,1,2,2-Tetrachloroethane	601	ND	ug/L	0.5	02/25/1993
Tetrachloroethene	601	ND	ug/L	0.5	02/25/1993
1,1,1-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1,2-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
Trichloroethene	601	ND	ug/L	0.5	02/25/1993
Trichlorofluoromethane	601	ND	ug/L	1.0	02/25/1993
Vinyl chloride	601	ND	ug/L	1.0	02/25/1993
Surrogate Spike		--			02/25/1993
2-Chlorotoluene	601	77	%		02/25/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI
Date Reported: 03/02/1993

Date Taken: 02/18/1993
NET Job No.: 93.00195
Sample ID : OKUS-W1
Lab No. : 52624
Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 625(GCMS,Liquid)					
DATE EXTRACTED		02-22-93			02/24/1993
DATE ANALYZED		02-24-93			02/24/1993
Dilution Factor		1			02/24/1993
Acenaphthene	625	ND	ug/L	10	02/24/1993
Acenaphthylene	625	ND	ug/L	10	02/24/1993
Aldrin	625	ND	ug/L	50	02/24/1993
Anthracene	625	ND	ug/L	10	02/24/1993
Benzidine	625	ND	ug/L	50	02/24/1993
Benzo(a)anthracene	625	ND	ug/L	10	02/24/1993
Benzo(b)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(k)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(a)pyrene	625	ND	ug/L	10	02/24/1993
Benzo(g,h,i)perylene	625	ND	ug/L	10	02/24/1993
Butyl benzyl phthalate	625	ND	ug/L	10	02/24/1993
delta-BHC	625	ND	ug/L	50	02/24/1993
gamma-BHC	625	ND	ug/L	50	02/24/1993
bis(2-Chloroethyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Chloroethoxy)methane	625	ND	ug/L	10	02/24/1993
bis(2-Chloroisopropyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Ethylhexyl)phthalate	625	57	ug/L	10	02/24/1993
4-Bromophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
2-Chloronaphthalene	625	ND	ug/L	10	02/24/1993
4-Chlorophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
Chrysene	625	ND	ug/L	10	02/24/1993
4,4'-DDD	625	ND	ug/L	50	02/24/1993
4,4'-DDE	625	ND	ug/L	50	02/24/1993
4,4'-DDT	625	ND	ug/L	50	02/24/1993
Dibenzo(a,h)anthracene	625	ND	ug/L	10	02/24/1993
Di-n-butylphthalate	625	ND	ug/L	10	02/24/1993
1,2-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,3-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,4-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
3,3'-Dichlorobenzidine	625	ND	ug/L	20	02/24/1993
Dieldrin	625	ND	ug/L	50	02/24/1993
Diethylphthalate	625	ND	ug/L	10	02/24/1993
Dimethyl phthalate	625	ND	ug/L	10	02/24/1993
2,4-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
2,6-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
Di-n-octyl phthalate	625	ND	ug/L	10	02/24/1993
Endrin aldehyde	625	ND	ug/L	50	02/24/1993
Fluoranthene	625	ND	ug/L	10	02/24/1993
Fluorene	625	ND	ug/L	10	02/24/1993
Heptachlor	625	ND	ug/L	50	02/24/1993
Heptachlor epoxide	625	ND	ug/L	50	02/24/1993
Hexachlorobenzene	625	ND	ug/L	10	02/24/1993
Hexachlorobutadiene	625	ND	ug/L	10	02/24/1993
Hexachlorocyclopentadiene	625	ND	ug/L	25	02/24/1993
Hexachloroethane	625	ND	ug/L	10	02/24/1993
Indeno(1,2,3-cd)pyrene	625	ND	ug/L	10	02/24/1993
Isophorone	625	ND	ug/L	10	02/24/1993
Naphthalene	625	ND	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI
Date Taken: 02/18/1993
Sample ID : OKUS-W1
Lab No. : 52624

Date Reported: 03/02/1993
NET Job No.: 93.00195
Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Nitrobenzene	625	ND	ug/L	10	02/24/1993
N-Nitroso-Di-N-propylamine	625	ND	ug/L	10	02/24/1993
N-Nitrosodiphenylamine	625	ND	ug/L	10	02/24/1993
Phenanthrene	625	ND	ug/L	10	02/24/1993
Pyrene	625	ND	ug/L	10	02/24/1993
1,2,4-Trichlorobenzene	625	ND	ug/L	10	02/24/1993
ACID EXTRACTABLES		--			02/24/1993
4-Chloro-3-methylphenol	625	ND	ug/L	20	02/24/1993
2-Chlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dichlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dimethylphenol	625	ND	ug/L	10	02/24/1993
2,4-Dinitrophenol	625	ND	ug/L	50	02/24/1993
4,6-Dinitro-2-methylphenol	625	ND	ug/L	50	02/24/1993
2-Nitrophenol	625	ND	ug/L	10	02/24/1993
4-Nitrophenol	625	ND	ug/L	50	02/24/1993
Pentachlorophenol	625	ND	ug/L	50	02/24/1993
Phenol	625	ND	ug/L	10	02/24/1993
2,4,6-Trichlorophenol	625	ND	ug/L	10	02/24/1993
SURROGATE RESULTS		--			02/24/1993
Nitrobenzene-d5	625	50	%		02/24/1993
2-Fluorobiphenyl	625	90	%		02/24/1993
p-Terphenyl-d14	625	82	%		02/24/1993
Phenol-d5	625	56	%		02/24/1993
2-Fluorophenol	625	51	%		02/24/1993
2,4,6-Tribromophenol	625	114	%		02/24/1993

Other Compounds Reported:

2-Methyl Naphthalene		ND	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W2
Lab No. : 52625

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
pH	150.1	6.9	pH units		02/17/1993
Conductivity	120.1	4,200	umhos/cm	1.0	02/17/1993
Tot. Dissolved Solids (TFR)	160.1	2,510	mg/L	10	02/19/1993
Tot. Suspended Solids (NFR)	160.2	326	mg/L	4	02/19/1993
Alkalinity (as CaC03)					
Total		1,110	mg/L	10	02/23/1993
Bicarbonate		1,110	mg/L	10	02/23/1993
Carbonate		0	mg/L	10	02/23/1993
Hydroxide		0	mg/L	10	02/23/1993
0.45um Filtration		DONE			02/22/1993
ICP METALS					
Arsenic (GFAA,Dissolved)	7060	0.036	mg/L	0.005	03/01/1993
Cadmium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Chromium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Lead (GFAA,Dissolved)	7421	ND	mg/L	0.002	03/01/1993
Mercury (CVAA,Dissolved)	7470	ND	mg/L	0.0005	02/25/1993
Selenium (GFAA,Dissolved)	7740	ND	mg/L	0.01	03/01/1993
Zinc (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W2
Lab No. : 52625

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 601 (GC,Liquid)					
DATE ANALYZED		02-25-93			02/25/1993
Dilution Factor		10			02/25/1993
Bromodichloromethane	601	ND	ug/L	0.5	02/25/1993
Bromoform	601	ND	ug/L	1.0	02/25/1993
Bromomethane	601	ND	ug/L	1.0	02/25/1993
Carbon tetrachloride	601	ND	ug/L	0.5	02/25/1993
Chlorobenzene	601	14	ug/L	0.5	02/25/1993
Chloroethane	601	ND	ug/L	1.0	02/25/1993
2-Chloroethylvinyl ether	601	15	ug/L	1.0	02/25/1993
Chloroform	601	290	ug/L	0.5	02/25/1993
Chloromethane	601	ND	ug/L	1.0	02/25/1993
Dibromochloromethane	601	16	ug/L	0.5	02/25/1993
1,2-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,3-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,4-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
Dichlorodifluoromethane	601	ND	ug/L	1.0	02/25/1993
1,1-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
trans-1,2-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloropropane	601	ND	ug/L	0.5	02/25/1993
cis-1,3-Dichloropropene	601	9.0	ug/L	0.5	02/25/1993
trans-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
Methylene chloride	601	ND	ug/L	1.0	02/25/1993
1,1,2,2-Tetrachloroethane	601	18	ug/L	0.5	02/25/1993
Tetrachloroethene	601	ND	ug/L	0.5	02/25/1993
1,1,1-Trichloroethane	601	5.0	ug/L	0.5	02/25/1993
1,1,2-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
Trichloroethene	601	ND	ug/L	0.5	02/25/1993
Trichlorofluoromethane	601	52	ug/L	1.0	02/25/1993
Vinyl chloride	601	ND	ug/L	1.0	02/25/1993
Surrogate Spike		--			02/25/1993
2-Chlorotoluene	601	84	%		02/25/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W2
Lab No. : 52625

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 625(GCMS,Liquid)					
DATE EXTRACTED		02-22-93			02/24/1993
DATE ANALYZED		02-24-93			02/24/1993
Dilution Factor		1			02/24/1993
Acenaphthene	625	ND	ug/L	10	02/24/1993
Acenaphthylene	625	ND	ug/L	10	02/24/1993
Aldrin	625	ND	ug/L	50	02/24/1993
Anthracene	625	ND	ug/L	10	02/24/1993
Benzidine	625	ND	ug/L	50	02/24/1993
Benzo(a)anthracene	625	ND	ug/L	10	02/24/1993
Benzo(b)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(k)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(a)pyrene	625	ND	ug/L	10	02/24/1993
Benzo(g,h,i)perylene	625	ND	ug/L	10	02/24/1993
Butyl benzyl phthalate	625	ND	ug/L	10	02/24/1993
delta-BHC	625	ND	ug/L	50	02/24/1993
gamma-BHC	625	ND	ug/L	50	02/24/1993
bis(2-Chloroethyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Chloroethoxy)methane	625	ND	ug/L	10	02/24/1993
bis(2-Chloroisopropyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Ethylhexyl)phthalate	625	130	ug/L	10	02/24/1993
4-Bromophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
2-Chloronaphthalene	625	ND	ug/L	10	02/24/1993
4-Chlorophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
Chrysene	625	ND	ug/L	10	02/24/1993
4,4'-DDD	625	ND	ug/L	50	02/24/1993
4,4'-DDE	625	ND	ug/L	50	02/24/1993
4,4'-DDT	625	ND	ug/L	50	02/24/1993
Dibenzo(a,h)anthracene	625	ND	ug/L	10	02/24/1993
Di-n-butylphthalate	625	ND	ug/L	10	02/24/1993
1,2-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,3-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,4-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
3,3'-Dichlorobenzidine	625	ND	ug/L	20	02/24/1993
Dieldrin	625	ND	ug/L	50	02/24/1993
Diethylphthalate	625	ND	ug/L	10	02/24/1993
Dimethyl phthalate	625	ND	ug/L	10	02/24/1993
2,4-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
2,6-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
Di-n-octyl phthalate	625	ND	ug/L	10	02/24/1993
Endrin aldehyde	625	ND	ug/L	50	02/24/1993
Fluoranthene	625	ND	ug/L	10	02/24/1993
Fluorene	625	ND	ug/L	10	02/24/1993
Heptachlor	625	ND	ug/L	50	02/24/1993
Heptachlor epoxide	625	ND	ug/L	50	02/24/1993
Hexachlorobenzene	625	ND	ug/L	10	02/24/1993
Hexachlorobutadiene	625	ND	ug/L	10	02/24/1993
Hexachlorocyclopentadiene	625	ND	ug/L	25	02/24/1993
Hexachloroethane	625	ND	ug/L	10	02/24/1993
Indeno(1,2,3-cd)pyrene	625	ND	ug/L	10	02/24/1993
Isophorone	625	ND	ug/L	10	02/24/1993
Naphthalene	625	10	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI

Date Reported: 03/02/1993
NET Job No.: 93.00195

Date Taken: 02/18/1993
Sample ID : OKUS-W2
Lab No. : 52625

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Nitrobenzene	625	ND	ug/L	10	02/24/1993
N-Nitroso-Di-N-propylamine	625	ND	ug/L	10	02/24/1993
N-Nitrosodiphenylamine	625	ND	ug/L	10	02/24/1993
Phenanthrene	625	ND	ug/L	10	02/24/1993
Pyrene	625	ND	ug/L	10	02/24/1993
1,2,4-Trichlorobenzene	625	ND	ug/L	10	02/24/1993
ACID EXTRACTABLES		--			02/24/1993
4-Chloro-3-methylphenol	625	ND	ug/L	20	02/24/1993
2-Chlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dichlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dimethylphenol	625	ND	ug/L	10	02/24/1993
2,4-Dinitrophenol	625	ND	ug/L	50	02/24/1993
4,6-Dinitro-2-methylphenol	625	ND	ug/L	50	02/24/1993
2-Nitrophenol	625	ND	ug/L	10	02/24/1993
4-Nitrophenol	625	ND	ug/L	50	02/24/1993
Pentachlorophenol	625	ND	ug/L	50	02/24/1993
Phenol	625	ND	ug/L	10	02/24/1993
2,4,6-Trichlorophenol	625	ND	ug/L	10	02/24/1993
SURROGATE RESULTS		--			02/24/1993
Nitrobenzene-d5	625	48	%		02/24/1993
2-Fluorobiphenyl	625	62	%		02/24/1993
p-Terphenyl-d14	625	109	%		02/24/1993
Phenol-d5	625	33	%		02/24/1993
2-Fluorophenol	625	40	%		02/24/1993
2,4,6-Tribromophenol	625	84	%		02/24/1993
Other Compounds Reported:					
2-Methyl Naphthalene		ND	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W3
Lab No. : 52626

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
pH	150.1	7.0	pH units		02/17/1993
Conductivity	120.1	4,020	umhos/cm	1.0	02/17/1993
Tot. Dissolved Solids (TFR)	160.1	2,280	mg/L	10	02/19/1993
Tot. Suspended Solids (NFR)	160.2	231	mg/L	4	02/19/1993
Alkalinity (as CaC03)					
Total		1,010	mg/L	10	02/23/1993
Bicarbonate		1,010	mg/L	10	02/23/1993
Carbonate		0	mg/L	10	02/23/1993
Hydroxide		0	mg/L	10	02/23/1993
0.45um Filtration		DONE			02/22/1993
ICP METALS					
Arsenic (GFAA,Dissolved)	7060	0.092	mg/L	0.005	03/01/1993
Cadmium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Chromium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Lead (GFAA,Dissolved)	7421	ND	mg/L	0.002	03/01/1993
Mercury (CVAA,Dissolved)	7470	ND	mg/L	0.0005	02/25/1993
Selenium (GFAA,Dissolved)	7740	ND	mg/L	0.01	03/01/1993
Zinc (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W3
Lab No. : 52626

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 601 (GC,Liquid)					
DATE ANALYZED		02-25-93			02/25/1993
Dilution Factor		10			02/25/1993
Bromodichloromethane	601	ND	ug/L	0.5	02/25/1993
Bromoform	601	ND	ug/L	1.0	02/25/1993
Bromomethane	601	ND	ug/L	1.0	02/25/1993
Carbon tetrachloride	601	ND	ug/L	0.5	02/25/1993
Chlorobenzene	601	15	ug/L	0.5	02/25/1993
Chloroethane	601	ND	ug/L	1.0	02/25/1993
2-Chloroethylvinyl ether	601	ND	ug/L	1.0	02/25/1993
Chloroform	601	140	ug/L	0.5	02/25/1993
Chloromethane	601	ND	ug/L	1.0	02/25/1993
Dibromochloromethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,3-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,4-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
Dichlorodifluoromethane	601	ND	ug/L	1.0	02/25/1993
1,1-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
trans-1,2-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloropropane	601	ND	ug/L	0.5	02/25/1993
cis-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
trans-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
Methylene chloride	601	ND	ug/L	1.0	02/25/1993
1,1,2,2-Tetrachloroethane	601	11	ug/L	0.5	02/25/1993
Tetrachloroethene	601	ND	ug/L	0.5	02/25/1993
1,1,1-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1,2-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
Trichloroethene	601	ND	ug/L	0.5	02/25/1993
Trichlorofluoromethane	601	24	ug/L	1.0	02/25/1993
Vinyl chloride	601	ND	ug/L	1.0	02/25/1993
Surrogate Spike		--			02/25/1993
2-Chlorotoluene	601	72	%		02/25/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W3
Lab No. : 52626

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 625(GCMS,Liquid)					
DATE EXTRACTED		02-22-93			02/24/1993
DATE ANALYZED		02-24-93			02/24/1993
Dilution Factor		1			02/24/1993
Acenaphthene	625	ND	ug/L	10	02/24/1993
Acenaphthylene	625	ND	ug/L	10	02/24/1993
Aldrin	625	ND	ug/L	50	02/24/1993
Anthracene	625	ND	ug/L	10	02/24/1993
Benzidine	625	ND	ug/L	50	02/24/1993
Benzo(a)anthracene	625	ND	ug/L	10	02/24/1993
Benzo(b)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(k)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(a)pyrene	625	ND	ug/L	10	02/24/1993
Benzo(g,h,i)perylene	625	ND	ug/L	10	02/24/1993
Butyl benzyl phthalate	625	ND	ug/L	10	02/24/1993
delta-BHC	625	ND	ug/L	50	02/24/1993
gamma-BHC	625	ND	ug/L	50	02/24/1993
bis(2-Chloroethyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Chloroethoxy)methane	625	ND	ug/L	10	02/24/1993
bis(2-Chloroisopropyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Ethylhexyl)phthalate	625	190	ug/L	10	02/24/1993
4-Bromophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
2-Chloronaphthalene	625	ND	ug/L	10	02/24/1993
4-Chlorophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
Chrysene	625	ND	ug/L	10	02/24/1993
4,4'-DDD	625	ND	ug/L	50	02/24/1993
4,4'-DDE	625	ND	ug/L	50	02/24/1993
4,4'-DDT	625	ND	ug/L	50	02/24/1993
Dibenzo(a,h)anthracene	625	ND	ug/L	10	02/24/1993
Di-n-butylphthalate	625	ND	ug/L	10	02/24/1993
1,2-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,3-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,4-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
3,3'-Dichlorobenzidine	625	ND	ug/L	20	02/24/1993
Dieldrin	625	ND	ug/L	50	02/24/1993
Diethylphthalate	625	ND	ug/L	10	02/24/1993
Dimethyl phthalate	625	ND	ug/L	10	02/24/1993
2,4-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
2,6-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
Di-n-octyl phthalate	625	ND	ug/L	10	02/24/1993
Endrin aldehyde	625	ND	ug/L	50	02/24/1993
Fluoranthene	625	ND	ug/L	10	02/24/1993
Fluorene	625	ND	ug/L	10	02/24/1993
Heptachlor	625	ND	ug/L	50	02/24/1993
Heptachlor epoxide	625	ND	ug/L	50	02/24/1993
Hexachlorobenzene	625	ND	ug/L	10	02/24/1993
Hexachlorobutadiene	625	ND	ug/L	10	02/24/1993
Hexachlorocyclopentadiene	625	ND	ug/L	25	02/24/1993
Hexachloroethane	625	ND	ug/L	10	02/24/1993
Indeno(1,2,3-cd)pyrene	625	ND	ug/L	10	02/24/1993
Isophorone	625	ND	ug/L	10	02/24/1993
Naphthalene	625	10	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W3
Lab No. : 52626

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Nitrobenzene	625	ND	ug/L	10	02/24/1993
N-Nitroso-Di-N-propylamine	625	ND	ug/L	10	02/24/1993
N-Nitrosodiphenylamine	625	ND	ug/L	10	02/24/1993
Phenanthrene	625	ND	ug/L	10	02/24/1993
Pyrene	625	ND	ug/L	10	02/24/1993
1,2,4-Trichlorobenzene	625	ND	ug/L	10	02/24/1993
ACID EXTRACTABLES		--			02/24/1993
4-Chloro-3-methylphenol	625	ND	ug/L	20	02/24/1993
2-Chlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dichlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dimethylphenol	625	ND	ug/L	10	02/24/1993
2,4-Dinitrophenol	625	ND	ug/L	50	02/24/1993
4,6-Dinitro-2-methylphenol	625	ND	ug/L	50	02/24/1993
2-Nitrophenol	625	ND	ug/L	10	02/24/1993
4-Nitrophenol	625	ND	ug/L	50	02/24/1993
Pentachlorophenol	625	ND	ug/L	50	02/24/1993
Phenol	625	ND	ug/L	10	02/24/1993
2,4,6-Trichlorophenol	625	ND	ug/L	10	02/24/1993
SURROGATE RESULTS		--			02/24/1993
Nitrobenzene-d5	625	55	%		02/24/1993
2-Fluorobiphenyl	625	73	%		02/24/1993
p-Terphenyl-d14	625	120	%		02/24/1993
Phenol-d5	625	43	%		02/24/1993
2-Fluorophenol	625	46	%		02/24/1993
2,4,6-Tribromophenol	625	104	%		02/24/1993

Other Compounds Reported:

2-Methyl Naphthalene	ND	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W4
Lab No. : 52627

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
pH	150.1	7.3	pH units		02/17/1993
Conductivity	120.1	2,830	umhos/cm	1.0	02/17/1993
Tot. Dissolved Solids (TFR)	160.1	1,550	mg/L	10	02/19/1993
Tot. Suspended Solids (NFR)	160.2	171	mg/L	4	02/19/1993
Alkalinity (as CaCO3)					
Total		750	mg/L	10	02/23/1993
Bicarbonate		750	mg/L	10	02/23/1993
Carbonate		0	mg/L	10	02/23/1993
Hydroxide		0	mg/L	10	02/23/1993
0.45um Filtration		DONE			02/22/1993
ICP METALS					
Arsenic (GFAA,Dissolved)	7060	0.084	mg/L	0.005	03/01/1993
Cadmium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Chromium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Lead (GFAA,Dissolved)	7421	ND	mg/L	0.002	03/01/1993
Mercury (CVAA,Dissolved)	7470	ND	mg/L	0.0005	02/25/1993
Selenium (GFAA,Dissolved)	7740	ND	mg/L	0.01	03/01/1993
Zinc (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W4
Lab No. : 52627

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 601 (GC,Liquid)					
DATE ANALYZED		02-26-93			02/25/1993
Dilution Factor		10			02/25/1993
Bromodichloromethane	601	ND	ug/L	0.5	02/25/1993
Bromoform	601	ND	ug/L	1.0	02/25/1993
Bromomethane	601	ND	ug/L	1.0	02/25/1993
Carbon tetrachloride	601	ND	ug/L	0.5	02/25/1993
Chlorobenzene	601	ND	ug/L	0.5	02/25/1993
Chloroethane	601	ND	ug/L	1.0	02/25/1993
2-Chloroethylvinyl ether	601	ND	ug/L	1.0	02/25/1993
Chloroform	601	75	ug/L	0.5	02/25/1993
Chloromethane	601	ND	ug/L	1.0	02/25/1993
Dibromochloromethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,3-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,4-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
Dichlorodifluoromethane	601	ND	ug/L	1.0	02/25/1993
1,1-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
trans-1,2-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloropropane	601	6.4	ug/L	0.5	02/25/1993
cis-1,3-Dichloropropene	601	9.4	ug/L	0.5	02/25/1993
trans-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
Methylene chloride	601	ND	ug/L	1.0	02/25/1993
1,1,2,2-Tetrachloroethane	601	16	ug/L	0.5	02/25/1993
Tetrachloroethene	601	ND	ug/L	0.5	02/25/1993
1,1,1-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1,2-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
Trichloroethene	601	ND	ug/L	0.5	02/25/1993
Trichlorofluoromethane	601	15	ug/L	1.0	02/25/1993
Vinyl chloride	601	ND	ug/L	1.0	02/25/1993
Surrogate Spike		--			02/25/1993
2-Chlorotoluene	601	93	%		02/25/1993

ND - Not Detected at the Reporting Limit

NET®

Clie[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W4
Lab No. : 52627

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 625(GCMS,Liquid)					
DATE EXTRACTED		02-22-93			02/24/1993
DATE ANALYZED		02-24-93			02/24/1993
Dilution Factor		1			02/24/1993
Acenaphthene	625	ND	ug/L	10	02/24/1993
Acenaphthylene	625	ND	ug/L	10	02/24/1993
Aldrin	625	ND	ug/L	50	02/24/1993
Anthracene	625	ND	ug/L	10	02/24/1993
Benzidine	625	ND	ug/L	50	02/24/1993
Benzo(a)anthracene	625	ND	ug/L	10	02/24/1993
Benzo(b)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(k)fluoranthene	625	ND	ug/L	10	02/24/1993
Benzo(a)pyrene	625	ND	ug/L	10	02/24/1993
Benzo(g,h,i)perylene	625	ND	ug/L	10	02/24/1993
Butyl benzyl phthalate	625	ND	ug/L	10	02/24/1993
delta-BHC	625	ND	ug/L	50	02/24/1993
gamma-BHC	625	ND	ug/L	50	02/24/1993
bis(2-Chloroethyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Chloroethoxy)methane	625	ND	ug/L	10	02/24/1993
bis(2-Chloroisopropyl)ether	625	ND	ug/L	10	02/24/1993
bis(2-Ethylhexyl)phthalate	625	190	ug/L	10	02/24/1993
4-Bromophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
2-Chloronaphthalene	625	ND	ug/L	10	02/24/1993
4-Chlorophenyl phenyl ether	625	ND	ug/L	10	02/24/1993
Chrysene	625	ND	ug/L	10	02/24/1993
4,4'-DDD	625	ND	ug/L	50	02/24/1993
4,4'-DDE	625	ND	ug/L	50	02/24/1993
4,4'-DDT	625	ND	ug/L	50	02/24/1993
Dibenzo(a,h)anthracene	625	ND	ug/L	10	02/24/1993
Di-n-butylphthalate	625	ND	ug/L	10	02/24/1993
1,2-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,3-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
1,4-Dichlorobenzene	625	ND	ug/L	10	02/24/1993
3,3'-Dichlorobenzidine	625	ND	ug/L	20	02/24/1993
Dieldrin	625	ND	ug/L	50	02/24/1993
Diethylphthalate	625	ND	ug/L	10	02/24/1993
Dimethyl phthalate	625	ND	ug/L	10	02/24/1993
2,4-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
2,6-Dinitrotoluene	625	ND	ug/L	10	02/24/1993
Di-n-octyl phthalate	625	ND	ug/L	10	02/24/1993
Endrin aldehyde	625	ND	ug/L	50	02/24/1993
Fluoranthene	625	ND	ug/L	10	02/24/1993
Fluorene	625	ND	ug/L	10	02/24/1993
Heptachlor	625	ND	ug/L	50	02/24/1993
Heptachlor epoxide	625	ND	ug/L	50	02/24/1993
Hexachlorobenzene	625	ND	ug/L	10	02/24/1993
Hexachlorobutadiene	625	ND	ug/L	10	02/24/1993
Hexachlorocyclopentadiene	625	ND	ug/L	25	02/24/1993
Hexachloroethane	625	ND	ug/L	10	02/24/1993
Indeno(1,2,3-cd)pyrene	625	ND	ug/L	10	02/24/1993
Isophorone	625	ND	ug/L	10	02/24/1993
Naphthalene	625	ND	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Client Name: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W4
Lab No. : 52627

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Nitrobenzene	625	ND	ug/L	10	02/24/1993
N-Nitroso-Di-N-propylamine	625	ND	ug/L	10	02/24/1993
N-Nitrosodiphenylamine	625	ND	ug/L	10	02/24/1993
Phenanthrene	625	ND	ug/L	10	02/24/1993
Pyrene	625	ND	ug/L	10	02/24/1993
1,2,4-Trichlorobenzene	625	ND	ug/L	10	02/24/1993
ACID EXTRACTABLES		--			02/24/1993
4-Chloro-3-methylphenol	625	ND	ug/L	20	02/24/1993
2-Chlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dichlorophenol	625	ND	ug/L	10	02/24/1993
2,4-Dimethylphenol	625	ND	ug/L	10	02/24/1993
2,4-Dinitrophenol	625	ND	ug/L	50	02/24/1993
4,6-Dinitro-2-methylphenol	625	ND	ug/L	50	02/24/1993
2-Nitrophenol	625	ND	ug/L	10	02/24/1993
4-Nitrophenol	625	ND	ug/L	50	02/24/1993
Pentachlorophenol	625	ND	ug/L	50	02/24/1993
Phenol	625	ND	ug/L	10	02/24/1993
2,4,6-Trichlorophenol	625	ND	ug/L	10	02/24/1993
SURROGATE RESULTS		--			02/24/1993
Nitrobenzene-d5	625	56	%		02/24/1993
2-Fluorobiphenyl	625	77	%		02/24/1993
p-Terphenyl-d14	625	138	%		02/24/1993
Phenol-d5	625	42	%		02/24/1993
2-Fluorophenol	625	50	%		02/24/1993
2,4,6-Tribromophenol	625	101	%		02/24/1993
Other Compounds Reported:					
2-Methyl Naphthalene		33	ug/L	10	02/24/1993

ND - Not Detected at the Reporting Limit

NET®

Client[illegible]me: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W5
Lab No. : 52628

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
pH	150.1	7.4	pH units		02/17/1993
Conductivity	120.1	3,260	umhos/cm	1.0	02/17/1993
Tot. Dissolved Solids (TFR)	160.1	1,830	mg/L	10	02/19/1993
Tot. Suspended Solids (NFR)	160.2	174	mg/L	4	02/19/1993
Alkalinity (as CaCO3)					
Total		940	mg/L	10	02/23/1993
Bicarbonate		940	mg/L	10	02/23/1993
Carbonate		0	mg/L	10	02/23/1993
Hydroxide		0	mg/L	10	02/23/1993
0.45um Filtration		DONE			02/22/1993
ICP METALS					
Arsenic (GFAA,Dissolved)	7060	0.47	mg/L	0.005	03/01/1993
Cadmium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Chromium (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Lead (GFAA,Dissolved)	7421	ND	mg/L	0.002	03/01/1993
Mercury (CVAA,Dissolved)	7470	ND	mg/L	0.0005	02/25/1993
Selenium (GFAA,Dissolved)	7740	ND	mg/L	0.01	03/01/1993
Zinc (ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993

ND - Not Detected at the Reporting Limit

Client Name: USPCI
Date Taken: 02/18/1993
Sample ID : OKUS-W5
Lab No. : 52628

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 601 (GC,Liquid)					
DATE ANALYZED		02-25-93			02/25/1993
Dilution Factor		1			02/25/1993
Bromodichloromethane	601	ND	ug/L	0.5	02/25/1993
Bromoform	601	5.9	ug/L	1.0	02/25/1993
Bromomethane	601	ND	ug/L	1.0	02/25/1993
Carbon tetrachloride	601	ND	ug/L	0.5	02/25/1993
Chlorobenzene	601	ND	ug/L	0.5	02/25/1993
Chloroethane	601	ND	ug/L	1.0	02/25/1993
2-Chloroethylvinyl ether	601	ND	ug/L	1.0	02/25/1993
Chloroform	601	5.9	ug/L	0.5	02/25/1993
Chloromethane	601	ND	ug/L	1.0	02/25/1993
Dibromochloromethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,3-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,4-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
Dichlorodifluoromethane	601	ND	ug/L	1.0	02/25/1993
1,1-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
trans-1,2-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloropropane	601	ND	ug/L	0.5	02/25/1993
cis-1,3-Dichloropropene	601	0.7	ug/L	0.5	02/25/1993
trans-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
Methylene chloride	601	ND	ug/L	1.0	02/25/1993
1,1,2,2-Tetrachloroethane	601	4.2	ug/L	0.5	02/25/1993
Tetrachloroethene	601	ND	ug/L	0.5	02/25/1993
1,1,1-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1,2-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
Trichloroethene	601	ND	ug/L	0.5	02/25/1993
Trichlorofluoromethane	601	13	ug/L	1.0	02/25/1993
Vinyl chloride	601	ND	ug/L	1.0	02/25/1993
Surrogate Spike		--			02/25/1993
2-Chlorotoluene	601	73	%		02/25/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W5
Lab No. : 52628

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 625(GCMS,Liquid)					
DATE EXTRACTED		02-22-93			02/25/1993
DATE ANALYZED		02-25-93			02/25/1993
Dilution Factor		1			02/25/1993
Acenaphthene	625	ND	ug/L	10	02/25/1993
Acenaphthylene	625	ND	ug/L	10	02/25/1993
Aldrin	625	ND	ug/L	50	02/25/1993
Anthracene	625	ND	ug/L	10	02/25/1993
Benzidine	625	ND	ug/L	50	02/25/1993
Benzo(a)anthracene	625	ND	ug/L	10	02/25/1993
Benzo(b)fluoranthene	625	ND	ug/L	10	02/25/1993
Benzo(k)fluoranthene	625	ND	ug/L	10	02/25/1993
Benzo(a)pyrene	625	ND	ug/L	10	02/25/1993
Benzo(g,h,i)perylene	625	ND	ug/L	10	02/25/1993
Butyl benzyl phthalate	625	ND	ug/L	10	02/25/1993
delta-BHC	625	ND	ug/L	50	02/25/1993
gamma-BHC	625	ND	ug/L	50	02/25/1993
bis(2-Chloroethyl)ether	625	ND	ug/L	10	02/25/1993
bis(2-Chloroethoxy)methane	625	ND	ug/L	10	02/25/1993
bis(2-Chloroisopropyl)ether	625	ND	ug/L	10	02/25/1993
bis(2-Ethylhexyl)phthalate	625	150	ug/L	10	02/25/1993
4-Bromophenyl phenyl ether	625	ND	ug/L	10	02/25/1993
2-Chloronaphthalene	625	ND	ug/L	10	02/25/1993
4-Chlorophenyl phenyl ether	625	ND	ug/L	10	02/25/1993
Chrysene	625	ND	ug/L	10	02/25/1993
4,4'-DDD	625	ND	ug/L	50	02/25/1993
4,4'-DDE	625	ND	ug/L	50	02/25/1993
4,4'-DDT	625	ND	ug/L	50	02/25/1993
Dibenzo(a,h)anthracene	625	ND	ug/L	10	02/25/1993
Di-n-butylphthalate	625	ND	ug/L	10	02/25/1993
1,2-Dichlorobenzene	625	ND	ug/L	10	02/25/1993
1,3-Dichlorobenzene	625	ND	ug/L	10	02/25/1993
1,4-Dichlorobenzene	625	ND	ug/L	10	02/25/1993
3,3'-Dichlorobenzidine	625	ND	ug/L	20	02/25/1993
Dieldrin	625	ND	ug/L	50	02/25/1993
Diethylphthalate	625	ND	ug/L	10	02/25/1993
Dimethyl phthalate	625	ND	ug/L	10	02/25/1993
2,4-Dinitrotoluene	625	ND	ug/L	10	02/25/1993
2,6-Dinitrotoluene	625	ND	ug/L	10	02/25/1993
Di-n-octyl phthalate	625	ND	ug/L	10	02/25/1993
Endrin aldehyde	625	ND	ug/L	50	02/25/1993
Fluoranthene	625	ND	ug/L	10	02/25/1993
Fluorene	625	ND	ug/L	10	02/25/1993
Heptachlor	625	ND	ug/L	50	02/25/1993
Heptachlor epoxide	625	ND	ug/L	50	02/25/1993
Hexachlorobenzene	625	ND	ug/L	10	02/25/1993
Hexachlorobutadiene	625	ND	ug/L	10	02/25/1993
Hexachlorocyclopentadiene	625	ND	ug/L	25	02/25/1993
Hexachloroethane	625	ND	ug/L	10	02/25/1993
Indeno(1,2,3-cd)pyrene	625	ND	ug/L	10	02/25/1993
Isophorone	625	ND	ug/L	10	02/25/1993
Naphthalene	625	ND	ug/L	10	02/25/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : OKUS-W5
Lab No. : 52628

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
Nitrobenzene	625	ND	ug/L	10	02/25/1993
N-Nitroso-Di-N-propylamine	625	ND	ug/L	10	02/25/1993
N-Nitrosodiphenylamine	625	ND	ug/L	10	02/25/1993
Phenanthrene	625	ND	ug/L	10	02/25/1993
Pyrene	625	ND	ug/L	10	02/25/1993
1,2,4-Trichlorobenzene	625	ND	ug/L	10	02/25/1993
ACID EXTRACTABLES		--			02/25/1993
4-Chloro-3-methylphenol	625	ND	ug/L	20	02/25/1993
2-Chlorophenol	625	ND	ug/L	10	02/25/1993
2,4-Dichlorophenol	625	ND	ug/L	10	02/25/1993
2,4-Dimethylphenol	625	ND	ug/L	10	02/25/1993
2,4-Dinitrophenol	625	ND	ug/L	50	02/25/1993
4,6-Dinitro-2-methylphenol	625	ND	ug/L	50	02/25/1993
2-Nitrophenol	625	ND	ug/L	10	02/25/1993
4-Nitrophenol	625	ND	ug/L	50	02/25/1993
Pentachlorophenol	625	ND	ug/L	50	02/25/1993
Phenol	625	ND	ug/L	10	02/25/1993
2,4,6-Trichlorophenol	625	ND	ug/L	10	02/25/1993
SURROGATE RESULTS		--			02/25/1993
Nitrobenzene-d5	625	43	%		02/25/1993
2-Fluorobiphenyl	625	64	%		02/25/1993
p-Terphenyl-d14	625	64	%		02/25/1993
Phenol-d5	625	44	%		02/25/1993
2-Fluorophenol	625	44	%		02/25/1993
2,4,6-Tribromophenol	625	97	%		02/25/1993

Other Compounds Reported:

2-Methyl Naphthalene		ND	ug/L	10	02/25/1993

ND - Not Detected at the Reporting Limit

Clien[illegible]ame: USPCI

Date Taken: 02/18/1993
Sample ID : Purge Water Drums
Lab No. : 52629

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: GROUND WATER

ANALYTES/METHOD		METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
0.45um Filtration			DONE			02/22/1993
ICP METALS						
Cadmium	(ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Chromium	(ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993
Lead	(GFAA,Dissolved)	7421	0.002	mg/L	0.002	03/01/1993
Zinc	(ICP, Dissolved)	6010	ND	mg/L	0.01	02/25/1993

ND - Not Detected at the Reporting Limit

NET®

Clien[illegible]ame: USPCI

Date Taken:
Sample ID : Trip Blank
Lab No. : 52630

Date Reported: 03/02/1993
NET Job No.: 93.00195

Sample Matrix: MISC. LIQUID

ANALYTES/METHOD	METHOD	RESULTS	UNITS	REPORTING LIMIT	DATE ANALYZED
METHOD 601 (GC,Liquid)					
DATE ANALYZED		02-25-93			02/25/1993
Dilution Factor		1			02/25/1993
Bromodichloromethane	601	ND	ug/L	0.5	02/25/1993
Bromoform	601	ND	ug/L	1.0	02/25/1993
Bromomethane	601	ND	ug/L	1.0	02/25/1993
Carbon tetrachloride	601	ND	ug/L	0.5	02/25/1993
Chlorobenzene	601	ND	ug/L	0.5	02/25/1993
Chloroethane	601	ND	ug/L	1.0	02/25/1993
2-Chloroethylvinyl ether	601	ND	ug/L	1.0	02/25/1993
Chloroform	601	ND	ug/L	0.5	02/25/1993
Chloromethane	601	ND	ug/L	1.0	02/25/1993
Dibromochloromethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,3-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
1,4-Dichlorobenzene	601	ND	ug/L	0.5	02/25/1993
Dichlorodifluoromethane	601	ND	ug/L	1.0	02/25/1993
1,1-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
trans-1,2-Dichloroethene	601	ND	ug/L	0.5	02/25/1993
1,2-Dichloropropane	601	ND	ug/L	0.5	02/25/1993
cis-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
trans-1,3-Dichloropropene	601	ND	ug/L	0.5	02/25/1993
Methylene chloride	601	ND	ug/L	1.0	02/25/1993
1,1,2,2-Tetrachloroethane	601	ND	ug/L	0.5	02/25/1993
Tetrachloroethene	601	ND	ug/L	0.5	02/25/1993
1,1,1-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
1,1,2-Trichloroethane	601	ND	ug/L	0.5	02/25/1993
Trichloroethene	601	ND	ug/L	0.5	02/25/1993
Trichlorofluoromethane	601	ND	ug/L	1.0	02/25/1993
Vinyl chloride	601	ND	ug/L	1.0	02/25/1993
Surrogate Spike		--			02/25/1993
2-Chlorotoluene	601	70	%		02/25/1993

ND - Not Detected at the Reporting Limit

NET
NATIONAL
ENVIRONMENTAL
TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

Client: USPCI
Address (line 1): 24125 Aldine Westfield
Address (line 2): Spring, TX, 77373
Contact: Chris Byerman

Project: UPRR Oakland
P.O. #: 96120-844
Phone #: (713) 350-7240
Fax #:

Additional Reports to:
Attn:
Fax #:

Send Invoice to: Same
Attn:
Phone #:

LAB USE ONLY
Job #: 93.00195
Report Format:
Storage Location:

Method of shipment:
NET Courier ☐
Fed. Ex. ☑
UPS ☐
Other ☐
Hand Deliver ☐
Airbill #: 6466762606

Sample Identification	Matrix: Soil	Matrix: Water	Matrix: Other	Container #/Type	1) HNO₃ 2) H₂SO₄ 3) Na OH 4) Other (Specify)	Grab	Composite	Sampling Information: Date	Sampling Information: Time	EPA METHOD 625	Total/Dissolved metals	TDS, TSS, ALK, EC, PH	EPA Method 601									Remarks
OKUS-W1		✓		1/Glass	NA	✓		2-18-93	10:59a.m	✓												
"		✓		1/Poly	NA	✓		2-18-93	10:59a.m		✓											Filter and preserve in lab
"		✓		1/Poly	NA	✓		2-18-92	10:59a.m			✓										
"		✓		2/VOA	NA	✓		2-18-93	10:59a.m				✓									
OKUS-W2		✓		1/Glass	NA	✓		2-18-93	10:34a.m	✓												
"		✓		1/Poly	NA	✓		2-18-93	10:34a.m		✓											Filter and preserve in lab
"		✓		1/Poly	NA	✓		2-18-93	10:34a.m			✓										
"		✓		2/VOA	NA	✓		2-18-93	10:34a.m				✓									
OKUS-W3		✓		1/Glass	NA	✓		2-18-93	10:10a.m	✓												
"		✓		1/Poly	NA	✓		2-18-93	10:10a.m		✓											Filter and preserve in lab

Comments: Could not filter metal samples in field. Acid was removed from container prior to sampling.

Special QA/QC:

Special Detection Limits:

Subcontracting allowed:
Yes ☐ no ☑ with approval ☐

Turnaround time
Fax ☑ Verbal ☐ Final ☑

Priority Rush
1 Business Day ☐
Date/Time

Rush
2 Business Days ☐
Date/Time

5 Business Days ☑
Date/Time 3-1-93

10 Business Days ☑
Date/Time

Condition of sample: Bottles intact? [✓ yes] / no   COC seals present and intact? NA yes / no   Temperatures upon receipt: Chilled 13°C   Volatiles free of headspace? [✓ yes] / no

Sampled by: (print name) Ara Mardirosian	Date: 2-18-93	Time:	Received by:	Date:	Time:
Relinquished by:	Date: 2-18-93	Time: 4:00p.m	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory: Allen Brown	Date: 2/19	Time: 10:20

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

Page 1 of 3   COC #: 1872

NET NATIONAL ENVIRONMENTAL TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

Client: USPCI
Address (line 1): 24125 Aldine WestField
Address (line 2): Spring, TX. 77373
Contact: Chris Byerman

Project: UPRR Oakland
PO #: 96120-844
Phone #: (713) 350-7240
Fax #:

Additional Reports to:
Attn:
Fax #:

Send Invoice to: Same
Attn:
Phone #:

LAB USE ONLY
Job #:
Report Format:
Storage Location:

Sample Identification	Matrix			Container				Sampling Information		Analyses Requested												Remarks
	Soil	Water	Other	#/Type	1) HNO_3 2) H_2SO_4 3) Na OH 4) Other (Specify)	Grab	Composite	Date	Time	EPA method 625	Total Dissolved Metals	TDS, TSS, Alk, EC, pH	EPA METHOD 601									
OKUS-W3		✓		1/Poly	NA	✓		2-18-93	10:10a.m			✓										
"		✓		2/VOA	NA	✓		2-18-93	10:10a.m				✓									
OKUS-W4		✓		1/Glass	NA	✓		2-18-93	9:40a.m	✓												
"		✓		1/Poly	NA	✓		2-18-93	9:40a.m		✓											Filter and preserve in lab
"		✓		1/Poly	NA	✓		2-18-93	9:40a.m			✓										
"		✓		2/VOA	NA	✓		2-18-93	9:40a.m				✓									
OKUS-W5		✓		1/Glass	NA	✓		2-18-93	9:00a.m	✓												
"		✓		1/Poly	NA	✓		2-18-93	9:00a.m		✓											Filter and preserve in lab
"		✓		1/Poly	NA	✓		2-18-93	9:00a.m			✓										
"		✓		2/VOA	NA	✓		2-18-93	9:00a.m				✓									

Method of shipment:
NET Courier ☐
Fed. Ex. ☑
UPS ☐
Other ☐
Hand Deliver ☐

Airbill #: 6466762606

Comments: Could not Filter metal samples in Field. Acid was removed From container prior to sampling

Special QA/QC:

Special Detection Limits:

Subcontracting allowed: Yes ☐ no ☑ with approval ☐

Turnaround time
Fax ☑ Verbal ☐ Final ☑

Priority Rush
1 Business Day ☐ Date/Time

Rush
2 Business Days ☐ Date/Time
5 Business Days ☑ Date/Time 3-1-93
10 Business Days ☐ Date/Time

Condition of sample: Bottles Intact? [✓ yes] / no COC seals present and intact? NA yes / no Temperatures upon receipt: 13°C Volatiles free of headspace? [✓ yes] / no

Sampled by: (print name) Ara Mardirosian	Date: 2-18-93	Time:	Received by:	Date:	Time:
Relinquished by:	Date: 2-18-93	Time: 4:00pm	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory: Helen Brown	Date: 2/19	Time: 10:30

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

Page 2 of 3 COC #: 1873

NET NATIONAL ENVIRONMENTAL TESTING, INC.

700 S. Flower St.
Burbank, CA 91502
213-849-6595 • Fax 818-567-6477

Chain of Custody / Request for Analysis

Client: USPCI
Address (line 1): 24125 Aldine Westfield
Address (line 2): Spring, TX. 77373
Contact: Chris Byerman

Project: UPRR Oakland
P.O. #: 96120-844
Phone #: (713) 350-7240
Fax #:

Additional Reports to:
Attn:
Fax #:

Send Invoice to: Same
Attn:
Phone #:

LAB USE ONLY
Job #:
Report Format:
Storage Location:

Method of shipment:
NET Courier ☐
Fed. Ex. ☑
UPS ☐
Other ☐
Hand Deliver ☐

Airbill #: 6466762606
Remarks: Filter and preserve in lab

Trip blanks
Received but
not indicated
on COC. HB 2/19

Sample Identification	Matrix			Container				Sampling Information		Analyses Requested											
	Soil	Water	Other	#/Type	1) HNO_3 2) H_2SO_4 3) Na OH 4) Other (Specify)	Grab	Composite	Date	Time	Total/Dissolved metals, Cad, chrome,	Lead, Zinc	601									
Purge Water Drums		✓		2/glass	NA	✓		2-18-93	11:21a.m	✓											
Trip blank		✓		2x40ml								✓									

Comments: Could ~~not~~ Filter metal samples in Field

Special QA/QC:

Special Detection Limits:

Subcontracting allowed:
Yes☐ no☑ with approval☐

Turnaround time
Fax☑ Verbal☐ Final☑

Priority Rush
1 Business Day ☐
Date/Time

Rush
2 Business Days ☐
Date/Time
5 Business Days ☑
Date/Time 3-1-93
10 Business Days ☐
Date/Time

Condition of sample: Bottles Intact? [✓ yes] / no COC seals present and intact? yes / no NA Temperatures upon receipt: 13°C Volatiles free of headspace? yes / no NA

Sampled by: (print name) Ara Mardirosian	Date: 2-18-93	Time:	Received by:	Date:	Time:
Relinquished by:	Date: 2-18-93	Time: 4:00pm	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by laboratory: Helen Brown	Date: 2/19/93	Time: 10:30

Distribution: White-Laboratory; Canary-Invoicing; Pink-Client

Page 3 of 3 COC #: 1874

WASTE MANIFEST AND DISPOSAL INFORMATION

FROM THE 1990 UST REMOVALS

State of California—Health and Welfare Agency PROJECT SUP. J E NICHOLSON
Form Approved OMB No. 2050—0039 (Expires 9-30-91) PROJ #94608
Please print or type. *(Form designed for use on el pitch typewriter).*

Department of Health Service
Toxic Substances Control Divisic
Sacramento, Californ

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: C A L 0 0 0 0 2 9 5 0 0
Manifest Document No.: 6 9 6 0 6
2. Page 1 of 2
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68179

4. Generator's Phone (402) 271-4054

A. State Manifest Document Number: 89869606
B. State Generator's ID: C A L 0 0 0 0 2 9 5 0 0

5. Transporter 1 Company Name: U S Pollution Control, Inc.
6. US EPA ID Number: U T D 9 8 0 6 3 5 8 9 0
C. State Transporter's ID: 001716
D. Transporter's Phone ~~(405)~~ (801)252-200

7. Transporter 2 Company Name: Southern Pacific Railroad
8. US EPA ID Number: C A D 0 0 6 9 1 3 2 0 6
E. State Transporter's ID: 001716
F. Transporter's Phone (415) 534-1495

9. Designated Facility Name and Site Address
USPCI Grassy Mtn. Facility
3 miles east 7 miles north of Knolls exit 41 off I-80
Clive, UT

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8
G. State Facility's ID:
H. Facility's Phone (801) 534-0054

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. California Regulated Waste Only (fiberglass fuel tanks, soil & fuel island debris)	0 0 1	C M	0 0 0 2 1	Y	State 611 EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d. Cont. #6031 / L/T 58395					State EPA/Other

J. Additional Descriptions for Materials Listed Above
A. GM# 89-1972-89

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: JOHN L CARLSON
Signature: John L. Carlson
Month Day Year: 3 5 9

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Jim Brooks
Signature: Jim Brooks
Month Day Year: 03 05 9

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Month Day Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name:
Signature:
Month Day Year:

GENERATOR
TRANSPORTER
FACILITY

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

89869606

DHS 8022 A (1/88)
EPA 8700—22
(Rev. 9-88) Previous editions are obsolete.

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAY

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No. CAL000029500

Manifest Document No. 696

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

23. Generator's Name
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68179
(402) 271-4054

L. State Manifest Document Number 99869606

M. State Generator's ID CAL000029500

24. Transporter ______ Company Name
U S Pollution Control;Inc.

25. US EPA ID Number UTD98053589O

N. State Transporter's ID 001716

O. Transporter's Phone (801) 252-2000

26. Transporter ______ Company Name

27. US EPA ID Number

P. State Transporter's ID

Q. Transporter's Phone

28. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	HM		29. Containers No	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i							

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

3RD transporter must sign

GENERATOR

TRANSPORTER

33. Transporter ______ Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date
Month Day Yea

34. Transporter ______ Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date
Month Day Yea

FACILITY

35. Discrepancy Indication Space

COPY

U.S. POLLUTION CONTROL, INC.

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2786

PERMIT NUMBERS
OCC: MC-27491 & DS[illegible] 167
OSDH: SD 47002, 2[illegible] 2004
EPA ID: OKT 41001[illegible]4
OKT 410010466
ICC: MC 153414

No. 58396

LOAD TICKET

DATE: 3-5-90

DISPOSAL PLAN NO.:

CUSTOMER: Union Pacific RailRoad

SHIP FROM
ADDRESS: 1750 FERRO St.
CITY AND STATE: OAKLAND, CA.
ZIP CODE: 94706

BILL TO
☐ Same As Above
ADDRESS: 731-M N. Market St.
CITY AND STATE: SACRAMENTO, CA.
ZIP CODE: 95834
ATTENTION: Special Services 9/2

MANIFEST NO.: 89869607
DISPOSAL SITE: GRASSY MTN. U.T.
UNIT NO.: 180-714
USPCI DRIVER: Jim Brooks

AMOUNT: 21 ☒ Yd³ ☑ Gals. ☐ Bbls. ☐ Lbs.
TIME-START: 2:00
FINISH: 2:30
TOTAL TIME: 1/2 Hrs.
DEMURRAGE TIME: 0 Hrs.

DESCRIPTION
Waste Code No. California Regulated Waste only
Waste Code No. Fiberglass Fuel Tanks, Soil Fuel Island debris

Cont.# To Go By Rail
CM.# 89-1972-89
Job # 9460B

OFFICE USE ONLY
CUSTOMER NO.:
P.O. NO.:
CHARGES:
DISBURSEMENT:

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By Erik J.
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER — NOT AN INVOICE

PROJECT SUPER

State of California—Health and Welfare Agency
Form Approved OMB No. 2050—0039 (Expires 9-30-91) Proj # 94608
Please print or type. (Form designed for use on elite (h typewriter).

Department of Health Services
Toxic Substances Control Division
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. enerator's US EPA ID No. C A L 0 0 0 0 0 2 95 0 0 | Manifest Document No. 69 | 6 0 7 | Page 1 of 2 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68719

4. Generator's Phone (402) 271-4054

A. State Manifest Document Number 89869607

B. State Generator's ID C A L 0 0 0 0 0 2 9 5 0 0 1

5. Transporter 1 Company Name U S Pollution Control, Inc.

6. US EPA ID Number U T D 9 8 0 6 3 5 8 9 0

C. State Transporter's ID 000839

D. Transporter's Phone (801) 252-2000

7. Transporter 2 Company Name Southern Pacific Railroad

8. US EPA ID Number C A D 0 0 6 9 1 3 2 06

E. State Transporter's ID 000839

F. Transporter's Phone (415) 534-1495

9. Designated Facility Name and Site Address
USPCI Grassy Mtn. Facility
3 miles east 7 miles north of Knolls exit 41 off I-80
Clive, UT.

10. US EPA ID Number U T D 9 9 1 3 0 1 7 48

G. State Facility's ID

H. Facility's Phone (801) 535-0054

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. California Regulated Waste Only (fiberglass fuel tank,soil&fuel island debris)	0 0 1	C M	0 0 0 2 1	Y	State 611 EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d. Cont.# 6067 / 4/ 58396					State EPA/Other

J. Additional Descriptions for Materials Listed Above
A. GM-89-1972-89

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name John L Carlson | Signature John J Carlson | Month Day Year 3 5 90

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Jim Brooks | Signature Jim Brooks | Month Day Year 030590

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name | Signature | Month Day Year

GENERATOR
TRANSPORTER
FACILITY

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

DHS 8022 A (1/88)
EPA 8700—22
(Rev. 9-88) Previous editions are obsolete.

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No. C A L 0. 0. 0. 0. 2. 9. 5. 0. 0

Manifest Document No. 6 9. 6. 0. 7

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

L. State Manifest Document Number 89869607

M. State Generator's ID CAL000029500

N. State Transporter's ID 000839

O. Transporter's Phone (801) 252-2000

P. State Transporter's ID

Q. Transporter's Phone

23. Generator's Name
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68719
(402) 271-4054

24. Transporter 3 Company Name U S Pollution Control, Inc.

25. US EPA ID Number U. T. D. 9. 8. 0. 6. 3. 5. 8. 9. 0

26. Transporter ______ Company Name

27. US EPA ID Number

28. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	HM		29. Containers No	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

3RD transporter must sign

GENERATOR

33. Transporter ______ Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date Month Day Year

34. Transporter ______ Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date Month Day Year

TRANSPORTER

FAC

35. Discrepancy Indication Space

**U.S.
POLLUTION
CONTROL, INC.**

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2786

PERMIT NUMBERS
OCC: MC-27491 & DSD-167
OSDH: SD 47002, 2-[illegible]04
EPA ID: OKT 410010
OKT 41001040[illegible]
ICC: MC 153414

No. 58395

AD TICKET

DATE 3-5-90

DISPOSAL PLAN NO.

CUSTOMER Union Pacific RailRoad

SHIP FROM
ADDRESS ~~1416 Dodge~~ 1750 FeRRo St.
ZIP CODE
CITY AND STATE OAKland, CA.

BILL TO
ADDRESS 1416 Dodge St.
ZIP CODE
CITY AND STATE Omaha Ne 68179

☐ Same As Above
ATTENTION Special Services c/o 731-M N. Market Sacramento, CA. 95834

MANIFEST NO. 89869606
DISPOSAL SITE GRASSY MTN. UT
UNIT NO. 180-714
USPCI DRIVER Jim Brooks

AMOUNT 21 ☒ Yd³ ☐ Gals ☐ Bbls ☐ Lbs
TIME-START 1:30
FINISH 2:00
TOTAL TIME 1/2 Hrs.
DEMURRAGE TIME 0 Hrs.

DESCRIPTION
Waste Code No. California Regulated Waste Only
Waste Code No. Fiberglass Fuel Tanks, Soil Fuel Island debris

Cont.# 6031 To Go By Rail
GM.# 89-1972-89 Job # 94608

OFFICE USE ONLY
CUSTOMER NO.
P.O. NO.
CHARGES
DISBURSEMENT

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By Erik J.
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER — NOT AN INVOICE

State of California—Health and Welfare Agency
Form Approved OMB No. 2050—0039 (Expires 9-30-

PROJECT SUP. JOE NACHMAN
PROJ #94608

Department of Health Services
Toxic Substances Control Division
Sacramento, California

Please print or type. (Form designed for use on elite (12-pitch typewriter).

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: C A L 0 0 0 0 2 9 5 0 0
Manifest Document No.: 6 9 6 0 6
2. Page 1 of 2
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68179

4. Generator's Phone (402 271-4054

A. State Manifest Document Number: 89869606
B. State Generator's ID: C A L 0 0 0 0 2 9 5 0 0

5. Transporter 1 Company Name: U S Pollution Control, Inc.
6. US EPA ID Number: U T D 9 8 0 6 3 5 8 9 0
C. State Transporter's ID: 001716
D. Transporter's Phone ~~(405)~~ (801) 252-200

7. Transporter 2 Company Name: Southern Pacific Railroad
8. US EPA ID Number: C A D 0 0 6 9 1 1 3 2 0 1 6
E. State Transporter's ID: 001716
F. Transporter's Phone (415) 534-1495

9. Designated Facility Name and Site Address
USPCI Grassy Mtn. Facility
3 miles east 7 miles north of Knolls exit 41 off I-80
Clive, UT

10. US EPA ID Number: U T D 9 9 1 3 0 1 7 4 8
G. State Facility's ID
H. Facility's Phone (801) 534-0054

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. California Regulated Waste Only (fiberglass fuel tanks, soil ~~&~~ + fuel island debris)	0 0 1	C M	0 0 0 2 1	Y	State 611 EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d. Cont. #6031 / L/T 58395					State EPA/Other

J. Additional Descriptions for Materials Listed Above
A. GM# 89-1972-89

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: JOHN L CARLSON
Signature: John L Carlson
Month Day Year: 3 5 9

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Jim Brooks
Signature: Jim Brooks
Month Day Year: 03 05 9

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Month Day Year:

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name:
Signature:
Month Day Year:

GENERATOR
TRANSPORTER
FACILITY

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

89869606

DHS 8022 A (1/88)
EPA 8700—22
(Rev. 9-88) Previous editions are obsolete.

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAY
To: P.O. Box 400, Sacramento, CA 95812-0400

UNIFORM HAZARDOUS WASTE MANIFEST

(Continuation Sheet)

21. Generator's US EPA ID No. AL000029500 | Manifest Document No. 6966

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

L. State Manifest Document Number 89869606

M. State Generator's ID CAL000029500

N. State Transporter's ID 001716

O. Transporter's Phone (801) 252-2000

P. State Transporter's ID

Q. Transporter's Phone

23. Generator's Name
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68179
(402) 271-4054

24. Transporter ______ Company Name U S Pollution Control;Inc.

25. US EPA ID Number UTD98063589

26. Transporter ______ Company Name

27. US EPA ID Number

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM		29. Containers No	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i							

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

3RD transporter must sign

GENERATOR

33. Transporter ______ Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date Month Day Year

34. Transporter ______ Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date Month Day Year

TRANSPORTER

35. Discrepancy Indication Space

FACILITY

COPY

U.S.
POLLUTION
CONTROL, INC.

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2786

LOAD TICKET

OCC: MC-27491 & DSD-167
OSDH: SD 47002, 2-1[illegible] 2004
EPA ID: OKT 4100[illegible]
OKT 41001[illegible]
ICC: MC 153414

No. 58396

DATE 3-5-90

DISPOSAL PLAN NO.

OFFICE USE ONLY

CUSTOMER NO.

P.O. NO.

CHARGES

DISBURSEMENT

CUSTOMER Union Pacific RailRoad

SHIP FROM
ADDRESS 1750 Ferro St.
CITY AND STATE Oakland, Ca.
ZIP CODE 94706

BILL TO
ADDRESS 731-M N. Market St.
CITY AND STATE Sacramento, Ca.
ZIP CODE 95834

☐ Same As Above
ATTENTION Special Services %

MANIFEST NO. 89869607
DISPOSAL SITE Grassy Mtn. U.T.
UNIT NO 180-714
USPCI DRIVER Jim Brooks

AMOUNT 21 ☒ Yd³ ☑ Gals. ☐ Bbls. ☐ Lbs.
TIME-START 2:00
FINISH 2:30
TOTAL TIME 1/2 Hrs.
DEMURRAGE TIME 0 Hrs.

DESCRIPTION
Waste Code No. California Regulated Waste Only
Waste Code No. Fiberglass Fuel Tanks, Soil Fuel Island debris

Cont.# To Go By Rail
CM.# 89-1972-89 Job # 94608

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By Erik J. Amlah
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER – NOT AN INVOICE

[PROJECT SUPERVISOR-[illegible] [illegible]# 94608

State of California—Health and Welfare Agency
Form Approved OMB No. 2050—0039 (Expires 9-30-91)

Department of Health Services
Toxic Substances Control Division
Sacramento, California

Please print or type. (Form designed for use on elite [illegible]h typewriter).

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CAL000029500
Manifest Document No. 69607
2. Page 1 of 2
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68719

4. Generator's Phone (402) 271-4054

A. State Manifest Document Number 89869607 copy

B. State Generator's ID CAL000029500

5. Transporter 1 Company Name U S Pollution Control, Inc.
6. US EPA ID Number UTD980635890

C. State Transporter's ID 000839

D. Transporter's Phone (801) 252-2000

7. Transporter 2 Company Name Southern Pacific Railroad
8. US EPA ID Number CAD006913206

E. State Transporter's ID 000839

F. Transporter's Phone (415) 534-1495

9. Designated Facility Name and Site Address
USPCI Grassy Mtn. Facility
3 miles east 7 miles north of Knolls exit 41 off I-80
Clive, UT.

10. US EPA ID Number UTD991301748

G. State Facility's ID

H. Facility's Phone (801) 535-0054

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. California Regulated Waste Only (fiberglass fuel tank,soil&fuel island debris)	001	CM	00021	Y	State 611 EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d. Cont.# 6067 / W/T 58396					State EPA/Other

J. Additional Descriptions for Materials Listed Above
A. GM-89-1972-89

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name John L Carlson
Signature John J Carlson
Month Day Year 3 5 90

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Jim Brooks
Signature Jim Brooks
Month Day Year 030590

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name
Signature
Month Day Year

GENERATOR

TRANSPORTER

FACILITY

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESP[illegible] CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

DHS 8022 A (1/88)
EPA 8700—22
(Rev. 9-88) Previous editions are obsolete.

Do Not Write Below This Line

Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No. C A L 0. 0. 0. 0. 2. 9. 5. 0. 0

Manifest Document No. 6 9. 6. 0. 7

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

L. State Manifest Document Number 89869607

M. State Generator's ID CAL000029500

N. State Transporter's ID 000839

O. Transporter's Phone (801) 252-2000

P. State Transporter's ID

Q. Transporter's Phone

23. Generator's Name
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68719
(402) 271-4054

24. Transporter 3 Company Name
U S Pollution Control, Inc.

25. US EPA ID Number U. T. D. 9. 8. 0. 6. 3. 5. 8. 9. 0

26. Transporter ______ Company Name

27. US EPA ID Number

	HM	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	29. Containers No	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
f.							
g.							
h.							
i							

GENERATOR

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

3RD transporter must sign

33. Transporter ______ Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date Month Day Year

34. Transporter ______ Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date Month Day Year

TRANSPORTER

35. Discrepancy Indication Space

FAC

BILLING INFORMATION SHEET #2

GENERATOR UNION PACIFIC RAILROAD, OAKLAND, CA PROJECT # 94608

DISTRIBUTION FOR ACCOUNTING PURPOSES

THE FOLLOWING AMOUNTS SHOULD BE ESTIMATED COSTS TO BE CHARGED TO SPECIFIC DIVISIONS

LOAD TICKET #(S) **DATE**

TRANSPORTATION:

	$
USPCI Transportation SLC - 1360 miles @ $3.65/mile	4,964.00
Drop Charges - 2 gondolas	732.00
TOTAL	5,696.00

DISPOSAL:

LOCATION: Grassy Mountain **DATE** 03/05/90

MANIFEST #(S): 898606-898607

DESCRIPTION	QUANTITY	PRICE	$
CLASS II DISPOSAL	30 cu. yd.	$80.00/cu. yd.	2,400.00
		TOTAL	2,400.00

LOCATION: **DATE**

MANIFEST #(S):

DESCRIPTION	QUANTITY	PRICE	$
		TOTAL	

SPECIAL SERVICES:

	$
Sacramento Remedial Services 916120	31,576.27
TOTAL	31,576.27

HAZARDOUS WASTE TAX

39,672.27

USPCI
A Subsidiary of
Union Pacific Corporation

Remedial Services

COPY

MEMORANDUM

DATE: March 15, 1991

TO: Geri Harwig

FROM: Joe Nicholson

RE: UPRR Billing; Project #94608

These items were not on the original billing code list;

BCKHOE	1 Backhoe - 7 days with Hydra Hammer - 3 days	$3,017.34
EQUIP	1 Sheepsfoot Roller - 2 days	1,069.67
SUPP	Dry Ice - 1020 lbs.	703.80
FEES	One Fire Permit	138.00
SUPP	Nylon Straps - 2 each	155.42
MISCEX	Samples Flown Airborne to NAL	53.74

If you have any questions, please call me at (800) 443-0765. Thank you.

731-M North Market Boulevard • Sacramento, California 95834 • 916/921-2202 • Fax 916/921-2025

/91

Standard 1990 Rates for YA[illegible] per Curt Hull.

```
USPQLS                  CHANGE REMEDIAL SERVICES RATES                   04/03 14:08
CORP: USPCI  CO/DIV: RSCALF  REMEDIAL SERVICES CALIF.                   PAGE 01 MORE
SERV FOR CUST #: 1005274   SERV FOR NAME: UNION PACIFIC RAILROAD COMPANY
BILL TO  CUST #: 13142     BILL TO  NAME: UNION PACIFIC RAILROAD COMPANY
QUOTE/BID NUMBER: 13330    PROJECT ID: 94608      CONTRACT NUMBER: 7824
FIND BLNG CODE:                                       ------RANGE------ RN  MARK
 CODE             DESCRIPTION            PRICE   UM   FROM         TO   UM  UP %
ANLYS  ANALYSIS/STANDARD (15 DAY)          NA    EA                         15.00
BARTAP TAPE, BARRICADE                     NA    EA                         15.00
BCKHOE BACKHOE                           21.340  HR
BKFILL BACKFILLING                         NA    EA                         15.00
DISPOS DISPOSAL/NOT AT USPCI FAC.          NA    LD
DMPTLR TRAILER / END DUMP                  NA    DY                         15.00
DMPTRK TRUCK, DUMP                       17.640  HR
DRGTBS TUBES (DRAEGER)                     NA    EA                         15.00
DTCLK  DATA CLERK/ASSISTANT              37.730  HR
EQOPII EQUIPMENT OPERATOR II             46.800  HR
EQPTRL TRAILER, EQUIPMENT                43.370  DY
FAX    FAX MACHINE                         NA    DY                         15.00
LODGE  LODGING                           57.510  EA

PF6=FIRST CHANGE SCREEN   PF10=NEW PAGE           PF11=CHANGE NEXT QUOTE
NEXT REQUEST:             CODE:

4BÜ          Aa             H1--SESSION1   R 6   C 18      D  13:05  4/03/91
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USPQLS                  CHANGE REMEDIAL SERVICES RATES                   04/03 14:08
CORP: USPCI  CO/DIV: RSCALF  REMEDIAL SERVICES CALIF.                   PAGE 02 MORE
SERV FOR CUST #: 1005274   SERV FOR NAME: UNION PACIFIC RAILROAD COMPANY
BILL TO  CUST #: 13142     BILL TO  NAME: UNION PACIFIC RAILROAD COMPANY
QUOTE/BID NUMBER: 13330    PROJECT ID: 94608      CONTRACT NUMBER: 7824
FIND BLNG CODE:                                       ------RANGE------ RN  MARK
 CODE             DESCRIPTION            PRICE   UM   FROM         TO   UM  UP %
MCRCPT COMPUTER                          18.860  DY
MEALS  MEALS                             28.760  EA
MTRG86 METER / GASTECH GX 86               NA    DY
PHTVAC PHOTOVAC TIP II                     NA    DY
PRJMGR PROJECT MANAGER                   56.010  HR
PRJSPR PROJECT SUPERVISOR                48.390  HR
PROMGR PROGRAM MANAGER                  105.000  HR
QCCHEM CHEMIST, QUALITY CONTROL          41.790  HR
RADIO  RADIO, HAND HELD                    NA    DY                         15.00
SCBA   BREATHING APP/SELF-CONTAIN          NA    DY                         15.00
SEC    SECRETARY                         32.730  HR
SKMPMP PUMP, SKIMMER                     80.140  DY
SUPP   SUPPLIES/CONTRACT SPECIFIED         NA    EA                         15.00

PF6=FIRST CHANGE SCREEN   PF10=NEW PAGE           PF11=CHANGE NEXT QUOTE
NEXT REQUEST:             CODE:

4BÜ          Aa             H1--SESSION1   R 6   C 18      D  13:05  4/03/91
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USPQLS                 CHANGE REMEDIAL SERVICES RATES                 04/03 14:09
CORP: USPCI  CO/DIV: RSCALF  REMEDIAL SERVICES CALIF.                PAGE 03 LAST
SERV FOR CUST #: 1005274   SERV FOR NAME: UNION PACIFIC RAILROAD COMPANY
BILL TO  CUST #: 13142     BILL TO  NAME: UNION PACIFIC RAILROAD COMPANY
QUOTE/BID NUMBER: 13330    PROJECT ID: 94608     CONTRACT NUMBER: 7824
FIND BLNG CODE:                                       ------RANGE------ RN   MARK
 CODE             DESCRIPTION              PRICE   UM   FROM         TO   UM   UP %
SYSPMP PUMP / SENSIDYNE PUMP                  NA   DY                          15.00
TECHI  TECHNICIAN I                       30.910  HR
TOOLS  TOOLS, MISCELLANEOUS                7.070  DY
TORCHR CUTTING TORCH (GAS NOT INCL            NA   DY
TRALER TRAILER                            23.570  DY
TRAVEL TRAVEL                                 NA   EA                          15.00
UTLVHL UTILITY VEHICLE                    87.990  DY
VISQN  VISQUEEN                               NA   EA                          15.00



PF6=FIRST CHANGE SCREEN   PF10=NEW PAGE            PF11=CHANGE NEXT QUOTE
NEXT REQUEST:            CODE:

4BÜ              Aa              H1--SESSION1   R 6   C 18     D  13:06  4/03/91
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```
USPQLS                  CHANGE REMEDIAL SERVICES RATES                 04/03 14:09
CORP: USPCI  CO/DIV: RSCALF  REMEDIAL SERVICES CALIF.                PAGE 03 LAST
SERV FOR CUST #: 1005274   SERV FOR NAME: UNION PACIFIC RAILROAD COMPANY
BILL TO  CUST #: 13142     BILL TO  NAME: UNION PACIFIC RAILROAD COMPANY
QUOTE/BID NUMBER: 13330    PROJECT ID: 94608     CONTRACT NUMBER: 7824
FIND BLNG CODE:                                       ------RANGE------ RN  MARK
 CODE              DESCRIPTION              PRICE  UM   FROM       TO    UM  UP %
SYSPMP PUMP / SENSIDYNE PUMP                   NA  DY                        15.00
TECHI  TECHNICIAN I                        30.910  HR
TOOLS  TOOLS, MISCELLANEOUS                 7.070  DY
TORCHR CUTTING TORCH (GAS NOT INCL             NA  DY
TRALER TRAILER                             23.570  DY
TRAVEL TRAVEL                                  NA  EA                        15.00
UTLVHL UTILITY VEHICLE                     87.990  DY
VISQN  VISQUEEN                                NA  EA                        15.00




PF6=FIRST CHANGE SCREEN   PF10=NEW PAGE             PF11=CHANGE NEXT QUOTE
NEXT REQUEST:            CODE:

4BÜ            Aa               H1--SESSION1   R 6  C 18      D  13:06  4/03/91
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/91 Standard 1990 Rates for YA per Curt Hull.

```
USPQLS                  CHANGE REMEDIAL SERVICES RATES                04/03 14:08
CORP: USPCI  CO/DIV: RSCALF  REMEDIAL SERVICES CALIF.                PAGE 01 MORE
SERV FOR CUST #: 1005274   SERV FOR NAME: UNION PACIFIC RAILROAD COMPANY
BILL TO  CUST #: 13142     BILL TO  NAME: UNION PACIFIC RAILROAD COMPANY
QUOTE/BID NUMBER: 13330    PROJECT ID: 94608      CONTRACT NUMBER: 7824
FIND BLNG CODE:                                      ------RANGE------ RN  MARK
 CODE            DESCRIPTION                PRICE  UM   FROM        TO   UM  UP %
ANLYS  ANALYSIS/STANDARD (15 DAY)              NA  EA                         15.00
BARTAP TAPE, BARRICADE                         NA  EA                         15.00
BCKHOE BACKHOE                             21.340  HR
BKFILL BACKFILLING                             NA  EA                         15.00
DISPOS DISPOSAL/NOT AT USPCI FAC.              NA  LD
DMPTLR TRAILER / END DUMP                      NA  DY                         15.00
DMPTRK TRUCK, DUMP                         17.640  HR
DRGTBS TUBES (DRAEGER)                         NA  EA                         15.00
DTCLK  DATA CLERK/ASSISTANT                37.730  HR
EQOPII EQUIPMENT OPERATOR II               46.800  HR
EQPTRL TRAILER, EQUIPMENT                  43.370  DY
FAX    FAX MACHINE                             NA  DY                         15.00
LODGE  LODGING                             57.510  EA

PF6=FIRST CHANGE SCREEN   PF10=NEW PAGE            PF11=CHANGE NEXT QUOTE
NEXT REQUEST:            CODE:

4BÜ            Aa               H1--SESSION1    R 6   C 18      D  13:05   4/03/91
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USPQLS                  CHANGE REMEDIAL SERVICES RATES                04/03 14:08
CORP: USPCI  CO/DIV: RSCALF  REMEDIAL SERVICES CALIF.                PAGE 02 MORE
SERV FOR CUST #: 1005274   SERV FOR NAME: UNION PACIFIC RAILROAD COMPANY
BILL TO  CUST #: 13142     BILL TO  NAME: UNION PACIFIC RAILROAD COMPANY
QUOTE/BID NUMBER: 13330    PROJECT ID: 94608      CONTRACT NUMBER: 7824
FIND BLNG CODE:                                      ------RANGE------ RN  MARK
 CODE            DESCRIPTION                PRICE  UM   FROM        TO   UM  UP %
MCRCPT COMPUTER                            18.860  DY
MEALS  MEALS                               28.760  EA
MTRG86 METER / GASTECH GX 86                   NA  DY
PHTVAC PHOTOVAC TIP II                         NA  DY
PRJMGR PROJECT MANAGER                     56.010  HR
PRJSPR PROJECT SUPERVISOR                  48.390  HR
PROMGR PROGRAM MANAGER                    105.000  HR
QCCHEM CHEMIST, QUALITY CONTROL            41.790  HR
RADIO  RADIO, HAND HELD                        NA  DY                         15.00
SCBA   BREATHING APP/SELF-CONTAIN              NA  DY                         15.00
SEC    SECRETARY                           32.730  HR
SKMPMP PUMP, SKIMMER                       80.140  DY
SUPP   SUPPLIES/CONTRACT SPECIFIED             NA  EA                         15.00

PF6=FIRST CHANGE SCREEN   PF10=NEW PAGE            PF11=CHANGE NEXT QUOTE
NEXT REQUEST:            CODE:

4BÜ            Aa               H1--SESSION1    R 6   C 18      D  13:05   4/03/91
```

B[illegible]LING INFORMATION SHEE[illegible]/1

SERVICE FROM: January 15 TO March 5 ~~xxx~~ 1990

GENERATOR: Union Pacific Rail Road

ADDRESS: 1750 Ferro Street
Oakland, CA

INVOICING: Union Pacific Rail Road

ADDRESS: 1416 Dodge Street
Room 1000
Omaha, NE

PROJECT MANAGER: Alfred Brule'

JOB #: 94608

DIV. #: 16120

MARKETING REP:

CUSTOMER CONTACT: R.C. Coon

DATE: 3/11/91

CUSTOMER P.O. #:

THE FOLLOWING CHARGES SHOULD BE ITEMIZED AS WILL APPEAR ON INVOICE

~~TRANSPORTATION~~

~~TMTRPK~~C	/ 2 USPCI Gondola Boxes transported From Oakland to Grassy Mtn. 680 miles			$ 4,964.00
~~TRSET~~	/ 2 USPCI Gondola Boxes - drop off ~~xxxx~~ charges			732.00
~~BLKDSP~~	/ Disposal of 2-15 yd. boxes	~~DISPOS~~ At Grassy Mtn.		2,400.00
PR~~JMGR~~	/ 1 PROJECT Manager 12 hrs.	~~PRJMGR~~ x 56.01 Hr		672.12
PRJ~~SRP~~	/ 1 Project Supervisor 140 hrs.	~~PRJSPR~~ x 48.39 Hr	~~TOTALS~~	6,774.60

~~DISPOSAL~~

~~TCHIII~~	/ 2 Technician III's 168 hrs.	x 30.91 Hr		$ 5,192.88
EQ~~OP~~II	/ 1 Equipment Operator 44 hrs.	x 46.80 ~~EQOPII~~		2059.20 ~~2,027.52~~
K~~OM~~220	/ 1 USPCI Trck Hoe 11 days	170.00/DAY ~~SEK~~		1,870.00
BCK~~HOE~~	/ 1 Back Hoe rented for 7 da[illegible] days	~~BCKHOE~~ 431.00/DAY		3,017.00 ~~84~~
			~~TOTALS~~	

RECEIVED
MAR 22 1991
CALIFORNIA REGION
RANCHO DOMINGUEZ

~~PERSONNEL~~

EQ~~UIP~~	/ 1 Sheepsfoot Roller 2 days	534.84/DAY		$ 1,069.68
PU~~PTRK~~	/ 1 Utility Truck 15 days	87.99/DAY		1,319.85
~~MTRGT2~~ ~~MT~~	/ 1 Gas Tech 1 day	~~MTRGT6~~ 65.00/DAY		65.00
S~~UPP~~	/ Dry Ice 1020 lbs. 69¢ LB.	SUPP		703.80
CM~~SMPL~~	/ 4 Soil Samples & 1 Water Sample TPH & BTEX	517.60 ea	~~TOTALS~~	2,588.00

~~XXXXXXXXXXSUPPLIES~~

D~~ISPOS~~	/ Disposal of 3 Truck Loads of Concrete	~~DISPOS~~		$ 862.50
BA~~TRAN~~	/ Haul concrete for disposal 9.5 hrs.	65.22 Hr		619.569
BK~~FIL~~L	/ Back Fill & Transport 222.09 tons	10.93/Ton		2,427.44
FEES	/ One fire permit			138.00
LOCG	/ Lodging for Joe Nicholson 2 days	57.51/DAY		115.02
PD~~IEM~~	/ Per Diem for Joe Nicholson 2 days	28.76/DAY	~~TOTALS~~	57.52

~~LAB ANALYSIS~~

LOCG	/ Lodging for L. Horton 3 days	57.51/DAY		$ 172.53
PD~~IEM~~	/ Per Diem for L. Horton 3 days	28.76/DAY		86.28
BRTRAN	/ Transportation for Track Hoe to and from yard		~~TOTALS~~	1,478.33

~~OTHER~~

[illegible]P	/ Nylon slings 2 ea.			$ 155.42
MI~~SC-~~EX	/ Samples flown Airborne to NAL			53.74
TOOLS	/ Hand tools 11 days	7.07/DAY		77.77
			~~TOTALS~~	

APPROVED BY: Alfred Brule 3/11/91

PROJECT TOTAL $39,641.89

B[illegible]LING INFORMATION SHEE[illegible]1

SERVICE FROM: January 15 TO March 5 ~~19~~ 1990

GENERATOR: Union Pacific Rail Road

ADDRESS: 1750 Ferro Street
Oakland, CA

INVOICING: Union Pacific Rail Road

ADDRESS: 1416 Dodge Street
Room 1000
Omaha, NE

PROJECT MANAGER: Alfred Brule'

JOB #: 94608 DIV. #: 16120

MARKETING REP:

CUSTOMER CONTACT: R.C. Coon

DATE: 3/11/91

CUSTOMER P.O. #:

THE FOLLOWING CHARGES SHOULD BE ITEMIZED AS WILL APPEAR ON INVOICE

	~~TRANSPORTATION:~~		
MTRPKC	/ 2 Gondola Boxes transported From Oakland to Grassy Mtn. 680 miles	$	4,964.00
RSET	/ 2 Gondola Boxes - drop off ~~xxxxx~~ charges		732.00
LKDSP	/ Disposal of 2-15 yd. boxes		2,400.00
RJMGR	/ 1 PROJECT Manager 12 hrs.		672.12
RJSRP	/ 1 Project Supervisor 140 hrs.	~~TOTAL $~~	6,774.60
	~~DISPOSAL~~		
CHIII	/ 2 Technician III's 168 hrs.	$	5,192.88
QOPII	/ 1 Equipment Operator 44 hrs.		2,027.52
OM220	/ 1 USPCI Trck Hoe 11 days		1,870.00
KHOE	/ 1 Back Hoe rented for 7 days & Hydra Hammer 3 days		3,017.34
		~~TOTAL $~~	
	~~PERSONNEL~~		
QUIP	/ 1 Sheepsfoot Roller 2 days	$	1,069.67
UPTRK	/ 1 Utility Truck 15 days		1,319.85
TRG12	/ 1 Gas Tech 1 day		65.00
UPP	/ Dry Ice 1020 lbs.		703.80
MSMPL	/ 4 Soil Samples & 1 Water Sample TPH & BTEX	~~TOTAL $~~	2,588.00
	~~EQUIPMENT & SUPPLIES~~		
ISPOS	/ Disposal of 3 Truck Loads of Concrete	$	862.50
ATRAN	/ Haul concrete for disposal 9.5 hrs.		619.56
XFILL	/ Back Fill & Transport 222.09 tons		2,427.44
EES	/ One fire permit		138.00
OCG	/ Lodging for Joe Nicholson 2 days		115.02
DIEM	/ Per Diem for Joe Nicholson 2 days	~~TOTAL $~~	57.52
	~~LAB ANALYSIS:~~		
OCG	/ Lodging for L. Horton 3 days	$	172.53
DIEM	/ Per Diem for L. Horton 3 days		86.28
RTRAN	/ Transportation for Track Hoe to and from yard	~~TOTAL $~~	1,478.33
	~~OTHER:~~		
UPP	/ Nylon slings 2 ea.	$	155.42
ISC.EX	/ Samples flown Airborne to NAL		53.74
OOLS	/ Hand tools 11 days		77.77
		~~TOTAL $~~	

APPROVED BY:

PROJECT TOTAL $39,641.89

BILLING INFORMATION SHEET #2

GENERATOR UNION PACIFIC RAIL ROAD, OAKLAND, CA PROJECT #94608

DISTRIBUTION FOR ACCOUNTING PURPOSES

THE FOLLOWING AMOUNTS SHOULD BE ESTIMATED COSTS TO BE CHARGED TO SPECIFIC DIVISIONS

LOAD TICKET #(S) DATE

TRANSPORTATION:

	$
~~TM TRPKC~~ USPCI Trans SLC - 1360 miles @ $3.65/mile	4,964.00
~~TRSET~~ Drop Charges - 2 Gondolas	732.00
TOTAL	5,696.00

DISPOSAL:

LOCATION: Grassy Mountain DATE 03/05/90

MANIFEST #(S): 898606-898607

DESCRIPTION		QUANTITY	PRICE	$
~~BLKDSP~~	CLASS II DISPOSAL	30 cu. yd.	$80.00/cu.yd.	2,400.00
			TOTAL	2,400.00

LOCATION: DATE

MANIFEST #(S):

DESCRIPTION	QUANTITY	PRICE	$
		TOTAL	

Voided re written

SPECIAL SERVICES:

	$
SACRAMENTO REMEDIAL SERVICES 916120-03	31,~~545.89~~ 576.27
TOTAL	~~XXXX~~ 31,~~545.89~~ 576.27

HAZARDOUS WASTE TAX

APPROVED BY: 9/12/90

PROJECT TOTAL ~~$39,641.89~~ 39,672.27

[redacted]

BILLING INFORMATION SHEET #2

GENERATOR: UNION PACIFIC RAIL ROAD, OAKLAND, CA PROJECT #94608

DISTRIBUTION FOR ACCOUNTING PURPOSES

THE FOLLOWING AMOUNTS SHOULD BE ESTIMATED COSTS TO BE CHARGED TO SPECIFIC DIVISIONS

LOAD TICKET #(S) DATE

TRANSPORTATION:

		$
TM TRPKC	SLC - 1360 miles @ $3.65/mile	4,964.00
TRSET	Drop Charges - 2 Gondolas	732.00
	TOTAL	5,696.00

DISPOSAL:

LOCATION: Grassy Mountain DATE 03/05/90

MANIFEST #(S): 898606-898607

DESCRIPTION		QUANTITY	PRICE	$
BLKDSP	CLASS II DISPOSAL	30 cu. yd.	$80.00/cu.yd.	2,400.00
			TOTAL	2,400.00

LOCATION: DATE

MANIFEST #(S):

DESCRIPTION	QUANTITY	PRICE	$
		TOTAL	

SPECIAL SERVICES:

	$
SACRAMENTO REMEDIAL SERVICES 916120-03	31,545.89
TOTAL	XXXX 31,545.89

HAZARDOUS WASTE TAX

APPROVED BY: 3/1

PROJECT TOTAL $39,641.89

U.S. POLLUTION CONTROL, INC.

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2786

PERMIT NUMBERS
OCC: MC-27491 & DSD-167
OSDH: SD 47002, 2-14 P
EPA ID: OKT 410010474
OKT 410010466
ICC: MC 153414

No. 58417

LOAD TICKET

DATE 2-22-90

DISPOSAL PLAN NO.

CUSTOMER, Remedial Services

SHIP FROM
ADDRESS 731-M North Market St.
CITY AND STATE Sacramento Ca.
ZIP CODE 95834

BILL TO
ADDRESS
CITY AND STATE
ZIP CODE
☐ Same As Above

ATTENTION Joe Nick

MANIFEST NO.
DISPOSAL SITE
UNIT NO. 183-716
USPCI DRIVER Larry Wilson

AMOUNT ☐ Yd³ ☐ Gals. ☐ Bbls. ☐ Lbs.
TIME-START 12:45
FINISH 1:15
TOTAL TIME 1/2 Hrs.
DEMURRAGE TIME 0 Hrs.

DESCRIPTION
Waste Code No.
Waste Code No.
Spot WT Container 6031 At U.P. RR
Oakland Ca.

OFFICE USE ONLY
CUSTOMER NO.
P.O. NO.
CHARGES
DISBURSEMENT

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By Joseph Nillson
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER - NOT AN INVOICE

U.S.
POLLUTION
CONTROL, INC.

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2788

PERMIT NUMBERS
OCC: MC-27491 & DS 7
OSDH: SD 47002, 2-1 2004
EPA ID: OKT 4100104
OKT 4100104

ICC: MC 153414

No. 58395

LOAD TICKET

DATE: 3-5-90

DISPOSAL PLAN NO.

CUSTOMER: Union Pacific RailRoad

SHIP FROM
ADDRESS: ~~1416 Dodge~~ 1750 FeRRO ST.
CITY AND STATE: OAKland, CA.
ZIP CODE:

BILL TO
ADDRESS: 1416 Dodge St.
CITY AND STATE: Omaha Ne 68179
ZIP CODE:

☐ Same As Above

ATTENTION: Special Services c/o 731-M N. Market Sacramento, CA. 95834

MANIFEST NO.	DISPOSAL SITE	UNIT NO.	USPCI DRIVER
89869606	GRASSY MTN. UT	180-714	Jim Brooks

AMOUNT		TIME-START	FINISH	TOTAL TIME	DEMURRAGE TIME
21	☒ Yd³ ☐ Gals. ☐ Bbls. ☐ Lbs.	1:30	2:00	1/2 Hrs.	0 Hrs.

DESCRIPTION
Waste Code No. California Regulated Waste Only
Waste Code No. Fiberglass Fuel Tanks, Soil Fuel Island debris

Cont.# 6031 To Go By Rail
GM.# 89-1972-89 Job # 94608

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By Erik J.
CUSTOMER REPRESENTATIVE

OFFICE USE ONLY
CUSTOMER NO.
P.O. NO.
CHARGES
DISBURSEMENT

USPCI-109-B

CUSTOMER — NOT AN INVOICE

State of California—Health and Welfare Agency
Form Approved OMB No. 2050—0039 (Expires 9-30-
Please print or type. (Form designed for use on elite (12 pitch typewriter).

PROJECT SUP.
Rem #94608

Department of Health Services
Toxic Substances Control Division
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. C A L 0 0 0 0 0 2 9 5 0 0 | Manifest Document No. 6 9 6 0 6
2. Page 1 of 2
Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number 89869606

3. Generator's Name and Mailing Address
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68179

4. Generator's Phone (402 271-4054

B. State Generator's ID C A L 0 0 0 0 0 2 9 5 0 0

5. Transporter 1 Company Name U S Pollution Control, Inc.
6. US EPA ID Number U T D 9 8 0 6 3 5 8 9 0
C. State Transporter's ID 001716
D. Transporter's Phone ~~(405)~~ (801) 252-2000

7. Transporter 2 Company Name Southern Pacific Railroad
8. US EPA ID Number C A D 0 0 6 9 1 1 3 2 0 6
E. State Transporter's ID 001716
F. Transporter's Phone (415) 534-1495

9. Designated Facility Name and Site Address
USPCI Grassy Mtn. Facility
3 miles east 7 miles north of Knolls exit 41 off I-80
Clive, UT
10. US EPA ID Number U T D 9 9 1 3 0 1 7 4 8
G. State Facility's ID
H. Facility's Phone (801) 534-0054

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. California Regulated Waste Only (fiberglass fuel tanks, soil ~~&~~ + fuel island debris)	0 0 1	C M	0 0 0 2 1	Y	State 611 EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d. Cont. #6031 / L/T 58395					State EPA/Other

J. Additional Descriptions for Materials Listed Above
A. GM# 89-1972-89

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name John L Carlson
Signature John L. Carlson
Month Day Year 3 5 90

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Jim Brooks
Signature Jim Brooks
Month Day Year 03 05 90

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name
Signature
Month Day Year

GENERATOR
TRANSPORTER
FACILITY

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

DHS 8022 A (1/88)
EPA 8700—22
(Rev. 9-88) Previous editions are obsolete

Do Not Write Below This Line

GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No. CAL000029500
Manifest Document No. 6960

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

23. Generator's Name
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68179
(402) 271-4054

L. State Manifest Document Number 89869606

M. State Generator's ID CAL000029500

N. State Transporter's ID 001716

24. Transporter ___ Company Name U S Pollution Control;Inc.

25. US EPA ID Number UTD980535890

O. Transporter's Phone (801) 252-2000

26. Transporter ___ Company Name

27. US EPA ID Number

P. State Transporter's ID

Q. Transporter's Phone

28. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	HM		29. Containers No	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

3RD transporter must sign

GENERATOR

TRANSPORTER

33. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

34. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

35. Discrepancy Indication Space

**U.S.
POLLUTION
CONTROL, INC.**

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2786

PERMIT NUMBERS
OCC: MC-27491 & DS 7
OSDH: SD 47002. 2-1 004
EPA ID: OKT 4100104.
OKT 410010466
ICC: MC 153414

No. 58396

LOAD TICKET

DATE 3-5-90

OFFICE USE ONLY

CUSTOMER NO.

P.O. NO.

CHARGES

DISBURSEMENT

CUSTOMER Union Pacific RailRoad

DISPOSAL PLAN NO.

SHIP FROM
ADDRESS 1750 FeRRo St.
CITY AND STATE OAKland, CA.
ZIP CODE 94706

BILL TO
ADDRESS 731-M N. MaRket St.
CITY AND STATE SACRAMENTO, CA.
ZIP CODE 95834

☐ Same As Above
ATTENTION Special Services 9/2

MANIFEST NO. 89869607
DISPOSAL SITE GRASSY MTN. U.T.
UNIT NO. 180-714
USPCI DRIVER Jim Brooks

AMOUNT 21 ☒ Yd³ ☐ Bbls. ☑ Gals. ☐ Lbs.
TIME-START 2:00
FINISH 2:30
TOTAL TIME 1/2 Hrs.
DEMURRAGE TIME 0 Hrs.

DESCRIPTION
Waste Code No. California Regulated Waste only
Waste Code No. Fiberglass Fuel TANKS, Soil Fuel Island debRis

Cont. # To Go By Rail

GM. # 89-1972-89 Job # 94608

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By ______________
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER – NOT AN INVOICE

State of California—Health and Welfare Agency
Form Approved OMB No. 2050—0039 (Expires 9-30-91
Please print or type. (Form designed for use on elite (12-pitch typewriter).

#9460

Department of Health Services
Toxic Substances Control Division
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. C A L 0 0 0 0 2 9 5 0 0
Manifest Document No. 89 | 6 0 7
2. Page 1 of 2
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68719

4. Generator's Phone (402) 271-4054

A. State Manifest Document Number 89869607
B. State Generator's ID C A L 0 0 0 0 0 2 9 5 0 0

5. Transporter 1 Company Name U S Pollution Control, Inc.
6. US EPA ID Number U T D 9 8 0 6 3 5 8 9 0
C. State Transporter's ID 000839
D. Transporter's Phone (801) 252-2000

7. Transporter 2 Company Name Southern Pacific Railroad
8. US EPA ID Number C A D 0 0 6 9 1 3 2 06
E. State Transporter's ID 000839
F. Transporter's Phone (415) 534-1495

9. Designated Facility Name and Site Address
USPCI Grassy Mtn. Facility
3 miles east 7 miles north of Knolls exit 41 off I-80
Clive, UT.
10. US EPA ID Number U T D 9 9 1 3 0 1 7 48
G. State Facility's ID
H. Facility's Phone (801) 535-0054

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. California Regulated Waste Only (fiberglass fuel tank, soil&fuel island debris)	0 0 1	C M	0 0 0 0 2 1	Y	State 611 EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d. Cont.# 6067 / L/T 58396					State EPA/Other

J. Additional Descriptions for Materials Listed Above
A. GM-89-1972-89

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name John L Carlson
Signature John J Carlson
Month Day Year 3 15 90

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name Jim Brooks
Signature Jim Brooks
Month Day Year 030590

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name
Signature
Month Day Year

GENERATOR
TRANSPORTER
FACILITY

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

DHS 8022 A (1/88)
EPA 8700—22
(Rev. 9-88) Previous editions are obsolete.

Do Not Write Below This Line

BLUE: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No. C A L 0. 0. 0. 0. 2. 9. 5. 0. 0

Manifest Document No. 6 9. 6. 0. 7

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

L. State Manifest Document Number 89869607

M. State Generator's ID CAL000029500

N. State Transporter's ID 000839

O. Transporter's Phone (801) 252-2000

P. State Transporter's ID

Q. Transporter's Phone

23. Generator's Name
Union Pacific Railroad
1416 Dodge Street
Omaha, NE. 68719
(402) 271-4054

24. Transporter 3 Company Name U S Pollution Control, Inc.

25. US EPA ID Number U. T. D. 9. 8. 0. 6. 3. 5. 8. 9. 0

26. Transporter ____ Company Name

27. US EPA ID Number

	HM	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	29. Containers No	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

3RD transporter must sign

GENERATOR

33. Transporter ____ Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date Month Day Year

34. Transporter ____ Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Date Month Day Year

TRANSPORTER

FA

35. Discrepancy Indication Space

U.S. POLLUTION CONTROL, INC.

SUITE 400 SOUTH
2000 CLASSEN CENTER
OKLAHOMA CITY, OKLA 73106

PHONE: OKLA. CITY - (405) 528-8371
TULSA - (918) 446-2786

LOAD TICKET

PERMIT NUMBERS
OCC: MC-27491 & DSD-167
OSDH: SD 47002, 2-14 [illegible] 04
EPA ID: OKT 41001047-
OKT 410010466
ICC. MC 153414

No. 58414

DATE [illegible]

DISPOSAL PLAN NO

CUSTOMER [illegible] Services

SHIP FROM
ADDRESS [illegible]
CITY AND STATE [illegible]
ZIP CODE [illegible]

BILL TO
☐ Same As Above
ADDRESS
CITY AND STATE
ZIP CODE
ATTENTION

MANIFEST NO
DISPOSAL SITE
UNIT NO [illegible]
USPCI DRIVER [illegible]

AMOUNT ☐ Yd³ ☐ Bbls. ☐ Gals ☐ Lbs.
TIME-START [illegible]
FINISH [illegible]
TOTAL TIME Hrs.
DEMURRAGE TIME Hrs

DESCRIPTION
Waste Code No.
Waste Code No.

[illegible]

[illegible]

OFFICE USE ONLY
CUSTOMER NO
P O NO
CHARGES
DISBURSEMENT

AGREEMENT

Customer agrees to indemnify and save harmless United States Pollution Control, Inc. (USPCI), its agents and employees, against any and all liabilities, obligations, claims, losses, and expenses (1) caused or created by Customers, its sub-contractors, or the agents and employees of either, whether negligent or not, arising out of work hereunder, or (2) arising out of injuries (including death) suffered or allegedly suffered by employees of Customer or its sub-contractors (a) in the course of their employment, or (b) in the performance of work hereunder, due to the failure of Customer, or their sub-contractors, or anyone directly or indirectly employed by them or any of them to act with due care while engaged in the performance of work contemplated by this Agreement. Further, in connection with the work hereunder, Customer shall indemnify and save harmless USPCI and the owner of any real property upon which the work is to be performed against any liability to sub-contractors or other third persons under the mechanics, materialmen, labor or other applicable lien laws of the State in which the work is to be performed.

I have read and understand the terms of this Agreement and represent that I am authorized to sign the same as agent of Customer.

Signed By
CUSTOMER REPRESENTATIVE

USPCI 109-B

CUSTOMER - NOT AN INVOICE