

***USPCI  
Consulting Services***

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***UNION PACIFIC RAILROAD***

***PHASE II SITE ASSESSMENT REPORT***

***UNION PACIFIC MOTOR FREIGHT FACILITY  
1750 FERRO STREET  
OAKLAND, CALIFORNIA***

*and Aug 93 QR*

*LOP 2044*

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***October 1993***

**PHASE II SITE ASSESSMENT AND  
THIRD QUARTER MONITORING REPORT  
UNION PACIFIC RAILROAD  
UNION PACIFIC MOTOR FREIGHT FACILITY  
1750 FERRO STREET, OAKLAND, CALIFORNIA  
USPCI Project No. 96120-844**

Prepared for:

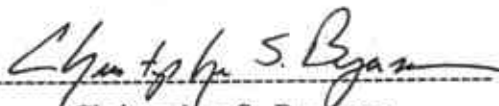
Union Pacific Railroad  
Environmental Management Group - Room 930  
1416 Dodge Street  
Omaha, Nebraska 68179

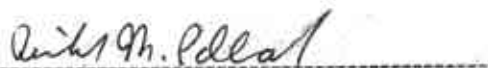
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R.G. No. 4659

October 1993

# USPCI

A Subsidiary of  
Union Pacific Corporation

## Remedial Services

October 29, 1993

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

RE: Final Report: Phase II Site Assessment  
UPMF 1750 Ferro Street Facility, Oakland, California  
USPCI Project No. 96120-844

Mr. Patterson:

USPCI is pleased to submit two copies of the Phase II Site Assessment report on the Union Pacific Railroad (UPRR) property at 1750 Ferro Street, Oakland, California. One copy each will also be forwarded to Ms. Jennifer Eberle from the Alameda County Department of Environmental Health (ACDEH), Mr. John Amduer from the Port of Oakland, Mr. Philip Herden from America Presidents Lines, Inc., and Mr. Rich Hiatt from the San Francisco Bay Region, Regional Water Quality Control Board. The work was completed on July 16, 1993 and was performed in response to the Alameda County Department of Environmental Health (ACDEH) letter to UPRR dated April 29, 1993.

~~Thirteen soil borings were drilled to~~ assess soil conditions in the vicinity of the former refueling area and the adjacent property to the southeast of the site. ~~Five of these borings were converted to groundwater monitoring wells to~~ determine the groundwater condition up and downgradient of the site. Soil and groundwater samples were collected and analyzed for the presence of hydrocarbons and selected dissolved metals. The groundwater samples were also analyzed for purgeable halocarbons.

Based on our field work and analysis of soil and groundwater samples, USPCI has reached the following ~~conclusions~~:

- Soil samples collected during USPCI's July 1993 assessment contained ~~TPH~~ 418.1 (TPH) concentrations ranging from 100 milligrams per kilogram (mg/kg) to 23,000 mg/kg. BTEX concentrations in soil samples ranged from 0.002 mg/kg to 1.728 mg/kg.
- The highest TPH concentration was in a sample from soil boring OKUS-B6A collected from a depth of 6 - 8 feet located approximately 400 feet west-northwest (upgradient) from the former fuel island and UST locations.

The analytical results indicated that the groundwater samples collected from the five new monitoring wells (including one duplicate) contained detectable concentrations of BTEX, TPH, TPH-D, and TPH/G. Total BTEX concentrations ranged from below method detection limits (MDLs) in the groundwater sample from monitoring well OKUS-W8 [redacted] in sample APL/UP-W1 (Figure 5 and Table 2a). Samples from well APL/UP-W1 contained detectable concentrations of TPH/D [redacted] and TPH/G [redacted]. Monitoring wells OKUS-W7 and -W8 did not contain TPH/D or TPH/G above the MDLs. TPH concentrations ranged from 11 milligrams per liter (mg/L) in a sample from well APL/UP-W1 to 19 mg/L in a sample from well APL/UP-W2 (Table 2a). The TPH and TPH/D sample from OKUS-W6 broken during shipment.

no  
yes

on 7-16-93  
(different  
on 8-26)

Six groundwater samples (five wells and one duplicate) were analyzed for dissolved arsenic (As) and lead (Pb). Concentrations of As were detected in samples from all five new monitoring wells as well as in a duplicate sample. Arsenic concentrations ranged from 0.004 mg/L in a sample from OKUS-W6 to 0.016 mg/L in a sample from well APL/UP-W2. The only detectable concentration of dissolved Pb (0.003 mg/L) was present in a sample from well OKUS-W8.

560 ppb  
As on  
8-26

Six groundwater samples were sampled for ~~perchloroethylene~~ ~~Chloroform~~. Chloroform was detected in groundwater samples from two off-site monitoring wells (APL/UP-W1 and -W2) with concentrations ranging from 2.5 ug/L in a sample from APL/UP-W2 to 5.4 ug/L in a sample from APL/UP-W1. The two off-site wells also contained detectable concentrations of 1,1,1-Trichloroethane, with concentrations ranging from 3.7 ug/L in a sample from APL/UP-W2 to 4.2 ug/L in a sample from APL/UP-W1.

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



### THIRD QUARTER 1993 MONITORING EVENT

On the behalf Union Pacific Railroad (UPRR), USPCI conducted a quarterly monitoring event UPRR property at 1750 Ferro Street, Oakland, California. The work was completed on August 27, 1993 and was performed in response to the Alameda County Department of Environmental Health (ACDEH) letter to UPRR dated April 29, 1993. ~~A total of ten groundwater samples~~ were collected from the nine of the ten existing monitoring wells.

Based on our field work and analysis of groundwater samples, USPCI has reached the following conclusions:

There was approximately 0.02 feet of phase separated hydrocarbons (PSH) noted in the first bailer volume purged from well OKUS-W5 and hence, this well was not sampled. PSH was not noted in any of the remaining monitoring wells and the PSH (~~which appeared to be oil~~) did not recover after the first bailer volume was removed.

Groundwater samples collected from eight of the ten monitoring wells in August 1993 contained TPH identified as gasoline (TPH/G) and BTEX. ~~concentrations in groundwater samples ranged from non-detect in monitoring well OKUS-W1 (200 feet south-southwest of the known sources) 10,000 ug/L in monitoring well OKUS-W2 (15 feet south of the former fuel island). BTEX concentrations in groundwater samples ranged from non-detect in monitoring well OKUS-W1 10,000 ug/L in monitoring well OKUS-W2. The two downgradient off-site wells APL/UP-W1 and -W2 contained BTEX concentrations of 442.3 ug/L and 37.4 ug/L, respectively. Benzene concentrations exceeded the Maximum Contaminant Level (MCL) in groundwater samples from eight of the ten monitoring wells. Ethylbenzene concentrations exceeded the MCL in samples from three of the ten monitoring wells. Groundwater samples from nine of the ten monitoring wells contained minor concentrations (< 6.6 mg/L) of TPH diesel (TPH/D).~~

Analytical results indicated detectable concentrations of dissolved arsenic (As) in groundwater samples from seven of the ten monitoring wells and detectable dissolved lead (Pb) in one monitoring well sample. Concentrations of As in groundwater samples ranged from non detect in samples from wells OKUS-W1, -W7 and -W8 to 0.88 mg/L in OKUS-W5. Monitoring well OKUS-W8 had a dissolved Pb concentration of 0.005 mg/L. The MCL for As and Pb is 0.050 mg/L (Marshack, 1989).

how bout the RW?

W1 & W2  
LJ's are  
different  
(see table 2c)

- Eleven groundwater samples were analyzed for purgeable halocarbons using EPA Method 8010. Chlorobenzene concentrations in groundwater samples ranged from non detect in samples from wells APL/UP-W2, OKUS-W1, -W6, -W7 and -W8 to 0.078 mg/L in OKUS-W2 (Table 2b). The MCL for chlorobenzene is 0.100 mg/L (Marshack, 1989). There were several additional purgeable halocarbons noted at low concentrations including; 2-chloroethylvinyl ether, dibromomethane, 1,1-dichloroethene, cis-1,2-dichloroethene, cis-1,3-dichloropropane and 1,1,2,2-tetrachloroethene. Some of these additional purgeable halocarbons were noted in the previous sampling events.
- Based on information gathered by USPCI, the arsenic and purgeable halocarbons detected in groundwater samples are not believed to be related to the contents of the former USTs because the former USTs contained engine oil, waste oil, diesel fuel and gasoline.

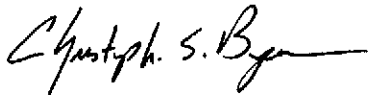
Based on these conclusions USPCI recommends the follow actions:

#### Groundwater

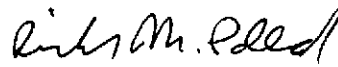
- Continue the quarterly monitoring program throughout 1993 to increase the data base on groundwater characteristics.
- Begin extracting the PSH from the recovery well and monitoring well OKUS-W5. Treatment of extracted hydrocarbons and water could be achieved using the existing oil/water separator on site.
- Conduct an aquifer pump test to determine the hydraulic conductivity of the impacted area.

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

Sincerely,



Christopher S. Byerman  
Geologist



Richard M. Pollard  
Project Geologist

cc: John Yellich - USPCI, Boulder  
Curt Hull - USPCI, Boulder  
Denton Mauldin - USPCI, Boulder  
Jennifer Eberle - ACDEH, Oakland  
Rich Hiatt - CRWQCB, SBR  
John Amduer - Port of Oakland, Oakland  
Philip Herden - APL, Oakland  
File 96281.26-1

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## EXECUTIVE SUMMARY

At the request of Union Pacific Railroad (UPRR), USPCI conducted a Phase II Site Assessment at the UPRR Union Pacific Motor Freight (UPMF) Facility located at 1750 Ferro Street in Oakland, California. The assessment was conducted from July 12 to 16, 1993 to further evaluate the subsurface geology and hydrogeology and 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 Third Quarter 1993 Monitoring Event was completed on August 27, 1993 and the results from this event have been added to this report.

Objective of the Phase II Site Assessment:

- Determine all local sources that could have impacted the site.
- Determine the migration pathway from the source(s).
- Delineate the lateral and vertical extent of petroleum hydrocarbon impacted soils and groundwater.

The site assessment involved:

- Drilling and sampling thirteen 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 arsenic (As) and lead (Pb) by EPA Method 6000/7000. Selected soil samples were analyzed for volatile organic compounds (VOCs, EPA Method 8260) and polychlorinated biphenyls (PCBs, EPA 8080). Groundwater samples were also analyzed for purgeable halocarbons (EPA Method 8010); and
- Preparing a Phase II Site Assessment Report.

The analytical results indicated that the soil samples from all thirteen soil borings contained elevated concentrations [ $> 100$  milligrams per kilogram (mg/kg)] of TPH 418.1. Concentrations of TPH ranged from non-detect in soil boring OKUS-B8 (8 - 10 feet) to 23,000 mg/kg in soil boring OKUS-B6a (8 - 9 feet). Concentrations of BTEX in soil samples ranged from non-detect in samples from several borings/monitoring wells to 1.728 mg/kg in soil boring OKUS-B6A (10 - 12 feet).

The analytical results indicated that the groundwater samples collected from the five new monitoring wells contained detectable concentrations of BTEX and one or more of TPH, TPH/D, and TPH/G. Total BTEX concentrations ranged from below Method Detection Limits (MDL) in the groundwater sample from monitoring well OKUS-W8 to 30.1 micrograms per liter (ug/L) in a sample from well APL/UP-W1. Only samples from monitoring well APL/UP-W1 contained detectable concentrations of TPH/G and TPH/D, with concentrations of 300 ug/L and 700 ug/L respectively. TPH concentrations ranged from 11 milligrams per liter (mg/L) in a sample from well APL/UP-W1 to 19 mg/L in a sample from well APL/UP-W2.

Six groundwater samples (five wells and one duplicate) were analyzed for dissolved arsenic (As) and lead (Pb). Arsenic was present in samples from all five new monitoring wells as well as in a duplicate sample. Arsenic concentrations ranged from 0.004 mg/L in a sample from OKUS-W6 to 0.016 mg/L in a sample from well APL/UP-W2. The only detectable concentration of dissolved Pb (0.003 mg/L) was present in a sample from well OKUS-W8.

Six groundwater samples were sampled for purgeable halocarbons. Chloroform was detected in groundwater samples from two off-site monitoring wells (APL/UP-W1 and -W2) with concentrations ranging from 2.5 ug/L in a sample from APL/UP-W2 to 5.4 ug/L in a sample from APL/UP-W1. Samples from the two off-site wells also contained detectable concentrations of 1,1,1-trichloroethane, with concentrations ranging from 3.7 ug/L in a sample from APL/UP-W2 to 4.2 ug/L in a sample from APL/UP-W1. Purgeable halocarbons were not detected above the MDLs in any of the on-site wells.

Groundwater BTEX and TPH analytical results have remained consistent over four sampling events.

The arsenic and purgeable halocarbons 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.

Dissolved phase hydrocarbons were discovered in groundwater samples from the newly installed downgradient (off-site) monitoring wells.

Phase-separated hydrocarbons (PSH) were observed in one of the monitoring wells (OKUS-W5) and a recovery well which is located in the former engine oil UST 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 Phase II Site Assessment Report has been prepared for Union Pacific Railroad (UPRR) by USPCI in response to a April 29, 1993, 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 (Figure 1). The facility was the site of an unauthorized release of petroleum hydrocarbons from underground storage tanks (USTs).

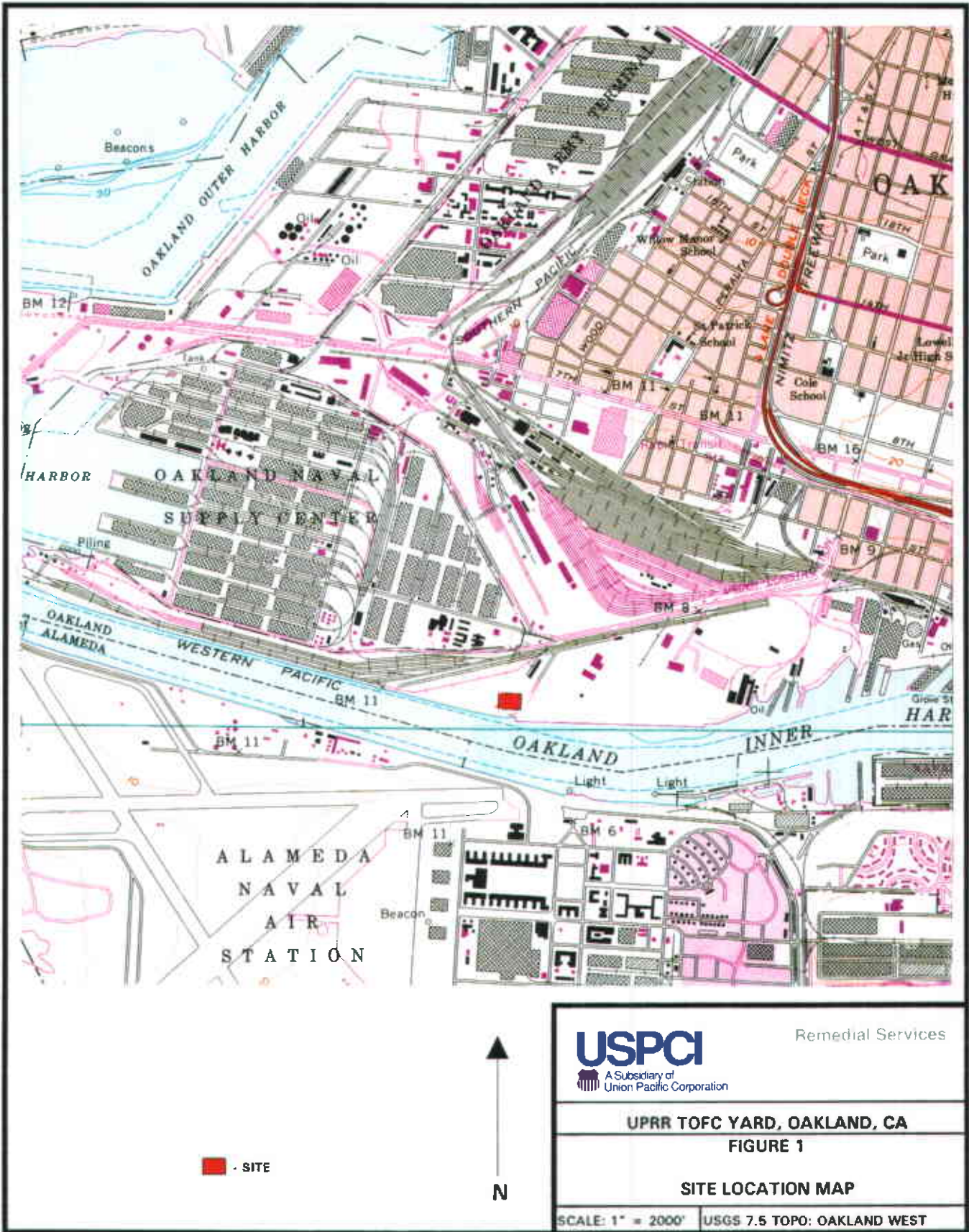
USPCI completed a Phase II Site Assessment at the UPMF facility located within the UPRR Oakland TOFC Yard on July 16, 1993. A total of thirteen soil borings were installed, with five of these borings being converted to monitoring wells. Three of the newly installed wells are on-site and two are off-site on property owned by the Port of Oakland and leased to American President Lines, Inc. (Figure 2). Thirty-three soil samples as well as six water samples were collected and analyzed for total petroleum hydrocarbons (TPH), total petroleum hydrocarbons as gasoline and diesel (TPH-G&D), benzene, toluene, ethylbenzene, and xylene (BTEX), and metals (arsenic and lead) utilizing EPA methods 418.1 (TPH), 8015 Mod/DOHS LUFT, 8020, and 6000/7000 series, respectively. Selected soil samples were analyzed for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and additional metals (cadmium and chromium), utilizing EPA methods 8260, 8080, and 6000/7000 series, respectively. The groundwater samples were also analyzed for purgeable halocarbons using EPA Method 8010.


### 1.1 Site Background

#### 1.1.1 General Description and Previous Activities

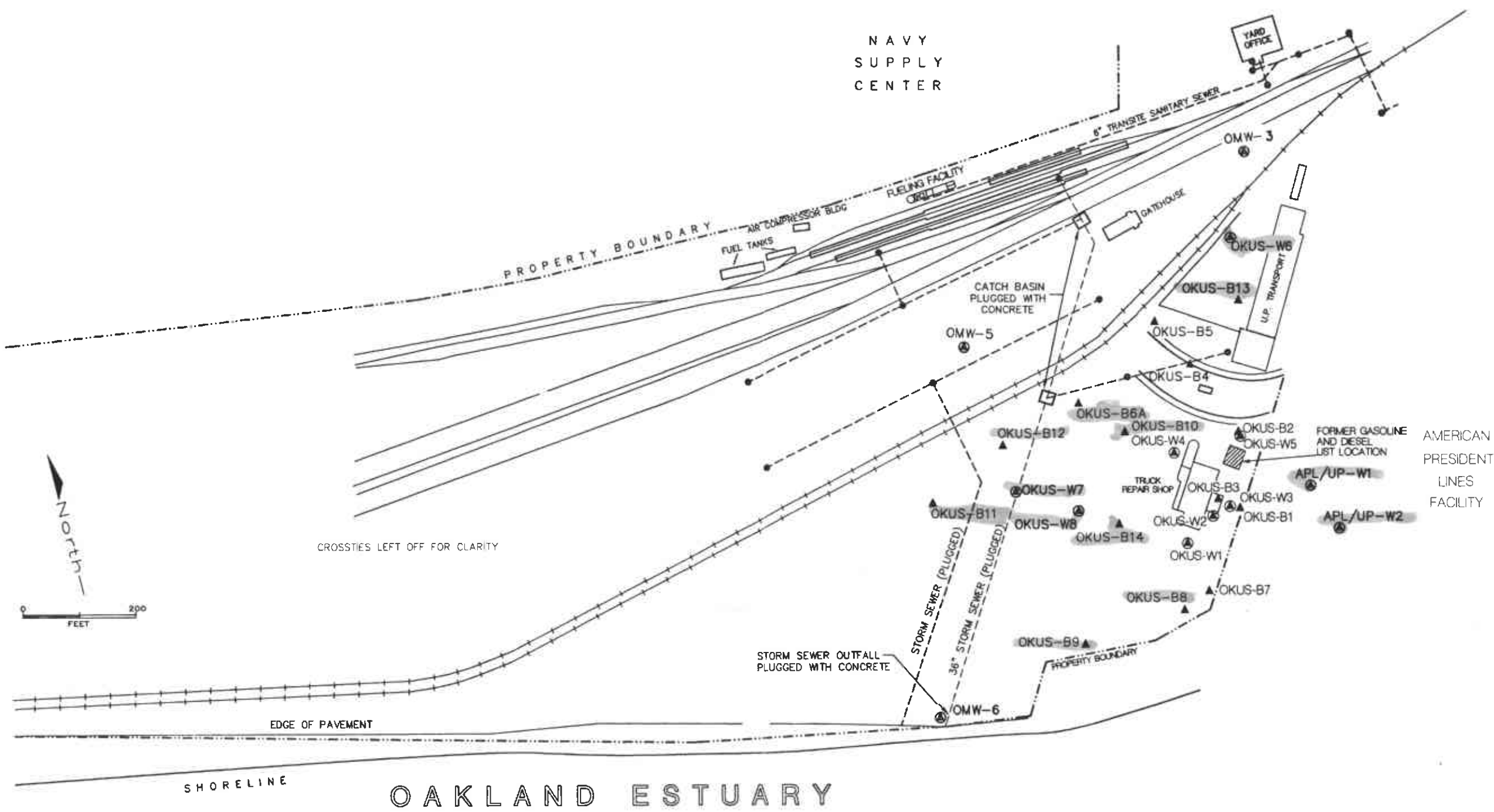
The site is located on the southeastern end of the UPMF facility (Figure 1) located in the Port of Oakland. The area surrounding the site is used for heavy to light commerce, with residential areas being located inland to the east and west across the Oakland Estuary. The former fueling portion of the 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 has 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 former TOFC Yard fueling area.

The following is a general list of activities that have affected the UPMF facility. A complete list of activities involving USPCI, UPRR and the regulating agencies from 1992 to the present is included in Appendix A.



 Remedial Services A Subsidiary of Union Pacific Corporation	<b>UPRR TOFC YARD, OAKLAND, CA</b>	
	<b>FIGURE 1</b>	
<b>SITE LOCATION MAP</b>		
SCALE: 1" = 2000'	USGS 7.5 TOPO: OAKLAND WEST	

NAVY  
SUPPLY  
CENTER



LEGEND

- OKUS-W1 MONITORING WELL LOCATION AND NUMBER
- ▲ OKUS-B1 BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER

*Sbs + Mws newly installed (July 93)*

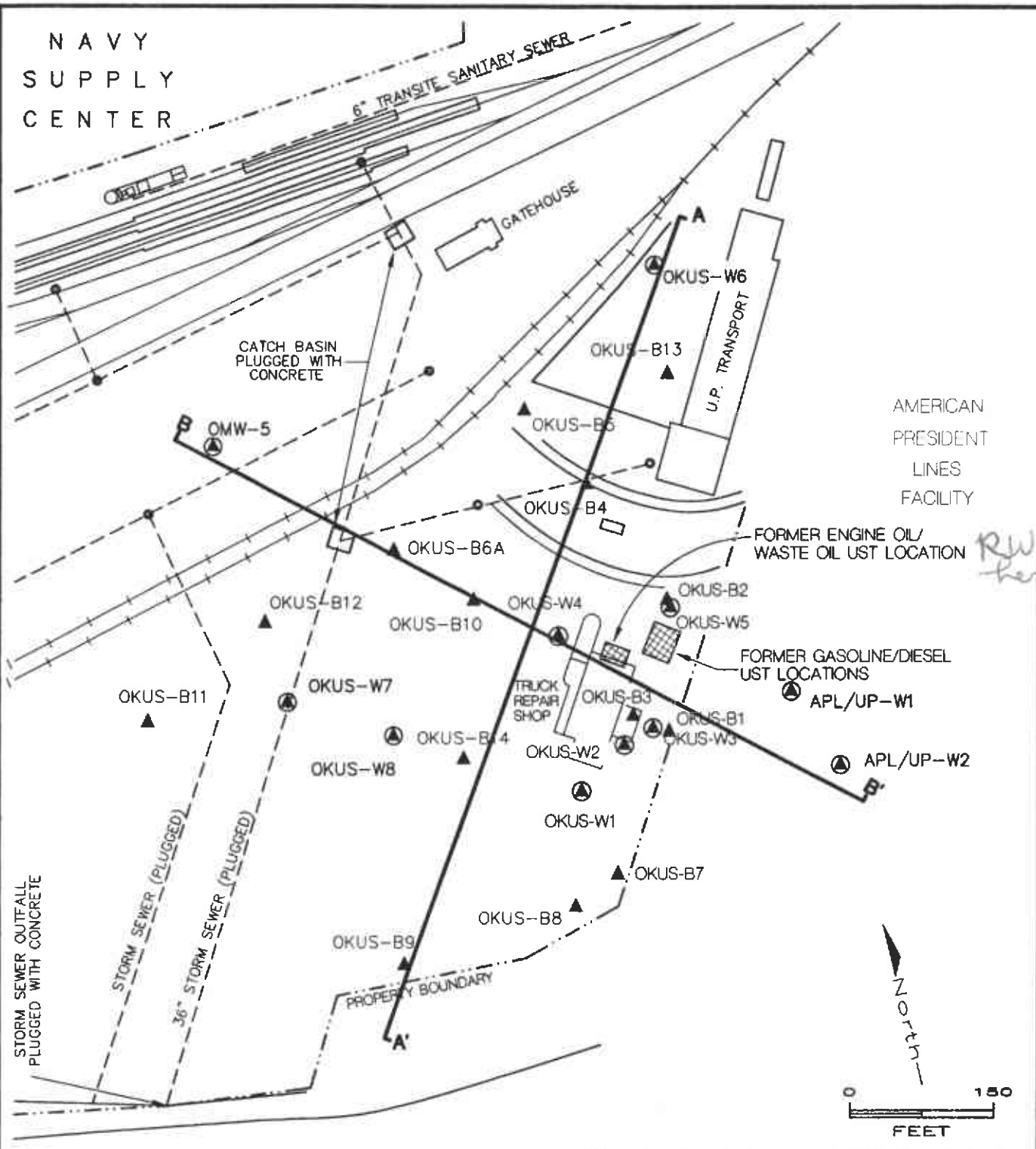
BY	DATE
DRAWN	9/93
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APPROVED	
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APPROVED	

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UPRR TOFC RAILYARD UPMF REPAIR SHOP, OAKLAND, CALIFORNIA	
<b>FIGURE 2 SITE VICINITY MAP</b>	
SCALE 1"=200'	DATE 9/93
DWG. NO. 96120-556	



NAVY  
SUPPLY  
CENTER



AMERICAN  
PRESIDENT  
LINES  
FACILITY

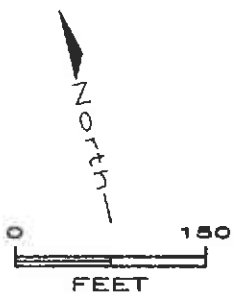
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STORM SEWER OUTFALL  
PLUGGED WITH CONCRETE

STORM SEWER (PLUGGED)

36" STORM SEWER (PLUGGED)

PROPERTY BOUNDARY



**LEGEND**

- ⊙ OKUS-W1 MONITOR WELL LOCATION AND NUMBER
- ▲ OKUS-B9 SOIL BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- PLUGGED SEWER LINE
- GEOLOGIC CROSS SECTION

95120-568

<b>USPCI</b> <small>A Subsidiary of Union Pacific Corporation</small>	
<b>OAKLAND, CALIFORNIA</b>	
<b>FIGURE 3 SITE MAP UPMF REPAIR SHOP</b>	
SCALE <small>1" = 150'</small>	APPROVED/DATE <small>9/83</small>

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. In December, 1987, the tank was removed. Soil containing oil from the leaking line was removed and subsequently transported from the site. During 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 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 Method Detection Limits [MDLs (Marshack, 1989)]. Of the identified CAC metals, lead was the only metal identified at a concentration above the Soluble Threshold Limit Concentration (STLC) of 5.0 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.

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.

Both fiberglass tanks were removed and subsequently loaded onto a UPRR railroad car and transported along with the excavated soil to USPCI's Grassy Mountain Facility in Knolls, 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.

### 1.1.2 Preliminary Site Assessment

Soil samples collected during the January 1993 Preliminary Site Assessment (PSA) contained TPH 418.1 concentrations ranging from 19 milligrams per kilogram (mg/kg) to 47,000 mg/kg. BTEX concentrations in soil samples ranged from below MDLs to 1.38 mg/kg. Total lead concentrations in soil samples ranged from below the MDL to 1,300 mg/kg, and total zinc concentrations ranged from 22 mg/kg to 1,440 mg/kg.

The highest TPH concentration detected in soils during this assessment was in soil sample OKS-16a collected from a depth of 8 - 9 feet in boring OKUS-B4 located 300 feet north (upgradient) 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 the January 1993 PSA contained elevated concentrations of TPH/G and BTEX. TPH/G concentrations in groundwater samples ranged from 410 micrograms per liter (ug/L) in monitoring well OKUS-W1 to 14,000 ug/L in monitoring well OKUS-W2. BTEX concentrations in groundwater samples ranged from 244 ug/L in groundwater samples from monitoring well OKUS-W1 to 9,070 ug/L in monitoring well OKUS-W2. Benzene concentrations were above the Maximum Contaminant Level (MCL) (Marshack, 1989) of 1.0 ug/L in groundwater samples from all five monitoring wells. Ethylbenzene concentrations were above the MCL (680 ug/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 or 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 a sample from OKUS-W2 to 0.470 mg/L in a sample from OKUS-W5. Chloroform concentrations in groundwater samples ranged from 5.9 ug/L in a sample from OKUS-W5 to 290 ug/L in a sample from OKUS-W2. The MCLs for As and chloroform are 0.050 mg/L and 100 ug/L (Marshack, 1989), respectively.

Based on the conclusions of the PSA, USPCI recommended the following actions:

- Conduct a quarterly monitoring program, starting in the second quarter 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.

### **1.1.3 Location and Access**

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

### **1.1.4 Use and Operations**

The site is partly owned by The City of Oakland (Port of Oakland) and Union Pacific Railroad. The UPRR TOFC facility (Figure 2) is an active railyard with fueling capabilities. The site area (Figure 3) is used by UPMF to repair trucks and other related equipment used in shipping and transportation activities.

## **1.2 Phase II Site Assessment**

### **1.2.1 Scope**

In July 1993 to further characterize soil and groundwater conditions at the UPMF facility, USPCI drilled and sampled soil borings and installed groundwater monitoring wells up and downgradient of the former fuel island and tankholds. Three groundwater monitoring wells were installed upgradient (north and northwest) of the former fuel island and tankholds.

Two groundwater monitoring wells were installed downgradient (east-southeast) of the former fuel island and tankholds. The downgradient wells are located on the adjoining property east of the site which is owned by the Port of Oakland (the Port) and leased to American President Lines, Inc (APL). Analytical results obtained from the soil samples were utilized to 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 presented 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 C.

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 D.

This Phase II Site 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 UPRR, ACDEH, the Regional Water Quality Control Board, the Port of Oakland and American President Lines, Inc.

The field investigation was conducted by USPCI personnel, Mr. Christopher Byerman under the direct supervision of Mr. Richard M. Pollard, California Registered Geologist #4659.



## 2.0 SITE CHARACTERIZATION

### 2.1 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.

### 2.2 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 from the Mokelumne Aqueduct, the State Water Project, and the 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 (CAPWW) 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 CAPWW well logs indicate that the thickness of the older alluvium deposits is approximately 500 to 600 feet thick in the site area.

### **2.3 Proximity of Private, Municipal, and Irrigation Wells**

A water well and environmental search within a one-mile radius of the project site was completed by BBL, Inc. (a research firm). According to the information gathered there are no private, municipal or irrigation wells within a one-mile radius of the site. A copy of this report is presented in Appendix E.

## **3.0 FIELD INVESTIGATION RESULTS**

The Phase II Site Assessment was conducted in July 1993 to further evaluate the extent of the soil and groundwater which has been impacted by petroleum hydrocarbons migrating from leaking tanks, related piping or unknown activities. The assessment consisted of:

- Drilling, sampling, and surveying thirteen 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 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 arsenic (As) and lead (Pb) by EPA Method 6000/7000. Groundwater samples were also analyzed for purgeable halocarbons (EPA Method 8010), and selected soil samples were analyzed for volatile organic compounds (VOCs, EPA Method 8260) and polychlorinated biphenyls (PCBs, EPA 8080); and

- **Preparing a Phase II Site Assessment Report.**

### **3.1 Soil Assessment Determinations**

#### **3.1.1 Subsurface Soil Conditions**

During the January and July 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 (10 to 20 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 in some cases became increasingly silty. Silt was noted at 20 feet BGS in one well (Figures 3a and 3b). Soil boring logs are presented in Appendix F.

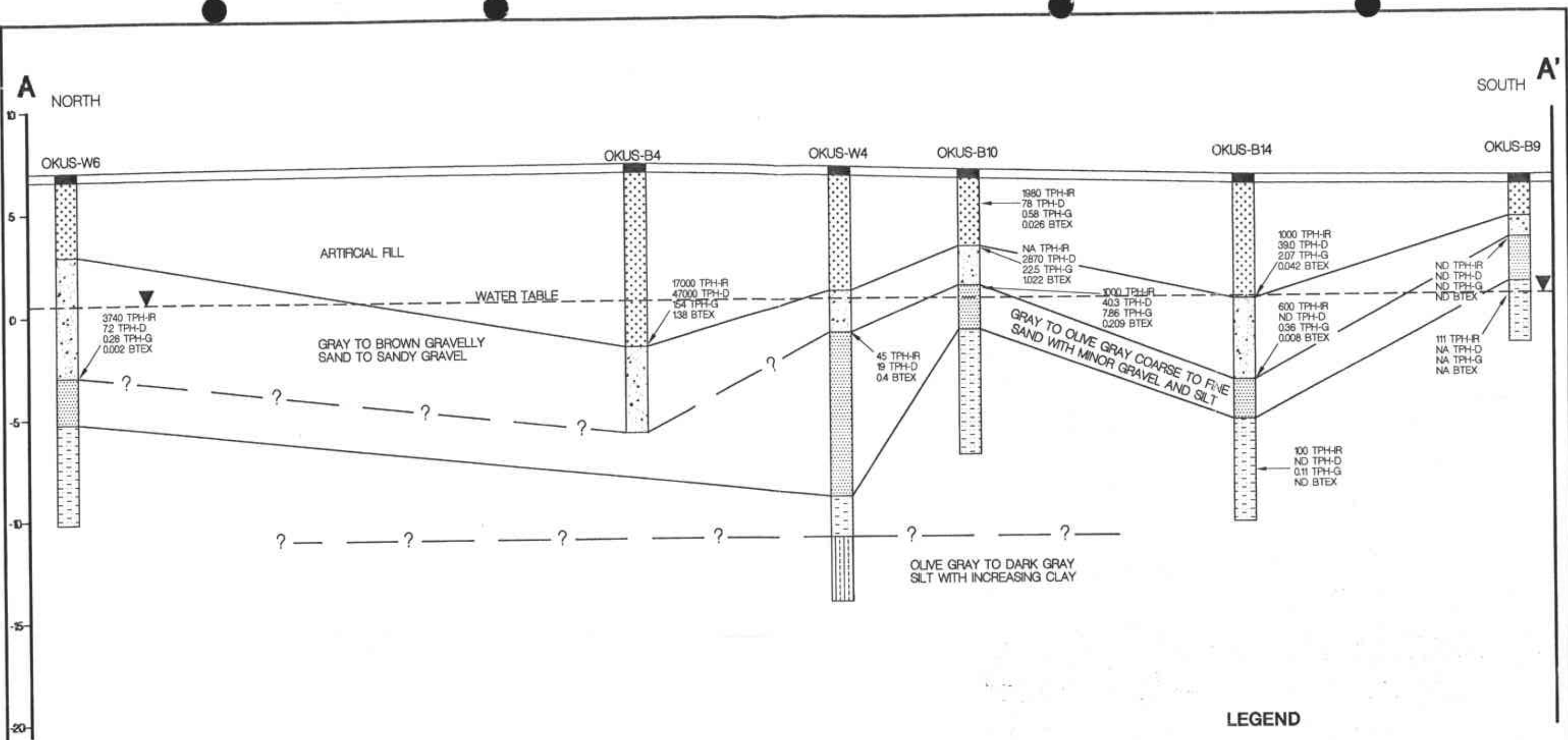
#### **3.1.2 Soil Sampling Procedure**

Thirteen 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 an Organic Vapor Meter (OVM). Detailed procedures used during drilling, sampling, and screening are included in the USPCI QA/QC Plan in Appendix C.

#### **3.1.3 Results of Laboratory Analysis of Soil Samples**

The analytical results indicated that the soil samples from all thirteen soil borings contained elevated concentrations [ $> 100$  milligrams per kilogram (mg/kg)] of TPH (418.1). Concentrations of TPH ranged from non-detect in soil borings OKUS-B8 (8 - 10 feet) and OKUS-B9 (3 - 5 feet) to 23,000 mg/kg in soil boring OKUS-B6a (8 - 9 feet), see Figure 4 and Table 1a.

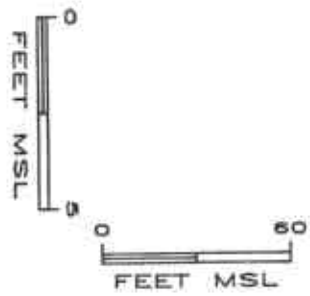
Concentrations of BTEX (Table 1a) in soil samples ranged from non-detect in samples from several borings/monitoring wells [OKUS-B6A (4 - 6 feet), OKUS-B9 (3 - 5 feet), -B11 (4 - 6 feet/7 - 9 feet), -B14 (15 - 17 feet), OKUS-W7 (9 - 11 feet), APL/UP-W1 (6 - 8 feet/12 - 14 feet), and -W2 (3 - 5 feet/11 - 13 feet), to 1.728 mg/kg in soil boring OKUS-B6A (10 - 12 feet)].



**NOTES:** TPH AND BTEX VALUES IN mg/kg  
 TPH-IR (TPH 418.1 METHOD)  
 TPH-D (TPH DIESEL 8015 MOD)  
 TPH-G (TPH GASOLINE 8015 MOD)  
 BTEX (8020 METHOD)  
 NA - (NOT ANALYZED)  
 ND - (NOT DETECTED)

**LEGEND**

- ASPHALT
- ▨ COARSE SAND
- ▧ ARTIFICIAL FILL
- ▨ SANDY CLAY
- ▧ GRAVELLY SAND
- ▨ SILTY CLAY



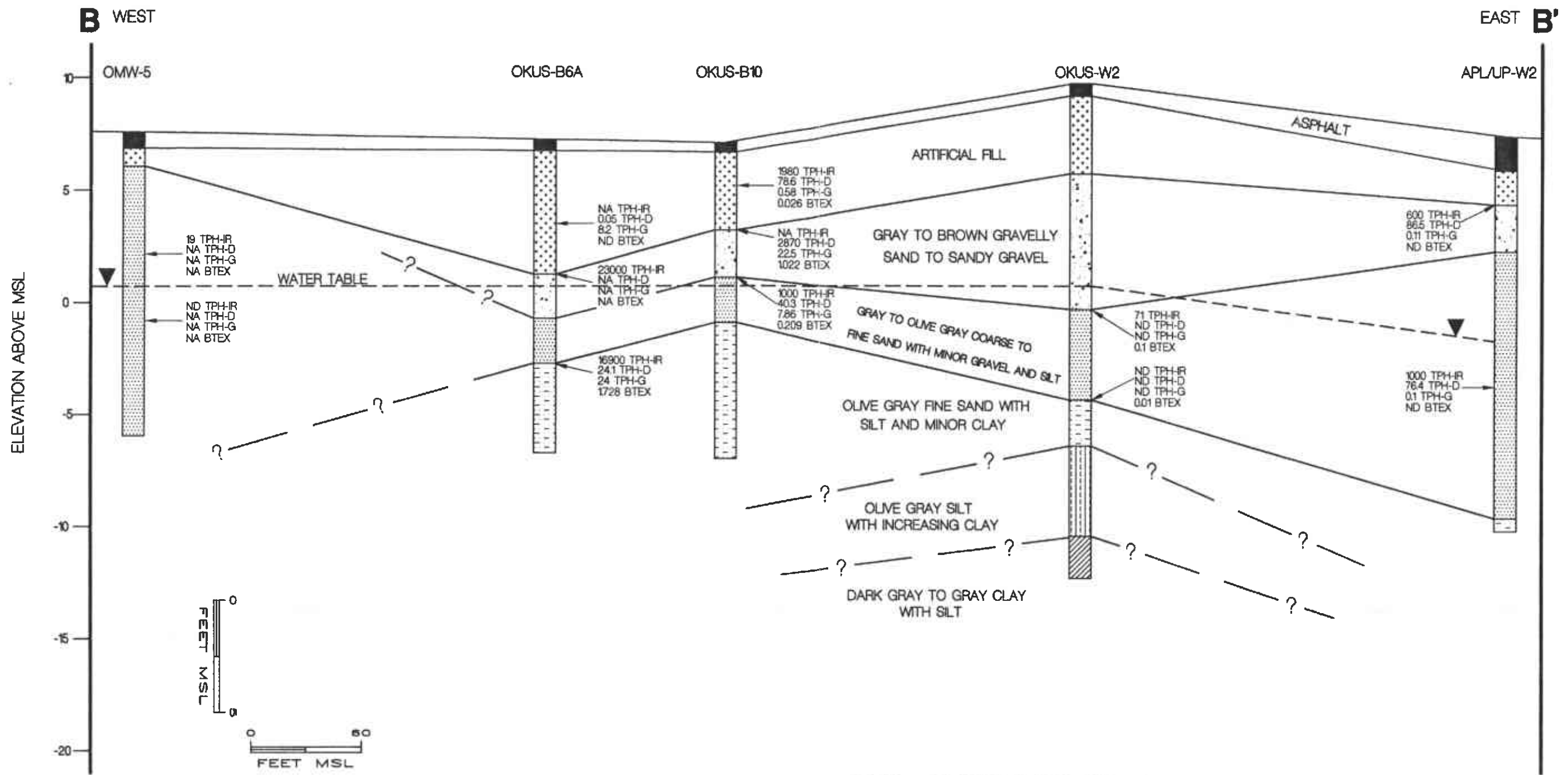
BY	DATE
DRAWN BILL	9/93
CHECKED	
APPROVED	
APPROVED	
APPROVED	

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**OAKLAND, CALIFORNIA**

**FIGURE 3a**  
**GEOLOGIC CROSS SECTION A - A'**

SCALE AS NOTED      DWG. NO. 96120-563



**NOTES:** TPH AND BTEX VALUES IN mg/kg  
 TPH-IR (TPH 418.1 METHOD)  
 TPH-D (TPH DIESEL 8015 MOD)  
 TPH-G (TPH GASOLINE 8015 MOD)  
 BTEX (8020 METHOD)  
 NA - (NOT ANALYZED)  
 ND - (NOT DETECTED)

**LEGEND**

- ASPHALT
- COARSE SAND
- CLAY
- ARTIFICIAL FILL
- SANDY CLAY
- SILTY CLAY
- GRAVELLY SAND

BY	DATE
DRAWN BILL	9/93
CHECKED	
APPROVED	
APPROVED	
APPROVED	

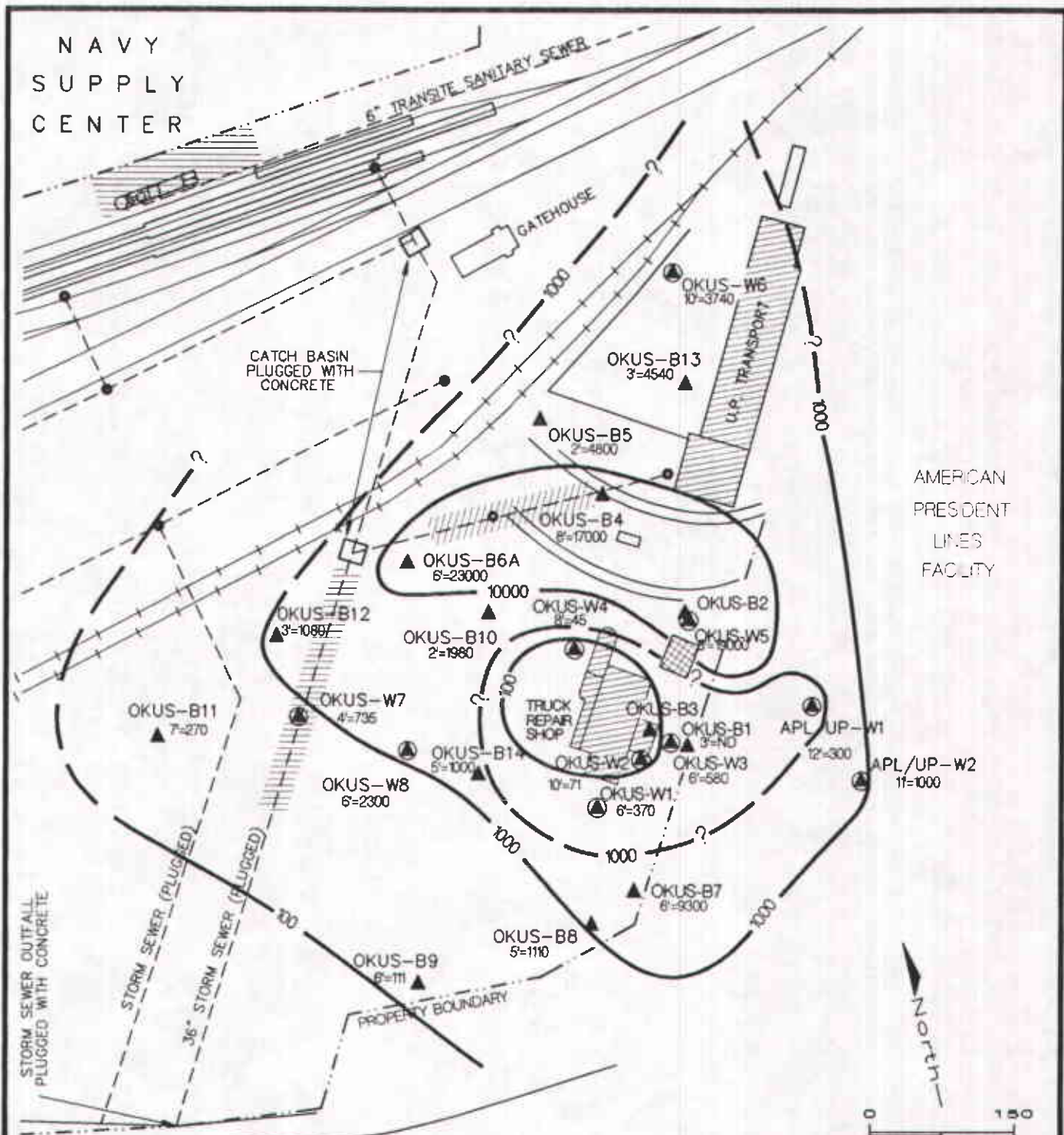
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**FIGURE 3b**  
**GEOLOGIC CROSS SECTION B - B'**

SCALE AS NOTED DWG. NO. 96120-564

NAVY  
SUPPLY  
CENTER



**LEGEND**

- OKUS-W1 MONITOR WELL LOCATION AND NUMBER
  - ▲ OKUS-B9 SOIL BORING LOCATION AND NUMBER
  - CATCH BASIN FOR STORM SEWER
  - 100 TPH 418.1 RESULTS CONTOUR
  - [Hatched Box] SUSPECTED POTENTIAL SOURCES
  - [Cross-hatched Box] FORMER GASOLINE/DIESEL UST
- NOTE: TPH REPORTED IN mg/kg



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OAKLAND, CALIFORNIA	
FIGURE 4 SOIL HYDROCARBON DISTRIBUTION MAP UPMF REPAIR SHOP	
SCALE 1" = 150'	APPROVED/DATE 9/93

9610-557



TABLE 1a. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
 PRELIMINARY SITE ASSESSMENT, JANUARY 1993 - USPCI PROJECT NO. 96120-844

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	0.41
"	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	0.026	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	1200	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	164	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	600	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	17.20	1.55	1300	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 - analyzed using Method 8015 Mod.

TPH/G - analyzed using Method 8015 Mod.

BTEX - analyzed using Method 8020

CHLOROBENZENE - analyzed using Method 8010

CHLOROFORM - analyzed using Method 8010

Cadmium (Cd) - analyzed by Method 7130

Chromium (Cr) - analyzed by Method 6010

Lead (Pb) - analyzed by Method 7421

Zinc (Zn) - analyzed by Method 6010

\* - MS/MSDS sample from OKS-21

TABLE 1a. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
 PHASE II SITE ASSESSMENT, JULY 1993 - USPCI PROJECT NO. 96120-844

SAMPLE LOCATION	SAMPLE ID	SAMPLE DEPTH feet	TPH 418.1 mg/kg	TPH/D C10 - 50 mg/kg	TPH/G C5 - 12 mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYL-BENZENE mg/kg	TOTAL XYLENES mg/kg	TOTAL BTEX mg/kg	As mg/kg	Cd mg/kg	Cr mg/kg	Pb mg/kg	CHLORO-BENZENE mg/kg	CHLORO-FORM mg/kg
OKUS-B6A	OKUS-B6A (4')	4' - 6'	NA	0.05	8.2	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
"	OKUS-B6A (6')	6' - 8'	23000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKUS-B6A (10')	10' - 12'	16909	24.1	24	0.037	0.17	0.491	1.03	1.728	ND	NA	NA	180	NA	NA
OKUS-B8	OKUS-B8 (3')	3' - 5'	1110	6.7	5.67	0.001	0.026	0.013	0.102	0.142	ND	NA	NA	387	NA	NA
"	OKUS-B8 (8')	8' - 10'	ND	3.2	0.47	ND	ND	ND	0.006	0.006	ND	NA	NA	12	NA	NA
OKUS-B9	OKUS-B9 (3')	3' - 5'	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	12	NA	NA
"	OKUS-B9 (6')	6' - 8'	111	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-B10	OKUS-B10 (2')	2' - 4'	1980	78.6	0.58	0.001	0.007	0.004	0.014	0.026	ND	3.7	18.7	21	NA	NA
"	OKUS-B10 (4')	4' - 6'	NA	2870	22.5	0.096	0.172	0.155	0.599	1.022	NA	NA	NA	NA	NA	NA
"	OKUS-B10 (6')	6' - 8'	1000	40.3	7.86	0.002	0.015	0.043	0.149	0.209	36	16.8	89.6	823	NA	NA
OKUS-B11	OKUS-B11 (4')	4' - 6'	215	7.7	0.24	ND	ND	ND	ND	ND	ND	NA	NA	ND	NA	NA
"	OKUS-B11 (7')	7' - 9'	270	2.9	ND	ND	ND	ND	ND	ND	ND	NA	NA	19	NA	NA
OKUS-B12	OKUS-B12 (3')	3' - 5'	1080	ND	72.2	ND	0.002	ND	ND	0.002	ND	NA	NA	7	NA	NA
OKUS B13	OKUS-B13 (3')	3' - 5'	4540	137	2.49	0.027	0.084	0.081	0.257	0.449	58	NA	NA	3890	NA	NA
"	OKUS-B13 (10')	10' - 12'	1070	110	1.03	0.001	0.013	0.5	0.127	0.191	9	NA	NA	149	NA	NA
OKUS-B14	OKUS-B14 (5')	5' - 7'	1000	39	2.07	ND	0.006	0.002	0.034	0.042	ND	NA	NA	71	NA	NA
"	OKUS-B14 (10')	10' - 12'	600	ND	0.36	ND	ND	ND	0.008	0.008	NA	NA	NA	NA	NA	NA
"	OKUS-B14 (15')	15' - 17'	100	ND	0.11	ND	ND	ND	ND	ND	ND	NA	NA	10	NA	NA
OKUS-W6	OKUS-W6 (10')	10' - 12'	3740	7.2	0.28	ND	0.002	ND	ND	0.002	ND	NA	NA	122	NA	NA
OKUS-W7	OKUS-W7 (4')	4' - 6'	735	53.6	0.07	ND	0.002	ND	ND	0.002	17	NA	NA	1580	NA	NA
"	OKUS-W7 (9')	9' - 11'	187	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	167	NA	NA
OKUS-W8	OKUS-W8 (6')	6' - 8'	2300	21.1	4.21	0.002	0.002	0.007	0.01	0.021	44	NA	NA	1380	NA	NA
"	OKUS-W8 (12')	12' - 14'	300	6.2	0.06	ND	0.002	ND	ND	0.002	ND	NA	NA	498	NA	NA
"	DUP A	12' - 14'	400	106	0.92	ND	0.002	ND	ND	0.002	ND	NA	NA	390	NA	NA
"	OKUS-W8 (15')	15' - 17'	800	ND	0.07	ND	0.002	ND	ND	0.002	ND	NA	NA	63	NA	NA

ND - Not Detected  
 NA - Not Analyzed  
 TPH - Total Petroleum Hydrocarbons  
 MG/KG - milligram per kilogram

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

Arsenic (As) - analyzed by Method 7060  
 Cadmium (Cd) - analyzed by Method 7130  
 Chromium (Cr) - analyzed by Method 6010  
 Lead (Pb) - analyzed by Method 7421



TABLE 1a. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
 PHASE II SITE ASSESSMENT, JULY 1993 - USPCI PROJECT NO. 96120-844

SAMPLE LOCATION	SAMPLE ID	SAMPLE DEPTH feet	TPH-IR mg/kg	TPH/D C10 - 50 mg/kg	TPH/G C6 - 12 mg/kg	BENZENE mg/kg	TOLUENE mg/kg	ETHYL-BENZENE mg/kg	TOTAL XYLENES mg/kg	TOTAL BTEX mg/kg	As mg/kg	Cd mg/kg	Cr mg/kg	Pb mg/kg	CHLORO-BENZENE mg/kg	CHLORO-FORM mg/kg
APL/UP-W1	APL/UP-W1 (6')	6' - 8'	100	ND	0.11	ND	ND	ND	ND	ND	ND	1.1	23.2	ND	NA	NA
	APL/UP-W1 (12')	12' - 14'	300	ND	0.1	ND	ND	ND	ND	ND	ND	1.0	20	ND	NA	NA
	DUP B	12' - 14'	100	ND	ND	ND	0.002	ND	ND	0.002	ND	NA	NA	8	NA	NA
APL/UP-W2	APL/UP-W2 (3')	3' - 5'	600	86.5	0.11	ND	ND	ND	ND	ND	ND	1.2	21.5	5	NA	NA
	APL/UP-W2 (11')	11' - 13'	1000	76.4	0.1	ND	ND	ND	ND	ND	ND	1.1	18.6	ND	NA	NA
	DUP C	11' - 13'	ND	ND	0.13	ND	0.002	ND	0.003	0.005	ND	NA	NA	ND	NA	NA
TRIP BLK	OAK-TB 1	WATER	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA

ND - Not Detected  
 NA - Not Analyzed  
 TPH - Total Petroleum Hydrocarbons  
 MG/KG - milligram per kilogram

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

Arsenic (As) - analyzed by Method 7060  
 Cadmium (Cd) - analyzed by Method 7130  
 Chromium (Cr) - analyzed by Method 6010  
 Lead (Pb) - analyzed by Method 7421

Twenty-six soil samples were analyzed for total arsenic (As) and total lead (Pb). Elevated concentrations (> 100 mg/kg) of lead (Pb) were found in ten of the twenty-six soil samples ranging from 122 mg/kg in a sample from monitoring well OKUS-W6 (10 - 12 feet) to 3890 mg/kg in a sample from soil boring OKUS-B13 (3 - 5 feet). Detectable concentrations of As were present in five soil samples ranging from 17 mg/kg in a soil sample from monitoring well OKUS-W7 (4 - 6 feet) to 58 mg/kg in soil boring OKUS-B13 (3 - 5 feet). Six soil samples were analyzed for total cadmium (Cd) and chromium (Cr). Detectable concentrations of Cd were present in all six soil samples ranging from 1.0 mg/kg in monitoring well APL/UP-W1 (12 - 14 feet) to 16.8 mg/kg in soil boring OKUS-B10 (6 - 8 feet). Detectable concentrations of Cr were present in all six soil samples ranging from 18.6 mg/kg in monitoring well APL/UP-W2 (11 - 13 feet) to 89.6 mg/kg in soil boring OKUS-B10 (6 - 8 feet). See Table 1a for analytical results.

Two additional soil samples were collected from soil boring OKUS-B6A (10 - 12 feet) and analyzed for volatile organics and PCBs. The only detectable organics were benzene, toluene, ethylbenzene and xylene. There were no PCBs detected above the analytical detection limit. See Table 1b for analytical results.

### **3.2 Groundwater Assessment Determinations**

#### **3.2.1 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.

TABLE 1b. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
PRELIMINARY SITE ASSESSMENT, JANUARY 1993 - USPCI PROJECT NO. 96120-844

SAMPLE LOCATION	SAMPLE ID	SAMPLE DEPTH feet	is-1,3-DICHLORO PROPENE mg/kg	TETRACHLOROETHENE mg/kg	ACENAPHTYLENE mg/kg	BENZO (a) ANTHRACENE mg/kg	BENZO (b) FLUORANTHENE mg/kg	BENZO (a) PYRENE mg/kg	BENZO (g,h,i) PERYLENE mg/kg	CHRYSENE mg/kg	INDENO-PYRENE mg/kg	NAPHTHALENE mg/kg	PHENANTHRENE 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	3.60	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

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

All remaining parameters were analyzed using Method 8270

NOTE: Analytical results on the first page on Table 1b are from the Preliminary Site Assessment and results on the second page are from the Phase II Assessment.

**TABLE 1b. CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES AT THE UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
PHASE II SITE ASSESSMENT, JULY 1993 - USPCI PROJECT NO. 96120-844**

SAMPLE LOCATION	SAMPLE ID	SAMPLE DEPTH feet	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	PCBs 1016	PCBs 1221	PCBs 1232	PCBs 1242	PCBs 1248	PCBs 1254	PCBs 1260
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
OKUS-B6A	OKUS-B6A (4')	4' - 6'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKUS-B6A (6')	6' - 8'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
"	OKUS-B6A (10')	10' - 12'	0.07	0.17	0.781	2.34	ND	ND	ND	ND	ND	ND	ND

NOTE: OKUS-B6A (10') was the only sample analyzed for VOCs and PCBs.

ND - Not Detected  
 NA - Not Analyzed  
 MG/KG - milligram per kilogram  
 VOCs - Volatile Organic Compounds  
 PCBs - Polychlorinated Biphenyls

BENZENE - analyzed by EPA Method 8260  
 TOLUENE - analyzed by EPA Method 8260  
 ETHYL BENZENE - analyzed by EPA Method 8260  
 XYLENE - analyzed by EPA Method 8260

PCBs: Aroclor 1016 - analyzed by EPA Method 8080  
 PCBs: Aroclor 1221 - analyzed by EPA Method 8080  
 PCBs: Aroclor 1232 - analyzed by EPA Method 8080  
 PCBs: Aroclor 1242 - analyzed by EPA Method 8080  
 PCBs: Aroclor 1248 - analyzed by EPA Method 8080  
 PCBs: Aroclor 1254 - analyzed by EPA Method 8080  
 PCBs: Aroclor 1260 - analyzed by EPA Method 8080

Five of the soil borings were completed as monitoring wells. Groundwater was typically encountered during drilling operations at depths ranging from 6 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 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 G. The static water levels measured in July 1993 in wells completed within the borings ranged from 5.56 to 10.02 feet BGS.

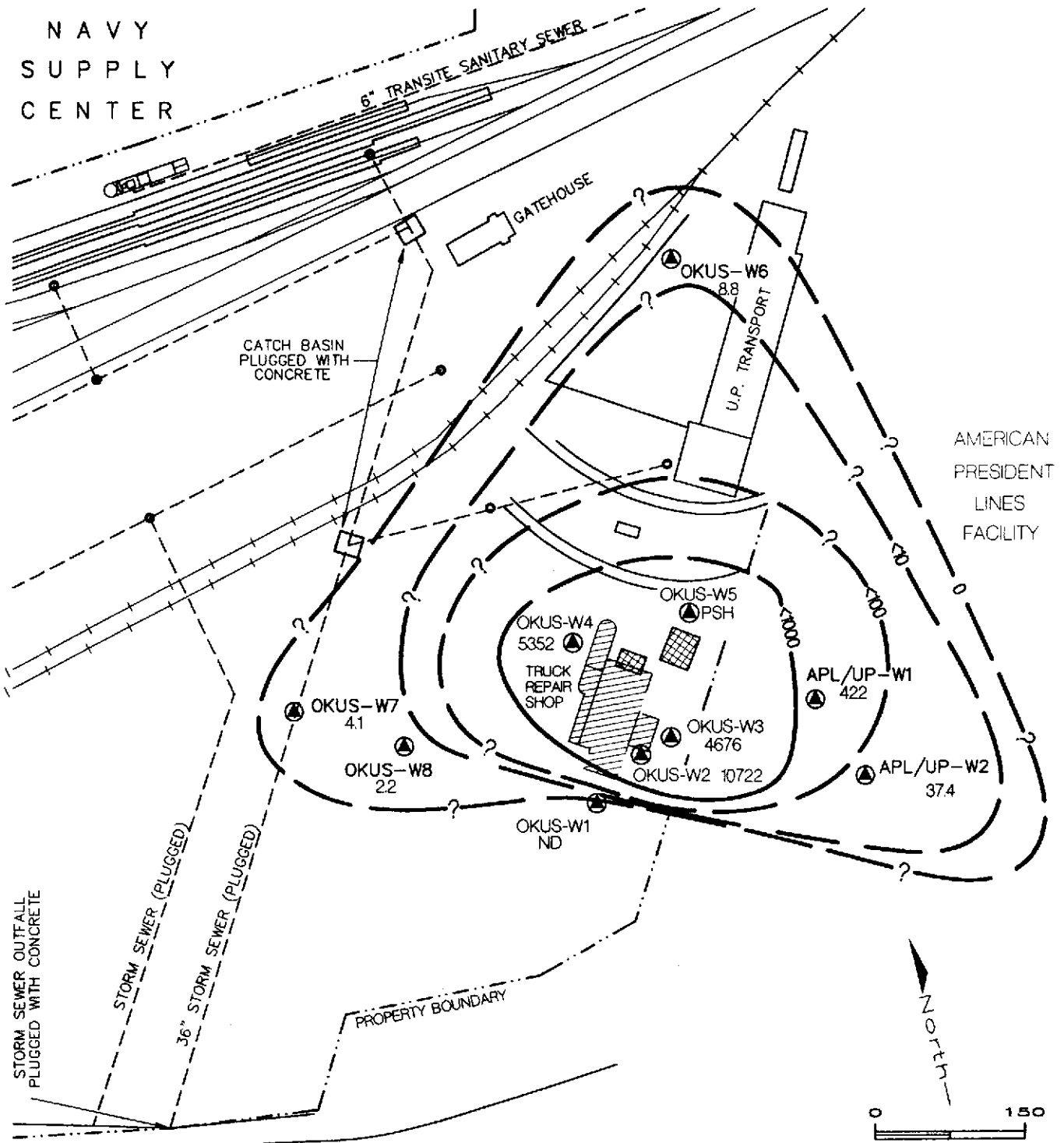
### 3.2.2 Results of Laboratory Analysis of Groundwater Samples

The analytical results indicated that the groundwater samples collected from the five new monitoring wells (including one duplicate) contained detectable concentrations of BTEX, TPH (418.1), TPH/D, and TPH/G. Total BTEX concentrations ranged from 2.1 micrograms per liter (ug/L) in the groundwater sample from monitoring well OKUS-W7 to 30.1 ug/L in sample APL/UP-W1 (Figure 5 and Table 2a). TPH/D and TPH/G were detected in samples from well APL/UP-W1 at concentrations of 700 ug/L and 300 ug/L respectively. There was no TPH/D detected in monitoring wells OKUS-W7 and -W8. TPH concentrations ranged from 11 milligrams per liter (mg/L) in a sample from well APL/UP-W1 to 19 mg/L in a sample from well APL/UP-W2 (Table 2a). The TPH/D and TPH sample from well OKUS-W6 was broken during shipment to the laboratory.

Six groundwater samples were analyzed for dissolved As and Pb. Detected concentrations of As were present in samples from all five new monitoring wells as well as in a duplicate sample. Arsenic concentrations ranged from 0.004 mg/L in a sample from OKUS-W6 to 0.016 mg/L in a sample from well APL/UP-W2. The only detectable concentration of dissolved Pb (0.003 mg/L) was present in a sample from well OKUS-W8 (Table 2a).

Six groundwater samples were sampled for purgeable halocarbons. Chloroform was detected in groundwater samples from two off-site monitoring wells (APL/UP-W1 and -W2) with concentrations of 2.5 ug/L in a sample from APL/UP-W2 to 5.4 ug/L in a sample from APL/UP-W1 (Table 2b). These two wells also contained detected concentrations of 1,1,1-Trichloroethane, with concentrations ranging from 3.7 ug/L in a

NAVY  
SUPPLY  
CENTER



**LEGEND**

- ▲ OKUS-W1 MONITOR WELL LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- <10- BTEX CONTOUR
- [Hatched Box] SUSPECTED POTENTIAL SOURCES
- [Grid Box] FORMER GASOLINE/DIESEL UST

NOTE: ALL ANALYTICAL RESULTS IN  $\mu\text{g/L}$

96120-567

<p><b>USPCI</b> A Subsidiary of Union Pacific Corporation</p>	
<p>OAKLAND, CALIFORNIA</p>	
<p>FIGURE 5 DISSOLVED PHASE BTEX DISTRIBUTION MAP UPMF REPAIR SHOP</p>	
SCALE: 1" = 150'	APPROVED/DATE: 8/93

TABLE 2a. CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES AT THE UNION PACIFIC MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
USPCI PROJECT NO. 96120-844

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/IR	TPH/D	TPH/G	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	TOTAL BTEX	As	Pb
			mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
OKUS-W1	OKUS-W1	1/14/93	ND	ND	410	20	4	220	ND	244	ND	ND
		5/12/93	80	120	ND	ND	ND	ND	ND	ND	ND	ND
		8/25/93	ND	100	ND	ND	ND	ND	ND	ND	ND	ND
OKUS-W2	OKUS-W2	1/14/93	2.5	5400	14000	480	92	8500	ND	9072	0.036	ND
		5/12/93	ND	2800	8800	220	47	4600	100	4967	0.093	ND
		8/25/93	5.8	8500	22000	420	92	10000	210	10722	0.089	ND
OKUS-W3	OKUS-W3	1/14/93	4.5	4200	4900	230	42	2600	44	2916	NA	ND
		5/12/93	1.7	4400	4600	290	60	3500	72	3922	0.14	ND
		8/25/93	1.5	2700	9400	280	55	4300	41	4676	0.08	ND
OKUS-W4	OKUS-W4	1/15/93	2.5	5400	8900	300	ND	4500	ND	4800	NA	ND
		5/12/93	1.3	2900	6000	320	110	4600	230	5260	0.16	ND
		8/26/93	ND	2200	6700	350	72	4800	130	5352	0.098	ND
OKUS-W5	OKUS-W5	1/15/93	ND	2900	550	53	11	180	20	264	NA	ND
		5/12/93	130	2100	550	81	14	250	37	382	0.56	ND
		8/25/93	PHASE SEPARATED HYDROCARBONS - WELL NOT SAMPLED						.02 ft (oil)			
OKUS-W6	OKUS-W6	7/16/93	BRK	BRK	ND	2.5	ND	ND	ND	2.5	0.004	ND
		8/25/93	ND	590	ND	2.6	ND	4.9	1.3	8.8	0.013	ND
OKUS-W7	OKUS-W7	7/16/93	16	ND	ND	2.1	ND	ND	ND	2.1	0.009	ND
		8/25/93	ND	930	56	2.9	ND	1.2	ND	4.1	ND	ND
OKUS-W8	OKUS-W8	7/16/93	15	ND	ND	ND	ND	ND	ND	ND	0.012	0.003
		8/27/93	ND	1100	120	1.3	ND	ND	0.85	2.15	ND	0.005
APL/UP-W1	APL/UP-W1	7/16/93	11	700	300	25.4	1.7	ND	3.0	30.1	0.011	ND
		8/26/93	ND	810	720	47	1.3	360	14.0	422.3	0.013	ND
APL/UP-W2	APL/UP-W2	7/16/93	19	ND	ND	8.0	ND	ND	ND	8.0	0.016	ND
		8/28/93	ND	240	94	ND	ND	35	2.4	37.4	0.023	ND

\*W4 had .1" PSH in 1st bailer vol.

ND - Not Detected  
NA - Not Analyzed  
BRK - Bottle broken during shipment  
TPH - Total Petroleum Hydrocarbons  
mg/L - milligram per liter  
ug/L - microgram per liter

TPH/IR - analyzed using EPA Method 418.1  
TPH/D - analyzed using EPA Method 8015 Mod.  
TPH/G - analyzed using EPA Method 8015 Mod.  
BTEX - analyzed using EPA Method 8020  
As - analyzed using EPA Method 7060  
Pb - analyzed using EPA Method 7421

**TABLE 2a. CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES AT THE UNION PACIFIC MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
USPCI PROJECT NO. 96120-844**

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/IR mg/L	TPH/D ug/L	TPH/G ug/L	BENZENE ug/L	TOLUENE ug/L	ETHYL- BENZENE ug/L	TOTAL XYLENES ug/L	TOTAL BTEX ug/L	As mg/L	Pb mg/L
<b>QA/QC</b>												
OKUS-W5	OKUS-W6	1/15/93	ND	2800	510	50	10	170	19	249	NA	NA
OKUS-W1	OKUS-W6	5/12/93	ND	140	ND	ND	ND	ND	ND	ND	ND	ND
APL/UP-W1	QA/QC-1	7/16/93	12	ND	0.21	22.4	ND	ND	2.4	24.8	0.012	ND
OKUS-W4	OKUS-W9	8/26/93	ND	2700	6200	340	78	4500	100	5018	0.1	ND
UPMF	OAK-FB 1	7/16/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	OAK-TB 2	7/16/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB-1	8/27/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB-2	8/27/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA

ND - Not Detected  
 NA - Not Analyzed  
 BRK - Bottle broken during shipment  
 TPH - Total Petroleum Hydrocarbons  
 mg/L - milligram per liter  
 ug/L - microgram per liter

TPH/IR - analyzed using Method 418.1  
 TPH/D - analyzed using Method 8015 Mod.  
 TPH/G - analyzed using Method 8015 Mod.  
 BTEX - analyzed using Method 8020  
 As - analyzed using Method 7060  
 Pb - analyzed using Method 7421



TABLE 2b. CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES AT THE UNION PACIFIC MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
USPCI PROJECT NO. 96120-844

HVACs

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	BROMO-FORM ug/L	CHLORO-BENZENE ug/L	CHLORO-FORM ug/L	-CHLOROETHY VINYL ETHER ug/L	DIBROMOCHLOR-OMETHANE	1,1-DICHLORO-ETHENE	cis-1,2-DICHLORO-ETHENE	cis-1,3-DICHLORO-PROPANE	1,1,2,2-TETRA-CHLOROETHENE	1,1,1-TRICHL-OROETHANE
OKUS-W1	OKUS-W1	1/14/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		5/12/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		8/25/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OKUS-W2	OKUS-W2	1/14/93	ND	14	290	15	ND	ND	ND	9	18	5
		5/12/93	ND	26	ND	ND	ND	ND	ND	ND	ND	ND
		8/25/93	ND	78	ND	20	18	21	20	10	20	ND
OKUS-W3	OKUS-W3	1/14/93	ND	15	140	ND	ND	ND	ND	ND	11	ND
		5/12/93	ND	16	ND	ND	ND	ND	ND	ND	ND	ND
		8/25/93	ND	22	ND	6.4	3	3.2	ND	3.2	10	ND
OKUS-W4	OKUS-W4	1/15/93	ND	ND	75	ND	ND	ND	6.4	9.4	16	ND
		5/12/93	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
		8/25/93	ND	30	ND	ND	ND	ND	ND	ND	16	ND
OKUS-W5	OKUS-W5	1/15/93	5.9	ND	5.9	ND	ND	ND	ND	0.7	4.2	ND
		5/12/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		8/25/93	PHASE SEPARATED HYDROCARBONS - WELL NOT SAMPLED									
OKUS-W6	OKUS-W6	7/16/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		8/25/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OKUS-W7	OKUS-W7	7/16/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		8/25/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OKUS-W8	OKUS-W8	7/16/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		8/27/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
APL/UP-W1	APL/UP-W1	7/16/93	ND	ND	5.4	ND	ND	ND	ND	ND	ND	4.2
		8/26/93	ND	0.75	ND	ND	ND	ND	0.63	0.6	2.2	ND
APL/UP-W2	APL/UP-W2	7/16/93	ND	ND	2.5	ND	ND	ND	ND	ND	ND	3.7
		8/26/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

W4 had 0.1" PSH in 1st bailer volume:

BROMOFORM - analyzed using EPA Method 8010  
 CHLOROBENZENE - analyzed using EPA Method 8010  
 CHLOROFORM - analyzed using EPA Method 8010  
 2-CLHLOROETHYLVINYL ETHER - analyzed using EPA Method 8010  
 DIBROMOCHLOROETHANE - analyzed using EPA Method 8010  
 1,1-DICHLOROETHANE - analyzed using EPA Method 8010  
 cis-1,2-DICHLOROETHENE - analyzed using EPA Method 8010  
 cis-1,3-DICHLOROPROPANE - analyzed using EPA Method 8010  
 1,1,2,2-TETRACHLOROETHANE - analyzed using EPA Method 8010  
 1,1,1-TRICHLOROETHANE -- analyzed using EPA Method 8010

ND - Not Detected  
 NA - Not Analyzed  
 BRK - Bottle broken during shipment  
 TPH - Total Petroleum Hydrocarbons  
 mg/L - milligram per liter  
 ug/L - microgram per liter

TABLE 2b. CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES AT THE UNION PACIFIC MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA  
USPCI PROJECT NO. 96120-844

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	BROMO-FORM ug/L	CHLORO-BENZENE ug/L	CHLORO-FORM ug/L	-CHLOROETHY VINYL ETHER ug/L	DIBROMOCHLORO METHANE	1,1-DICHLORO-ETHENE	1,2-DICHLORO-ETHENE	1,3-DICHLORO-PROPANE	1,1,2,2-TETRA-CHLOROETHENE	1,1,1-TRICHL-OROETHANE
QA/QC												
OKUS-W5	OKUS-W6	1/15/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
OKUS-W1	OKUS-W6	5/12/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
APL/UP-W1	QA/QC-1	7/16/93	ND	ND	9.3	ND	ND	ND	ND	ND	ND	1.2
OKUS-W4	OKUS-W9	8/26/93	ND	22	ND	ND	ND	ND	ND	ND	15	ND
UPMF	OAK-FB 1	7/16/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UPMF	OAK-TB 2	7/16/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UPMF	TB-1	8/27/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UPMF	TB-2	8/27/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

ND - Not Detected  
 NA - Not Analyzed  
 BRK - Bottle broken during shipment  
 TPH - Total Petroleum Hydrocarbons  
 mg/L - milligram per liter  
 ug/L - microgram per liter

BROMOFORM - analyzed using EPA Method 8010  
 CHLOROBENZENE - analyzed using Method 8010  
 CHLOROFORM - analyzed using Method 8010  
 2-CHLOROETHYL VINYL ETHER - analyzed using Method 8010  
 DIBROMOCHLOROETHANE - analyzed using Method 8010  
 1,1-DICHLOROETHANE - analyzed using Method 8010  
 cis-1,2-DICHLOROETHENE - analyzed using Method 8010  
 cis-1,3-DICHLOROPROPANE - analyzed using Method 8010  
 1,1,2,2-TETRACHLOROETHANE - analyzed using Method 8010  
 1,1,1-TRICHLOROETHANE -- analyzed using Method 8010

sample from APL/UP-W2 to 4.2 ug/L in a sample from APL/UP-W1 (Table 2b).

Before groundwater samples were collected samples were analyzed for pH, specific conductivity and temperature in the field to determine water stabilization during the purge event. Well stabilization forms are located in Appendix G.

### 3.2.3 Groundwater Gradient July 1993

After installation of monitoring wells at the site, Brian-Kangas-Fouk Inc., licensed surveyor of Hayward, California, was contracted to establish the top-of-casing to mean sea level (MSL) elevations for the monitoring wells. The water level in each well was measured on July 15, 1993 and again on July 16, 1993. The data from the water level measurements and top-of-casing elevations were used to calculate the local groundwater elevation. Based on the groundwater elevation data, the direction of groundwater flow and hydraulic gradients were estimated to be approximately 0.006 foot per foot to the southeast, toward the Oakland Estuary.

## 4.0 QUARTERLY MONITORING PROGRAM

USPCI Remedial Services group from the Ontario, California office completed the Third Quarter 1993 Monitoring Event on August 27, 1993. The site was placed under a quarterly monitoring program by UPRR in response to a April 29, 1993, ACDEH request for UPRR to begin a quarterly monitoring program at the UPMF Ferro Street facility in Oakland, California (See Figure 1). A total of ten groundwater samples were collected from nine wells (one as a duplicate QA/QC sample) during the monitoring event.

The quarterly monitoring event involved:

- Measuring the static water levels, purging, and sampling the ten existing monitoring wells and determining the local groundwater gradient;
- Analyzing groundwater samples from the monitoring 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); benzene, toluene, ethylbenzene and xylenes (BTEX, EPA Method 8020); dissolved arsenic (As) and lead (Pb) by EPA Method 6000/7000; and for purgeable halocarbons (EPA Method 8010); and
- Preparing a Quarterly Monitoring Report.

#### 4.1 Results of Laboratory Analysis of Groundwater Samples

There was approximately 0.2 inch of phase separated hydrocarbons (PSH) noted in the first bailer volume purged from well OKUS-W5 and hence, this well was not sampled. PSH was not noted in any of the remaining monitoring wells and the PSH (which was noted to be oil) did not recover after the first bailer volume was removed.

Groundwater samples collected from the eight of the ten monitoring wells in August 1993 contained TPH identified as TPH/G and BTEX. TPH/G concentrations in groundwater samples ranged from MDLs in monitoring well OKUS-W1 (200 feet south-southwest of the known sources) to 22,000 ug/L in monitoring well OKUS-W2 (15 feet south of the former fuel island). BTEX concentrations in groundwater samples ranged from MDLs in monitoring well OKUS-W1 to 10,722 ug/L in monitoring well OKUS-W2 (Table 2a). BTEX concentrations in the off-site downgradient wells (APL/UP-W1 and -W2) were 422.3 ug/L and 37.4 ug/L, respectively. Benzene concentrations exceeded the MCL which is 1.0 ug/L (Marshack, 1989), in groundwater samples from eight of the ten monitoring wells. Ethylbenzene exceeded the MCL in samples from three of the ten monitoring wells. Groundwater samples from the five monitoring wells contained minor concentrations (< 6.6 mg/L) of TPH diesel (TPH/D).

Analytical results indicated detectable concentrations of dissolved arsenic (As) in groundwater samples from three of the five monitoring wells and detectable dissolved lead (Pb) in one monitoring well. Concentrations of As in groundwater samples ranged from MDL in samples from wells OKUS-W1, -W7 and -W8 to 0.098 mg/L in OKUS-W4, which is approximately 100 - 120 feet east-northeast (upgradient) from the former UST locations. Monitoring well OKUS-W8 had a dissolved Pb concentration of 0.005 mg/L (Table 2a). The California MCL for As is 0.050 mg/L and 0.005 mg/L for Pb (Marshack, 1989).

Ten groundwater samples were collected and analyzed for purgeable halocarbons. Chlorobenzene concentrations in groundwater samples ranged from MDL in samples from wells APL/UP-W2, OKUS-W1, -W6, -W7 and -W8 to 78 ug/L in OKUS-W2 (Table 2b). There were several additional purgeable halocarbons noted at low concentrations including; 2-chloroethylvinyl ether, dibromochloromethane, 1,1-dichloroethene, cis-1,2-dichloroethene, cis-1,3-dichloropropane and 1,1,2,2-tetrachloroethene. Some of these additional purgeable halocarbons were noted in the previous sampling events.

## 4.2 Groundwater Gradient August 1993

The static water levels measured in August 1993 in the monitoring wells ranged from 5.88 to 9.93 feet below ground surface (BGS). The data from the water level measurements and top-of-casing elevations was used to calculate a local groundwater gradient of approximately 0.006 foot per foot to the east-southeast, toward the Oakland Estuary. The gradient data is consistent with the January, May and July 1993 results. The data from the measurements and measuring point elevations (Table 3) were used to prepare the potentiometric surface map (Figure 6). Well stabilization and sampling reports are located in Appendix G.

## 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. 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.

~~Possible additional sources other than the USTs are as follows:~~ U.P. transport building, UPMF truck repair shop, diesel fueling facility, sewer system (before it was plugged), and off-site source(s).

Soil and groundwater samples from the two downgradient (off-site) monitoring wells also have detectable amount of petroleum hydrocarbons, which indicates either that the contaminants have migrated from the Union Pacific property or that they have come from an additional unknown source, or both.

~~The source of other detectable constituents (metals, nitrates, halocarbons compounds) in soil and groundwater cannot be determined based on the results of the Phase II Site Assessment. Further on-site characterization may be required to determine the potential sources of these constituents.~~

TABLE 3  
 CUMULATIVE FLUID LEVEL MEASUREMENT DATA  
 UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY  
 OAKLAND, CALIFORNIA  
 USPCI PROJECT NO. 96120-844

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
	9.17	5/12/93	N/A	N/A	NP	8.04	1.13	1.13
	9.17	8/25/93	N/A	N/A	NP	8.61	0.56	0.56
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
	9.71	5/12/93	N/A	N/A	NP	9.04	0.67	0.67
	9.71	8/25/93	N/A	N/A	NP	9.61	0.10	0.10
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
	9.8	5/12/93	N/A	N/A	NP	9.23	0.57	0.54
	9.8	8/25/93	N/A	N/A	NP	9.82	-0.02	-0.02
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
	7.35	5/12/93	6.39	0.96	0.01	6.40	0.95	0.96
	7.35	8/25/93	N/A	N/A	NP			
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
	9.25	5/12/93	9.18	0.07	0.02	9.20	0.05	0.07
	9.25	8/25/93	8.82	0.43	0.02	8.84	0.41	0.16

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

N/A Non Applicable  
 NP - No Product

TABLE 3 cont.  
 CUMULATIVE FLUID LEVEL MEASUREMENT DATA  
 UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY  
 OAKLAND, CALIFORNIA  
 USPCI PROJECT NO. 96120-844

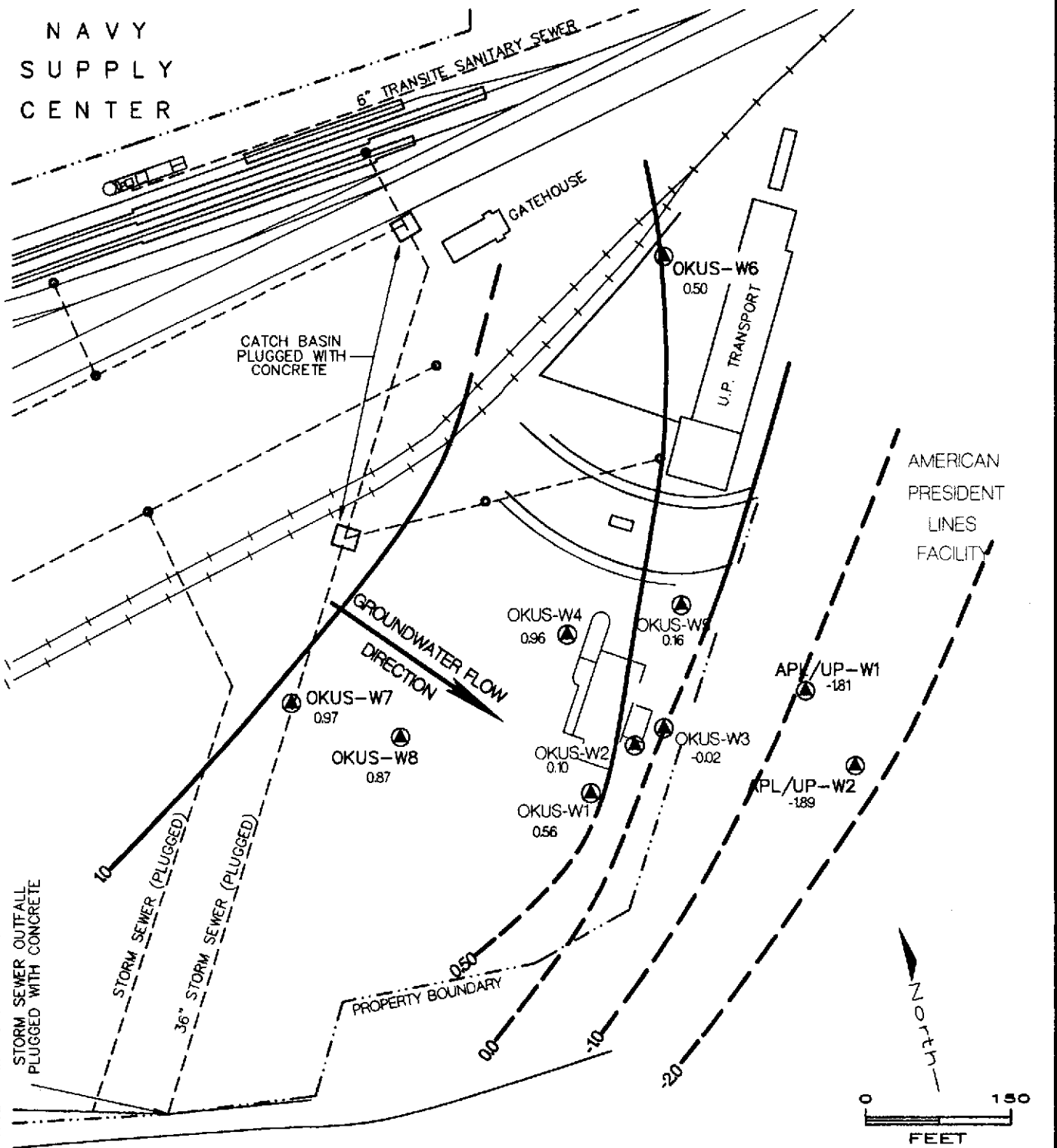
WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT ELEVATION	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEV. (UNCORRECTED)	WATER ELEV. (CORRECTED)
OKUS-W6	7.02	7/16/93	N/A	N/A	NP	6.20	0.82	0.82
	7.02	8/25/93	N/A	N/A	NP	6.52	0.50	0.50
OKUS-W7	6.91	7/16/93	N/A	N/A	NP	5.72	1.19	1.19
	6.91	8/25/93	N/A	N/A	NP	5.94	0.97	0.97
OKUS-W8	6.75	7/16/93	N/A	N/A	NP	5.56	1.19	1.19
	6.75	8/27/93	N/A	N/A	NP	5.88	0.87	0.87
APL/UP-W1	8.12	7/16/93	N/A	N/A	NP	10.02	-1.90	-1.90
	8.12	8/26/93	N/A	N/A	NP	9.93	-1.81	-1.81
APL/UP-W2	7.31	7/16/93	N/A	N/A	NP	9.38	-2.07	-2.07
	7.31	8/26/93	N/A	N/A	NP	9.20	-1.89	-1.89

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

N/A Non Applicable  
 NP - No Product



NAVY  
SUPPLY  
CENTER



**LEGEND**

- ▲ OKUS-W1 MONITOR WELL LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- GROUNDWATER CONTOUR

96210-555

<p><b>USPCI</b> A Subsidiary of Union Pacific Corporation</p>	
<p>OAKLAND, CALIFORNIA</p>	
<p>FIGURE 6 POTENTIOMETRIC SURFACE MAP UPMF REPAIR SHOP</p>	
SCALE	APPROVED/DATE
1" = 150'	9/93

## 6.0 SUMMARY AND CONCLUSIONS

### 6.1 Nature and Extent of Contamination

The analytical results from the January and July 1993 site assessments and quarterly monitoring events indicated a dissolved plume of BTEX and TPH/G that appears to be concentrated in the immediate area surrounding the UPMF facility. The plume has apparently and has either migrated downgradient off-site onto Port of Oakland property, or there is an unknown source area on the adjoining property (Figure 5 and Tables 2a and 2b). 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 totally 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 and additional monitoring events of the diesel refueling area to the north of the UPMF site (Figure 2 and Table 4). The lateral extent of impacted groundwater to the south seems to reach the Oakland Estuary; however this could not be determined in the field due to drilling constraints.

The lateral extent of soil TPH 418.1 contamination ( $> 100$  mg/kg) was not determined in the site assessments. 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 1.0  $\mu\text{g/L}$ . The water sample did not contain ethylbenzene or TPH above MDLs.

Soil samples collected during USPCI's January and July 1993 assessments 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 has not yet been delineated. The distribution of contaminants in soils indicates that the UST system is not likely to have been the sole source of the contaminants.

*TPH 418.1 - B4*

*B4*

**TABLE 4**  
**CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES**  
**AT THE UNION PACIFIC RAILROAD TOFC FACILITY**  
**USPCI PROJECT NO. 96120-844**

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH 418.1 mg/L	BENZENE ug/L	TOLUENE ug/L	ETHYL-BENZENE ug/L	TOTAL XYLENES ug/L	TOTAL BTEX ug/L
OMW-3	OMW-3	5/11/92	2.3	0.003	0.013	0.003	0.0034	0.0224
	"	8/11/92	5.8	ND	0.0071	ND	0.0017	0.0088
	"	11/13/92	110	ND	0.0089	0.0015	0.0084	0.0188
	"	5/14/93	0.18	ND	0.036	ND	0.0027	0.0387
OMW-5	OMW-5	5/11/92	2.1	ND	0.004	ND	0.003	0.007
	"	8/11/92	2.1	ND	ND	ND	ND	ND
	"	11/13/92	4.4	ND	0.0078	ND	ND	0.0078
	"	5/14/93	11.0	ND	0.0018	ND	ND	0.0018
OMW-6	OMW-6	5/11/92	0.52	ND	ND	ND	0.0016	0.0018
	"	8/11/92	0.55	ND	ND	ND	ND	ND
	"	11/13/92	6.0	ND	0.0077	ND	ND	0.0077
	"	5/14/93	0.18	ND	ND	ND	ND	ND

ND - Not Detected  
 NA - Not Analyzed  
 TPH - Total Petroleum Hydrocarbons  
 mg/L - milligram per liter  
 ug/L - microgram per liter

TPH 418.1 - analyzed using Method 418.1  
 TPH/D - analyzed using Method 8015 Mod.  
 TPH/G - analyzed using Method 8015 Mod.  
 BTEX - analyzed using Method 8020  
 As - analyzed using Method 7060  
 Pb - analyzed using Method 7421

The analytical results from the most recent monitoring event (August 1993) indicated elevated concentrations of TPH/G and BTEX from wells in the vicinity of the truck repair shop/UST system. Benzene concentrations were above the MCL (1.0 ug/L) in samples from nine of the ten monitoring wells. Ethylbenzene concentrations were above the MCL (680 ug/L) in samples from three of the ten monitoring wells. TPH/G concentrations in groundwater samples were as high as 22,000 ug/L. The UST system appears to have been the source for petroleum hydrocarbons detected in groundwater samples from wells near the former UST facility; however, four of the wells which contained detectable concentrations of BTEX were upgradient from the former fuel island and UST locations.

The concentrations of dissolved arsenic exceeded the MCL of 0.050 mg/L in groundwater samples from three of ten wells. Because the lateral extent of these non-hydrocarbon contaminants has not been delineated, and halocarbons cannot 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.

Phase Separated Hydrocarbons (PSH) were noted in monitoring well OKUS-W5 (0.02 foot). The product seem to be oil and did not recover after the first bailer volume was removed. There was no PSH noted in the remaining wells. The recovery well installed by UPRR in 1988 also has measurable PSH standing on

*how thick?  
is this designated on Fig 2?  
If not, include it.*



## 7.0 RECOMMENDATIONS

Analytical results from the January 1993 PSA and July 1993 PH II S.A. of the 1750 Ferro Street, UPMF site by USPCI indicated the presence of elevated TPH values in soil samples from widely scattered borings, on UPRR and adjacent property. 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 minor to elevated concentrations of various metals. There were also minor concentrations of semivolatile organics and purgeable hydrocarbons in two soil samples.

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

Based on these conclusions, USPCI recommends the following actions:

### Groundwater

- Continue the quarterly monitoring program throughout 1993 to increase the data base on groundwater characteristics.
- Begin extracting the PSH from the recovery well and monitoring well OKUS-W5. Treatment of extracted hydrocarbons and water could be achieved using the existing oil/water separator on-site.
- Determine the hydraulic conductivity of the impacted area.

*or separation  
collection ?*

## **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 disposal. Total amount of backfill material used was 222 tons. Copies of the load receipts are presented in Appendix H.

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. The remaining drums from the Phase II Assessment were also transported to Solvent Services Inc., (SSI) for bulking and the soil drums will be sent to Grassy Mountain for disposal. The purge and decon water will be recycled by SSI. The waste manifests are located in Appendix H. Original copies of the disposal and recycling manifests will be kept on file at USPCI's Consulting Services office in Spring, Texas.

## **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 County 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 E.

### **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 E.

### **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 E.

On June 23, 1993 USPCI received a permit number (93341) from Mr. Wyman Hong of the ACFCD for the Phase II Assessment. A copy of this permit appears in Appendix E.

On July 9, 1993 USPCI received a verbal confirmation from Mr. Joe Marsh of the Port of Oakland that the previous permit number (3443) was still valid for the Phase II Assessment.

#### 10.0 REFERENCES CITED

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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.

USPCI, 1993, Preliminary Site Assessment Report at the Union Pacific Motor Freight Facility at 1750 Ferro Street, Oakland, California.

USPCI, 1993, Phase II Assessment Workplan at the Union Pacific Motor Freight Facility at 1750 Ferro Street, Oakland, California.



## APPENDIX A - CHRONOLOGY OF EVENTS 1992-1993

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, 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.
- April 21, 1993 USPCI forwarded the completed Preliminary Site Assessment Report to UPRR, ACDEH, California Regional Water Quality Control Board CRWQCB (San Francisco Bay) and the Port of Oakland.
- April 29, 1993 Ms. Jennifer Eberle of the ACDEH informed UPRR that the county agreed with USPCI recommendations to begin a quarterly monitoring program and complete a Phase II Site Assessment.

May 12, 1993

USPCI personnel conducted a quarterly monitoring event as part of the agreed recommendations resulting from the PSA between the ACDEH, UPRR and USPCI. The five existing wells were purged and sampled. The analytical results were similar to the PSA groundwater results.

June 23, 1993

USPCI recieved a new permit number (93341) from Mr. Wyman Hong of the ACFCD for the Phase II Assessment.

July 9, 1993

USPCI received a verbal confirmation from Mr. Joe Marsh of the Port of Oakland that the previous permit number (3443) was still valid for the Phase II Assessment.

July 11-16, 1993

USPCI conducted a Phase II Assessment on the UPRR facility at 1750 Ferro Street. Five monitoring wells and eight soil borings were installed. Soil and groundwater samples were collected and analyzed as part of the assessment.

July 30, 1993

At the request of UPRR, USPCI forwarded the completed Second Quarter Monitoring Report to representatives of ACDEH, CRWQCB San Francisco Bay Region, and the Port of Oakland.

August 27, 1993

USPCI completed the Third Quarter 1993 Monitoring Event at the UPMF site. The ten existing wells were purged and sampled. The analytical results were similar to the PSA and second quarter monitoring event groundwater results.

**PROPOSED  
PHASE II SITE ASSESSMENT  
WORKPLAN**

**UNION PACIFIC RAILROAD  
UPMF FACILITY  
1750 Ferro Street  
Oakland, California  
USPCI Project No. 96281**

prepared for:

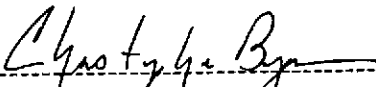
Union Pacific Railroad  
1416 Dodge Street, Room 930  
Omaha, Nebraska 68179

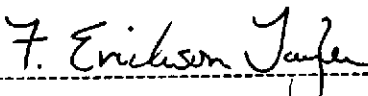
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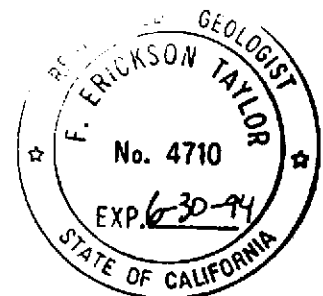
Ms. Jennifer Eberle  
Department of Environmental Health  
Hazardous Materials Division  
80 Swan Way, Room 200  
Oakland, California 94621

prepared by:

USPCI - Remedial Services  
Spring, Texas

  
-----  
Christopher S. Byerman  
Geologist

  
-----  
F. Erickson Taylor  
California Registered Geologist No. 4710



June 1993

# USPCI

A Subsidiary of  
Union Pacific Corporation

## Remedial Services

June 11, 1993

Alameda Department of Environmental Health  
Hazardous Materials Division  
80 Swan Way, Room 200  
Oakland, California 94621

Attn: Ms. Jennifer Eberle

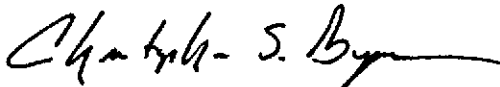
RE: Proposed Phase II Site Assessment Workplan  
Union Pacific Motor Freight Facility  
Oakland TOFC Railyard  
1750 Ferro Street  
Oakland, California

Ms. Eberle:

At the request of Mr. Harry Patterson of the Union Pacific Railroad (UPRR) Environmental Management Group, USPCI has enclosed a copy of the workplan for the proposed Phase II Site Assessment activities to be conducted at the above-referenced UPRR property. The tentative start date for the work, depending on equipment availability, is Monday, June 28, 1993. This letter is to provide your office notification of our proposed schedule. If our schedule changes, we will contact you at least 48 hours prior to actually beginning field work at the site.

If you have any questions regarding this letter or the scope of work in the attached document, please call Cris Byerman at (713) 350-7265.

Sincerely,



Christopher S. Byerman  
Geologist



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File: 96281.26-1

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## **1.0 INTRODUCTION**

### **1.1 Scope of Work/Site Location**

This Phase II Site Workplan has been prepared for Union Pacific Railroad (UPRR) by USPCI in response to an April 29, 1993 (Appendix A), Alameda County Department of Environmental Health, Hazardous Materials Division (ACDEH) request for additional site characterization at the Union Pacific Motor Freight (UPMF) Ferro Street facility in Oakland, California (Figure 1). The facility was the site of an unauthorized release of petroleum hydrocarbons from underground storage tanks.

The UPMF facility is located in the UPRR TOFC Yard at 1750 Ferro Street, Oakland, California (Figure 2).

## **2.0 SITE BACKGROUND**

### **2.1 Tank Removal**

During November 1987, four underground storage tanks (USTs) were tested at the UPMF facility. Three of the four USTs met the required integrity test standards; however, the test indicated that product lines from a 3000 gallon engine oil tank were not in compliance (Figure 3). The engine oil tank was subsequently removed from the site during December 1987. Two waste oil USTs were also removed during May 1988 and two (one gasoline and one diesel) USTs were removed in February 1990 (Figure 3).

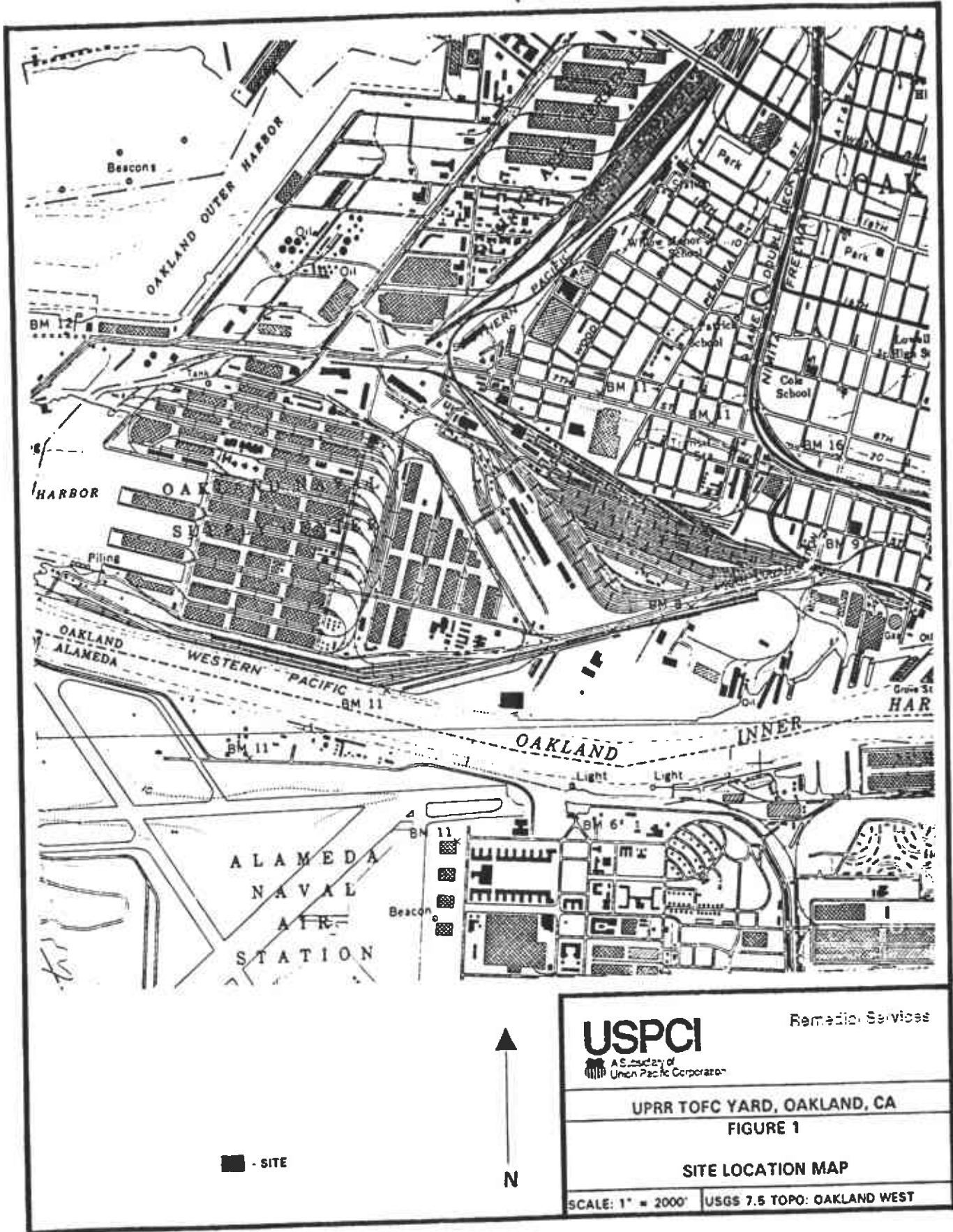
Petroleum hydrocarbons were detected in soil samples collected from the tank excavations during the December 1987 and May 1988 removals. Detectable concentrations of petroleum hydrocarbons were reported for soil samples collected during the 1990 tank removals (Figure 3).

### **2.2 Regulatory Correspondence**

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

### **2.3 Preliminary Site Assessment Results**

USPCI completed the PSA on January 15, 1993. A Total of twelve soil borings were drilled to evaluate if the soils had been impacted by petroleum hydrocarbons. Five of these borings were converted into 2-inch monitoring wells to evaluate the groundwater quality underlying the site. The analytical results



Beacons

OAKLAND OUTER HARBOR

BM 12

HARBOR

OAKLAND

OAKLAND ALAMEDA

WESTERN PACIFIC

BM 11

OAKLAND INNER

ALAMEDA  
NAVAL  
AIR  
STATION

Beacon

BM 11

**USPCI**

Remediation Services

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UPRR TOFC YARD, OAKLAND, CA

FIGURE 1

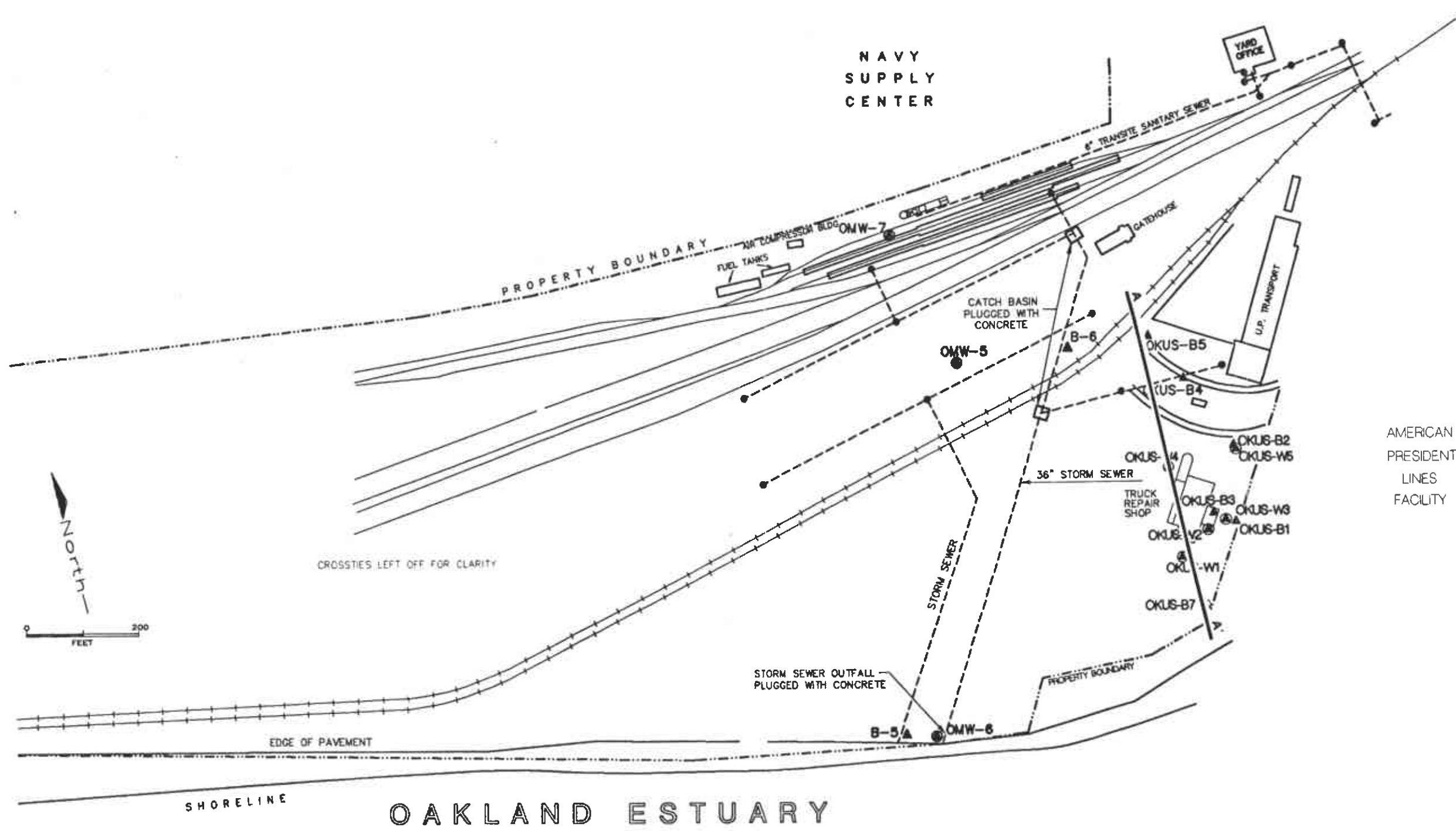
SITE LOCATION MAP

SCALE: 1" = 2000' USGS 7.5 TOPO: OAKLAND WEST

■ - SITE

N





**LEGEND**

- OMW-1 MONITORING WELL LOCATION AND NUMBER
- ▲ B-1 BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER

BY	DATE
DRAWN	3/93
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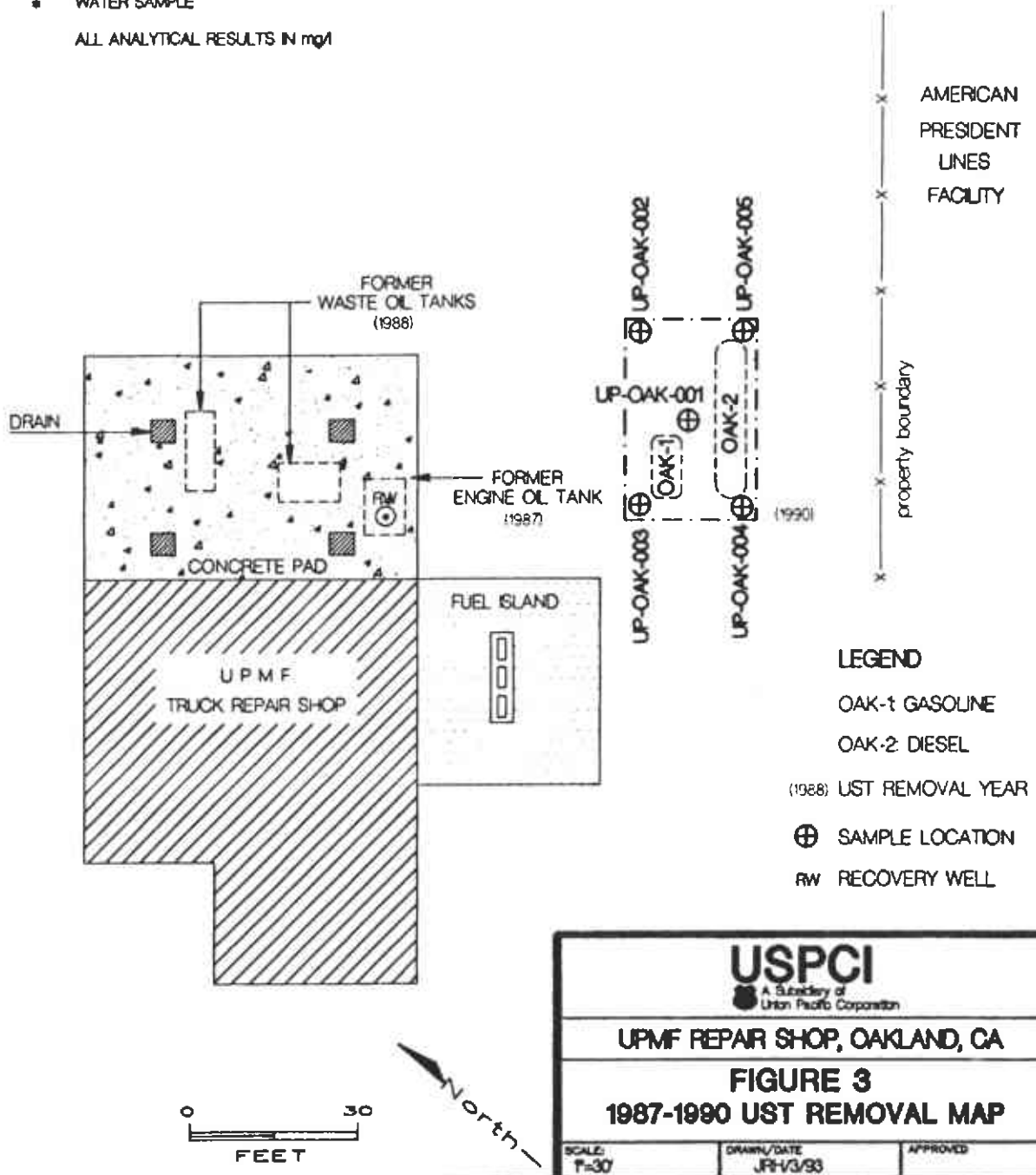


UPRR TOFC RAILYARD UPMF REPAIR SHOP, OAKLAND, CALIFORNIA			
<b>FIGURE 2 SITE VICINITY MAP</b>			
SCALE	DATE	DWG. NO.	
1"=200'	1/15/93	96199-24	▲

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

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH CS-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	0.063	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	0.026
NE WALL	UP-OAK-005	2/22/90	213	ND	ND	0.004	0.003	0.007	0.012	0.026

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



from the PSA indicated that there are detectable concentrations of contaminants in both soil and groundwater beneath the site. The findings suggested that the USTs are the likely source of petroleum hydrocarbons that were found in the groundwater, but not necessarily the source of the soil contamination.

The PSA was completed by USPCI and a copy of the final report was submitted to the ACDEH on April 21, 1993. ACDEH, UPRR and USPCI agreed that an additional assessment of the site was necessary to evaluate the lateral extent of soil and groundwater contamination.

#### **2.4 Project Coordinator/Team**

USPCI's UST Program Manager is Mr. Curtis Hull. Mr. Eric Taylor (California Registered Geologist #4710) and Mr. Christopher Byerman are the current Project Managers for the site. The UPRR contact is Mr. Harry Patterson, Manager Environmental Site Remediation, Omaha, Nebraska.

### **3.0 SITE CHARACTERIZATION**

#### **3.1 General 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 toward San Francisco Bay Area. The eastern side of the plain in the Oakland area is marked by the active Hayward Fault which lies along the base of the Diablo Range escarpment (Heard, 1978). Splays of the Hayward Fault, typical of right-lateral strike-slip faults found in the Bay Area, are present within 5 miles of the site (Radbruch, 1969 and CDMG, 1982).

Helley and others (1979) reported that the sediments underlying the site area are 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) suggested that the sediments underlying the site area are late Pleistocene-age alluvial deposits derived from the Berkeley Hills to the east, and locally referred to as the Temescal Formation.

##### **3.1.1 Subsurface Soil Conditions**

The site is underlain by fill material (glass, bricks, and other refuse materials) from the surface (which was paved with asphalt) to approximately 4 to 8 feet below the ground surface (bgs). The fill

material is underlain by gray to olive green to reddish brown, fine-to-medium grained, sand with minor gravel and silt which occurs to a depth of 22 feet bgs. Clay was noted at 18 feet bgs in boring OKUS-W1. Figure 4 is a geologic cross-section of the site area.

### **3.2 General 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 from imported water 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 considered good. 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 estaurine deposits; however, these deposits generally are relatively thin (less than 120 feet thick) and generally yield only small amounts of groundwater.

The site was reported 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.

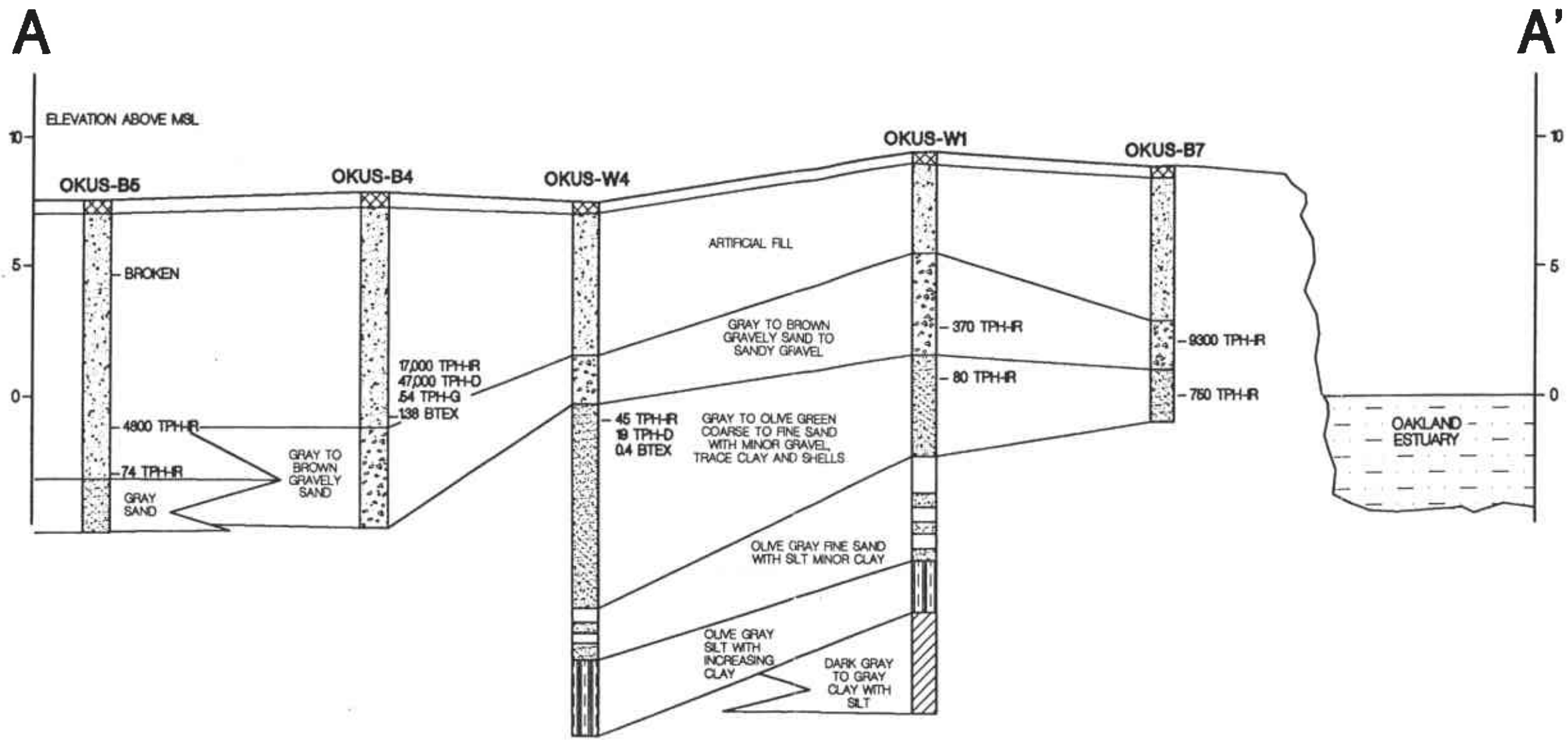
### **3.3 Proximity of Private, Municipal, and Irrigation Wells**

As part of the Phase II Site Assessment, 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.

## **4.0 PHASE II SITE ASSESSMENT WORKPLAN**

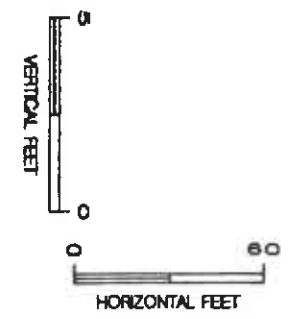
### **4.1 Workslope**

To further characterize soil and groundwater conditions at the Ferro Street facility, UPRR proposes through its contractor (USPCI) to drill and sample ten soil borings and to convert five of these borings to groundwater monitoring wells. A minimum of two groundwater monitoring wells will be installed down-



**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
DESIGN JFH	3/93
CHECKED	
APPROVED	
APPROVED	

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 UPMF REPAIR SHOP, OAKLAND, CALIFORNIA

**FIGURE 4**  
**GEOLOGIC CROSS SECTION A-A'**

SCALE AS INDICATED	DATE 1/15/93	DWG. NO. 96281-03
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gradient from the estimated dissolved-phase plume near the former gasoline and diesel tank pit area (Figure 5).

At a minimum, two monitoring wells will be installed up-gradient of the former tank pits and the known plume area. The goal of this assessment will be to evaluate the lateral extent of petroleum hydrocarbons, arsenic, lead and chloroform that have impacted soils and/or groundwater underlying the site. The lateral extent of impacted soil and groundwater was not determined during the PSA. According to the analytical results collected during the PSA, the vertical extent of hydrocarbon impacted soils seemed to be limited to the first ten feet (bgs).

To complete the site assessment, it is necessary to drill in off-site locations. The adjoining property is owned by the Port of Oakland and is leased to the American President Lines, Inc. UPRR will contact their representatives to obtain access to complete the proposed Phase II Assessment.

#### 4.2 Methodology

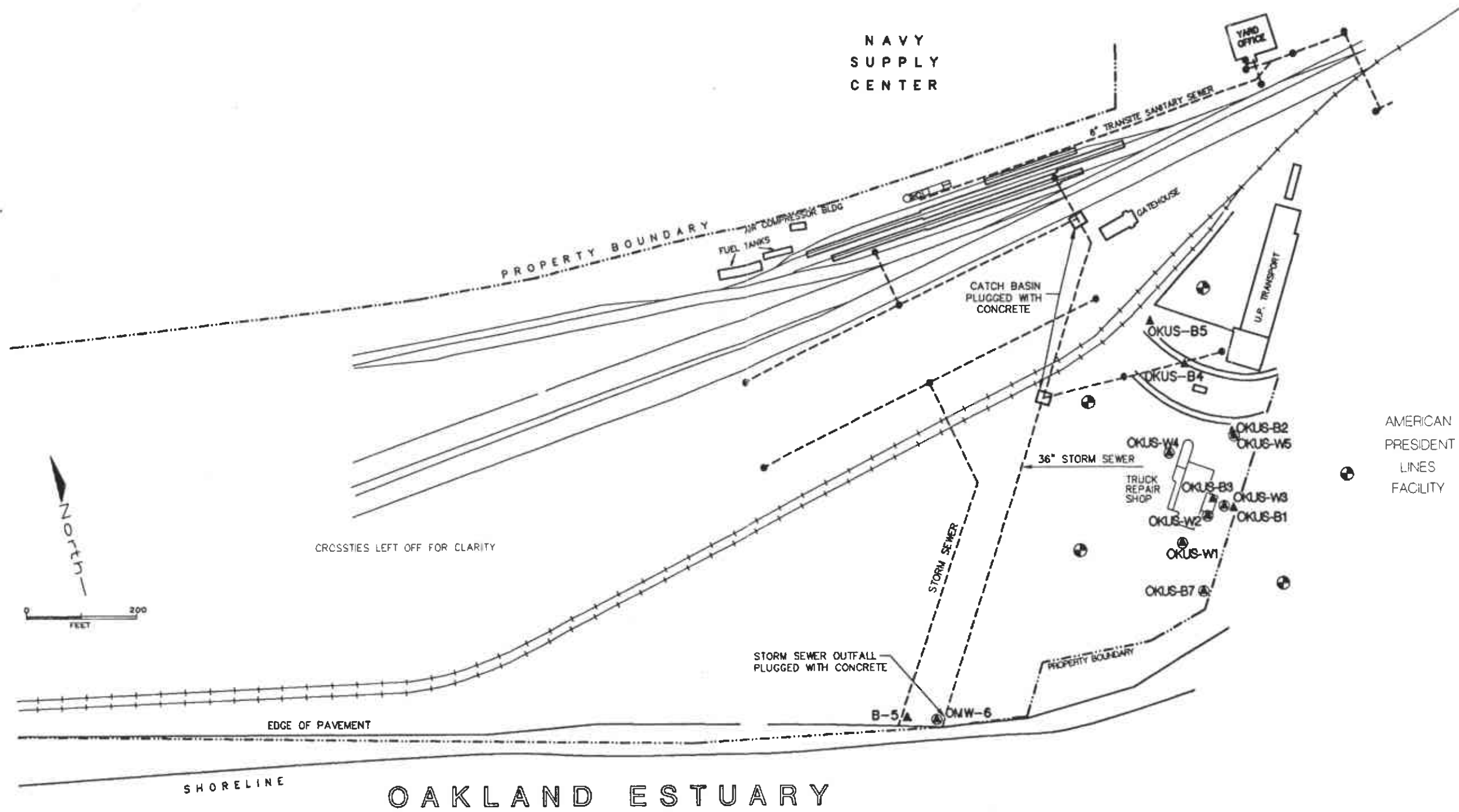
The Phase II Assessment will be completed using the following methodology:

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

Thirty three soil samples will be collected using a hollow stem auger and either a split-spoon or continuous sampler. Three soil samples will be collected from each boring and analyzed by a California State Certified laboratory for benzene, toluene, ethylbenzene, total xylenes (BTEX) by EPA Method 8020, total petroleum hydrocarbons as gasoline and diesel (TPH/G&D) by EPA Method 8015, total petroleum hydrocarbons by EPA Method 418.1, and total arsenic and lead by EPA Method 6000/7000 series. Six groundwater samples will be analyzed for BTEX, TPH (G/D and 418.1), purgeable hydrocarbons by EPA Method 8010, total arsenic and lead (soils) or dissolved arsenic and lead (water) by EPA Method 6000/7000 series in accordance with USPCI's QA/QC Plan (Appendix B, 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 C).

NAVY  
SUPPLY  
CENTER



**LEGEND**

- ⊙ OMW-1 MONITORING WELL LOCATION AND NUMBER
- ▲ B-1 BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- ⊕ PROPOSED MONITORING WELLS

BY	DATE
DRWN	3/93
CHKD	
APPRD	
APPRD	

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UPRR TOFC RAILYARD  
UPMF REPAIR SHOP, OAKLAND, CALIFORNIA

**FIGURE 5  
PROPOSED LOCATIONS FOR NEW MONITORING WELLS**

SCALE	1"=200'	DATE	1/15/93	DWG. NO.	96199-28
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A Phase II Site Assessment Report will be prepared according to Regional Water Quality Control Board/Oakland LUFT guidelines summarizing the findings of the investigation and presenting options for site remediation. Copies of the final report will be submitted to the ACDEH and the Regional Water Quality Control Board/Oakland and the Port of Oakland.

## 5.0 REFERENCES CITED

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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:

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

Soil Borings and Well dimensions- 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) will 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 "sinters") 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. "Sinters" 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:

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

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:

- o Sample number which uniquely identifies the sample
- o Project title or number

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

**Table 1**  
**Sample Containers, Holding Times and Preservation**

Parameter	Matrix	Container	Holding Time	Preservation
Total Petrol. Hydrocarbons (Light Fractions)	Soil	3" stainless steel or brass cylinder	14 days <sup>1</sup> / 40 days <sup>2</sup> /	4°C
	Water	40 ml glass vial, teflon-faced silicon septum	14 days <sup>1</sup> / 20 days <sup>2</sup> /	4°C HCl to pH * 2 (except CaCO <sub>3</sub> , water)
(Heavy fractions)	Water	1 amber bottles, teflon seal/silicon septum	14 days <sup>1</sup> / 40 days <sup>2</sup> /	4°C
Benzene Toluene Xylene Ethylbenzene	Soil	3" stainless steel or brass cylinder	14 days <sup>1</sup> /	4°C
	Water	40 ml glass vial, teflon seal/silicon septum	7 days <sup>1</sup> / 14 days <sup>2</sup> /	4°C HCl to pH * 2 (except CaCO <sub>3</sub> , water)
Purgeable Halocarbons	Soil	3" stainless steel or brass cylinder	14 days <sup>1</sup> /	4°C
	Water	500 ml glass vial, teflon seal/silicon septum	14 days <sup>1</sup> /	
Organic lead	Soil	3" stainless steel or brass cylinder	14 days <sup>1</sup> /	4°C
	Water	40 ml glass vial, teflon seal/silicon septum	14 days <sup>1</sup> /	4°C
Ethylene Dibromide	Soil	3" stainless steel or brass cylinder	14 days <sup>2</sup> /	4°C
	Water	40 ml glass vial, teflon faced silicon septum	14 days <sup>1</sup> /	4°C
Polynuclear Aromatic Hydrocarbons	Soil	8 oz. wide mouth glass with teflon seal	14 days <sup>1</sup> / 40 days <sup>2</sup> /	4°C
	Water	1000 m. amber glass with teflon seal	7 days <sup>1</sup> / 40 days <sup>2</sup> /	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 <sup>1/</sup> 40 days <sup>2/</sup>	4°C
	Water	1000 ml amber glass with teflon seal	7 days <sup>1/</sup> 40 days <sup>2/</sup>	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 <sup>2/</sup>	4°C
	Water	1000 ml glass	7 days <sup>2/</sup>	4°C

- Notes:
- <sup>1/</sup> - Maximum holding time for sample (extract within this time or analyze if extraction is not required).
  - <sup>2/</sup> - Maximum holding time for extract (analyze within this time).
  - <sup>3/</sup> - 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 TPH D BTX&E	GCFID(5030) GCFID(3550) 8020 or 8240	TPH G TPH D BTX&E	GCFID(5030) GCFID(3510) 602 or 624
Leaded Gas	TPH G BTX&E ---Optional--- TEL EDB	GCFID(5030) 8020 or 8240  DHS-LUFT DHS-AB1803	TPH G BTX&E TEL EDB	GCFID(5030) 602 or 624 DHS-LUFT DHS-AB1803
Unleaded Gas	TPH G BTX&E	GCFID(5030) 8020 or 8240	TPH G BTX&E	GCFID(5030) 602 or 624
Diesel TPH D		GCFID(3550) BTX&E 8020 or 8240	TPH D BTX&E	GCFID(3510) 602 or 624
Jet Fuel	TPH D BTX&E	GCFID(3550) 8020 or 8240	TPH D BTX&E	GCFID(3510) 602 OR 624
Kerosene	TPH D BTX&E	GCFID(3550) 8020 or 8240	TPH D BTX&E	GCFID(3510) 602 or 624
Fuel Oil	TPH D BTX&E	GCFID(3550) 8020 or 8240	TPH D BTX&E	GCFID(3510) 602 or 624
Chlorinated Solvents	CL HC BTX&E	8010 or 8240 8020 or 8240	CL HC BTX&E	601 or 624 602 or 624
Non Chlorinated Solvents	TPH D BTX&E	GCFID(3550) 8020 or 8240	TPH D BTX&E	GCFID(3510) 602 or 624
Waste Oil or Unknown	TPH G TPH D O & G BTX&E CL HC	GCFID(5030) GCFID(3550) 503D&E 8020 or 8240 8010 or 8240	TPH G TPH D O & G BTX&E CL HC	GCFID(5030) GCFID(3510) 503A&E 602 or 624 601 or 624

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

Method 8270 for Soil or Water to Detect:

PCB\*  
PCP\*  
PNA  
Creosote Creosote

PCB\*  
PCP\*  
PNA

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

USPCI

HEALTH AND SAFETY PLAN

REVIEW APPROVAL FORM

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

CLIENT:	<u>UPRR</u>
PROJECT:	<u>L. U. S. T.</u>
LOCATION:	<u>GENERAL</u>
SUBMITTED BY:	<u>MIKE BOLTON</u>
DATE RECEIVED:	<u>July 8, 1991</u>

<input checked="" type="checkbox"/>	APPROVED (please note comments)
<input type="checkbox"/>	APPROVED WITH CHANGES INDICATED*
<input type="checkbox"/>	RESUBMIT WITH CHANGES INDICATED

\*Changes must be made before plan can be considered approved and before job begins (ATTACH REVIEW SHEETS).

REVIEWED BY: Steve Ogden

DATE: July 14, 1991

THE SIGNED REVIEW APPROVAL FORM MUST ACCOMPANY THE ONSITE HEALTH AND SAFETY PLAN

*Jamie HES*

**U. S. POLLUTION CONTROL, INC.  
REMEDIAL SERVICES GROUP**

**UNION PACIFIC RAILROAD  
HEALTH AND SAFETY PLAN  
FOR  
SITE ASSESSMENT  
AT  
FERRO STREET YARD  
1750 FERRO STREET, OAKLAND, CA**

**PROJECT NO. 96120-244**

**1.0 INTRODUCTION**

The personal health and safety of all individuals directly involved in the investigation of a possible leaking petroleum storage tank (LPST) in the Union Pacific Railroad (UPRR) in Oakland, CA, as well as the general public who may be in the vicinity of the site, is of particular concern to USPCI. Therefore, all prudent and reasonable measures will be taken to establish and maintain safe healthy working conditions.

This Health and Safety Plan identifies the potential hazards associated with the project and the actions which will be taken to minimize or eliminate those hazards; e.g. engineering controls, use of personal protective equipment, training, etc. Although every effort was made to develop a plan that is as comprehensive and detailed as possible, conditions may change which warrant modification of this plan once the project is initiated. Throughout each stage of the project, the plan will be reviewed and changed or modified as necessary.

Modification of the plan will be the responsibility of the USPCI Project Manager. Substantial changes will be reviewed and approved by a member of USPCI's Health and Safety staff. All on-site workers will be trained from this or any modified Health and Safety Plan.

Although it is hoped that the Ferro Street project will not require it, an Emergency Response Plan is provided in this document.

## 2.0 SCOPE OF WORK

### Client's Business

Union Pacific Railroad (UPRR) is 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 high 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

Jan 12. 462  
CW

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 be 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 *mobile - 61*
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 5808 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 the 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.

<u>Zone</u>	<u>Task</u>	<u>PPE Required</u>
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

<u>Instrument</u>	<u>Location of Sampling</u>	<u>Frequency</u>	<u>Action Level/Action</u>
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 and 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. Exclusion Zone (EZ) - 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 if 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 the 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 be 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."

<u>Signature</u>	<u>Name</u>	<u>Date</u>
<i>Christine Byrum</i>	CHRISTINE BYRUM	1-17-93
<i>Russ Deike</i>	Russ Deike	1-12-93
<i>Joseph Butman</i>	JOSEPH BUTMAN	1-12-93
<i>Ara Mardirosian</i>	Ara Mardirosian	2-18-93
<i>Tim Albalak</i>	TIM ALBALAK	2-18-93



SITE CHARACTERIZATION INFORMATION

**BIBL**

**ENVIRONMENTAL RECORD SEARCH**

for the site

UNION PACIFIC RAILROAD YARD  
1750 FERRO STREET, OAKLAND

performed for  
USPCI

03-04-1993

USPC2201

444 South Cedros Ave, Suite 200

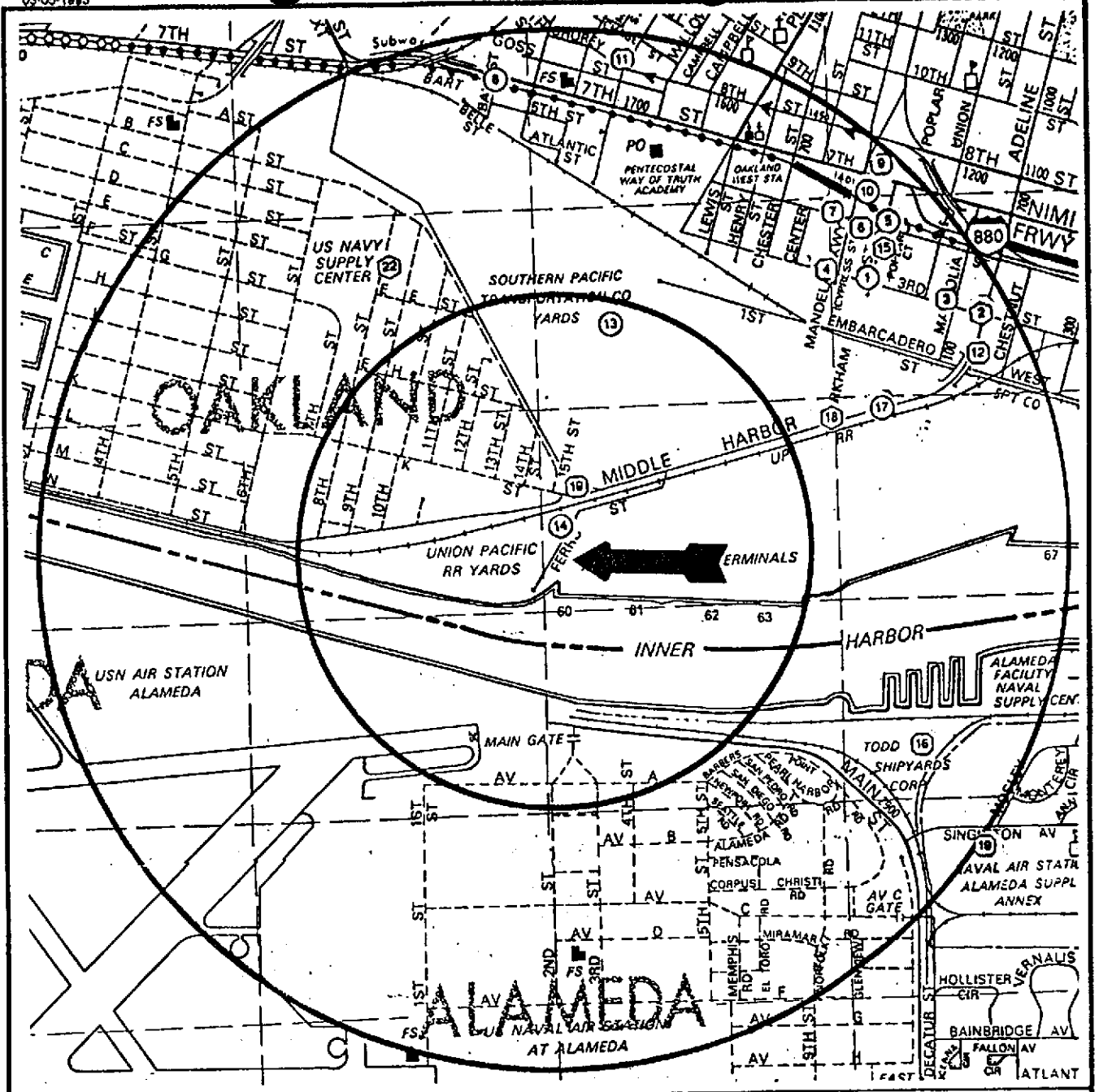
Solana Beach CA 92075

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

2.76 inches to 1 mile



Map reproduced under license from Thomas Bros. (AA 0706)

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 TRANSPORTATION	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 ADELIN 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 TODD SHIPYARDS
16. NCPA/TODD SHIPYARD	1395 MIDDLE HARBOR RD
17. PORT OF OAKLAND/APL CONTAINER	1401 MIDDLE HARBOR RD
18. SHEREX CHEM CO	1728 MIDDLE HARBOR RD
19. SOUTHERN PACIFIC	NAS ALAMEDA ANNEX
19. NAVAL SUPPLY CENTER-ALAM ANNEX	USN SUPPLY CENTER, CODE 6 BUILDING 322
22. NAVAL SUPPLY CENTER OAKLAND	
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	ADELIN 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	OC	
NOR-CAL METAL FABRICATORS	1121 3RD ST	OAKLAND	2	AS	NFA
PACIFIC WESTERN SHIPPING	1221 3RD ST	OAKLAND	3	Ce	WCRBT
DON CHERRY SCRAP METAL	1448 3RD ST	OAKLAND	4	AS	NFA
SOUTHERN PACIFIC TRANSPORTATION	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 ROBERTS 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	Ce	WCRBT
NAVAL SUPPLY CTR LOT '710	8TH ST	OAKLAND		CC	
DICAR COMPANY	1848 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	Ce	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	Ce	WCRBT
SMILO CHEMICAL CO	500 KIRKHAM ST	OAKLAND	15	CC	
SMILO CHEMICAL COMPANY	500 KIRKHAM ST	OAKLAND	15	Ce	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 (MIDL	1401 MIDDLE HARBOR RD	OAKLAND	18	AS	PEARL
SHEREX CHEMICAL COMPANY (MIDL	1401 MIDDLE HARBOR RD	OAKLAND	18	AS	PEARL
SHEREX CHEMICAL COMPANY	1401 MIDDLE HARBOR RD	OAKLAND	18	Ce	DHS1
SHEREX CHEMICAL CO	1401 MIDDLE HARBOR RD	OAKLAND	18	NT	
SHEREX CHEMICAL COMPANY, INC.	1401 MIDDLE HARBOR RD	OAKLAND	18	Ce	WCRBT
SOUTHERN PACIFIC	1728 MIDDLE HARBOR RD	OAKLAND	19	Ce	WCRBT
ALAMEDA NAVAL AIR STATION	NAS ALAMEDA	ALAMEDA		BP	AWP

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

Page: 2  
Job: USPC2201  
Date: 03-05-1993

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		Ca	DHS5
WEST BEACH SANITARY LANDFILL	NAS ALAMEDA	ALAMEDA		Ca	DHS1
ALAMEDA NAS	NAS ALAMEDA	ALAMEDA		NT	
US NAVY ALAMEDA AIR STATION	NAS ALAMEDA	ALAMEDA		Ca	WCRBT
ALAMEDA NAVAL AIR STATION	NAS ALAMEDA	ALAMEDA		Ca	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	Ca	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	Ca	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)

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

## 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

## 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

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)

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

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 pursuant to section 25356 of the Health and Safety Code (see BEP)
- WMB Solid waste disposal sites with known migration of hazardous waste.

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

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.

## OPERATING PERMITS

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

EPA Permit number

UT Underground Storage Tank Permits (1987)

Reference to tank permit

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

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 Quantities (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 quantitative Hazard Ranking System (HRS) based on the potential health risk via any one or more potential pathways; ground-water, 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 & Maintenance 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 of 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*

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Site:	SOUTHERN PACIFIC TRANSPORTATION
Address:	5TH & KIRKHAM
City:	OAKLAND
Map Loc:	5
Status:	<i>PEARM - Preliminary Endangerment Assessment Required, Medium Priority</i>
Site:	RED STAR YEAST
Address:	1384 5TH ST
City:	OAKLAND
Map Loc:	6
Status:	<i>NFA - No Further Action for DTSC</i>
Site:	HARRY P ROBERTS COMPANY
Address:	1403 5TH ST
City:	OAKLAND
Map Loc:	7
Status:	<i>NFA - No Further Action for DTSC</i>
Site:	SOUTHERN PACIFIC OAKLAND
Address:	7TH & BAY ST
City:	OAKLAND
Map Loc:	8
Status:	<i>SSR - Site Screening Required</i>
Site:	BADANIC
Address:	1380 7TH ST
City:	OAKLAND
Map Loc:	9
Status:	<i>NFA - No Further Action for DTSC</i>
Site:	DICAR COMPANY
Address:	1846 8TH ST
City:	ALAMEDA
Map Loc:	11
Status:	<i>NFA - No Further Action for DTSC</i>
Site:	SKIPS TRUCKING COMPANY
Address:	112 ADELINE ST
City:	OAKLAND
Map Loc:	12
Status:	<i>NFA - No Further Action for DTSC</i>
Site:	A & W E, WESTERN DIVISION
Address:	721 CEDAR ST
City:	OAKLAND
Map Loc:	13
Status:	<i>NFA - No Further Action for DTSC</i>

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 pursuant 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.

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

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.

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

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 exempt 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.*



**SITE NOTIFICATION INFORMATION**

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY  
DAVID J. KEARS, Agency Director



R. K. F.  
JUN 10 1992

*Callan Ste*

RAFAT A. SHAHID, Assistant Agency Director

Certified Mail #P 367 604 505

STID# 2044

April 29, 1992

RECEIVED

JUN 10 1992

DEPARTMENT OF ENVIRONMENTAL HEALTH  
Hazardous Materials Division  
80 Swan Way, Rm. 200  
Oakland, CA 94621  
(510) 271-4320

Andrew Clark-Clough  
Port of Oakland  
P. O. Box 2064  
Oakland, CA 94604-2064

BYRONMB

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Fax #		Fax #

*Call*  
John Segle  
Union Pacific Railroad  
1717 Middle Harbor Road  
Oakland, CA 94607.

RE: Union Pacific Railroad Site at 1750 Yerro Street, Oakland, CA

Dear Sirs:

The case file for the above referenced site has recently been reviewed by Britt Johnson, Hazardous Materials Specialist of our staff. One (1) underground storage tank (UST) was removed from this site in December 1987. Two (2) more USTs were removed in May 1988 and two (2) more USTs were removed in February 1990.

At the time of the December 1987 tank removal a large amount of oil was present in the excavation. There are no soil or water sample results in our file for this removal. Soil and water sample results have been submitted for the May 1988 tank removal indicating total oil and grease (TOG) in the soil of up to 18,050 ppm. There are no soil or water sample results in our file for the February 1990 tank removal.

If soil or water sample results exist for either the December 1987 or February 1990 tank removals please submit them to us. If they do not exist you are required to indicate why, as the collection of samples was a condition of the approved closure application issued for the removal of these tanks.

Guidelines established by the San Francisco Bay Regional Water Quality Control Board (RWQCB) require that a groundwater investigation and monitoring program be established whenever any detectable groundwater contamination found and/or soil hydrocarbon contamination reaching or exceeding 100 parts per million (ppm) is detected. This investigation must also define the lateral and vertical extent of both the soil and groundwater contamination.

The investigation shall be in the form of a Preliminary Site

Clark-Clough & Segle  
April 29, 1992  
Page 2 of 3

Assessment, or PSA. The information gathered by the PSA will be used to determine an appropriate course of action to remediate the site, if deemed necessary. The PSA must be conducted in accordance with the RWQCB Staff Recommendations for the Initial Evaluation and Investigation of Underground Tank Sites. The major elements of such an investigation are summarized in the attached Appendix A

In order to proceed with a site investigation, you should obtain the professional services of a reputable environmental consultant. All reports and proposals must be submitted under seal of a California Registered Geologist, Certified Engineering Geologist, or Registered Civil Engineer. Please include a statement of qualifications for each lead professional involved with this project.

This Department is delegated the authority to oversee the assessment and remediation of your site by the RWQCB. Submit all reports and direct all questions to this Department. However the ultimate authority for site closure and "sign-off" still remains with the RWQCB. For this reason copies of reports should be sent to the RWQCB at 2101 Webster Street, Suite 500, Oakland, CA 94612. The issuance of well drilling permits, however, will be through the Alameda County Flood Control and Water Conservation District, Zone 7, 5997 Parkside Drive, Pleasanton (510) 484-2600.

The PSA proposal is due within 45 days of the date of this letter, or by June 12, 1992. Once your workplan is approved, field work must commence within 60 days. A report must be submitted within 45 days after completion of this work is complete. Subsequent reports are to be submitted quarterly until this is recommended for "sign off" by this Department and approved by the RWQCB. Quarterly reports are due the first day of the second month of each subsequent quarter (i.e., May 1, August 1, November 1, and February 1).

The referenced initial and quarterly reports must describe the status of the investigation and must include, among others, the following elements:

- Details and results of all work performed during the designated period of time; records of field observations and data, boring and well construction logs, water level data, chain-of-custody forms, laboratory results for all samples collected and analyzed, tabulations of free product thicknesses and dissolved fractions, etc.

JUN 10 '92 11:35 FROM UP ENVIRON MGMT

Clark-Clough & Segle  
April 29, 1992  
Page 3 of 3

- Status of groundwater contamination characterization.
- Interpretation of results: water level contour maps showing gradients, free and dissolved product plume definition maps for each target component, geologic cross sections, etc.
- Recommendations or plans for additional investigative work or remediation.

Please be advised that this a formal request for technical reports pursuant to California Water Code Section 13267 (b). Failure to respond or a late response could result in the referral of this case to the RWQCB for enforcement. The RWQCB can impose civil penalties of up to a \$1,000 per day. Any extensions of stated deadlines, or modifications of the required tasks, must be confirmed in writing by this Department.

If you have any questions, please contact Britt Johnson, Hazardous Materials Specialist, at 510-271-4320.

Sincerely,

*Paul M. Smith*

Paul Smith  
Senior Hazardous Materials Specialist

cc: Edgar Howell, Chief Hazardous Materials Division  
Gil Jensen, Alameda County District Attorney's Office  
Lester Feldman, RWQCB  
Howard Hatayama, Cal-EPA, DTSC

Attachment

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY

DAVID J. KEARS, Agency Director



RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH  
State Water Resources Control Board  
Division of Clean Water Programs  
UST Local Oversight Program  
80 Swan Way, Rm 200  
Oakland, CA 94621  
(510) 271-4530

April 29, 1993  
STID 2044

Harry Patterson  
Union Pacific Railroad Co.  
1416 Dodge St., Room 930  
Omaha Nebraska 68179-0930

RE: Union Pacific Railroad site  
1750 Ferro St.  
Oakland CA 94607

Dear Mr. Patterson,

Thank you for the submittal of the "Preliminary Site Assessment Report," dated April 1993, prepared by USPCI. As you know, this report documents the installation and sampling of 12 soil borings, 5 of which were converted into groundwater monitoring wells. Elevated concentrations of contaminants were detected in both soil and groundwater. Specifically, up to 47,000 ppm TPH-diesel, 19,000 ppm TPH-motor oil, 1,300 ppm total lead, and some 8270 and 8010 compounds were detected in soils. Groundwater contained up to 14,000 ppb TPH-g, 4,500 ppb TPH-motor oil, 5,400 ppb TPH-diesel, 480 ppb benzene, 470 ppb arsenic, 290 ppb chloroform, and some 8270 compounds.

This report concludes that the USTs are the likely source of groundwater contamination, but not necessarily the source of soil contamination. Recommendations include a) quarterly groundwater monitoring to gather information for a remediation plan, and b) a Phase II assessment to define the lateral extent of soil and groundwater contamination.

We agree with these recommendations, and further request submittal of a workplan for the Phase II assessment within 45 days or by June 13, 1993.

All work should adhere to a) the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites, dated 8/10/90; b) the State Water Resources Control Board LUFT Field Manual; and c) Article 11 of Title 23, California Code of Regulations. Reports and proposals must be submitted under seal of a California-Registered Geologist, -Certified Engineering Geologist, or -Registered Civil Engineer. All reports and documents pertaining to this investigation should also be sent to:

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY

DAVID J. KEARS, Agency Director



RAFAT A. SHAHID, ASST. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH  
State Water Resources Control Board  
Division of Clean Water Programs  
UST Local Oversight Program  
80 Swan Way, Rm 200  
Oakland, CA 94621  
(510) 271-4530

April 2, 1993  
STID 2044

Harry Patterson  
Manager, Site Remediation  
Union Pacific Railroad Co.  
1416 Dodge St., Rm 930  
Omaha NE 68179-0930

RE: Union Pacific Railroad site  
1750 Ferro St.  
Oakland CA 94607

Dear Mr. Patterson,

I am writing this letter to you because my messages over the past week to your consultant, Eric Taylor of US PCI, have not been returned. It is my understanding that monitoring wells were installed at this site in January of this year. I also understand that groundwater sampled from these wells contained significant concentrations of contaminants, as per a telephone conversation between myself and Chris Byerman of US-PCI on 2/1/93.

Two months have since passed, and a monitoring well installation/sampling report has not been submitted to this office. Therefore, you are requested to submit this report, which should document recent field activities, within 30 days or by May 2, 1993.

Please be advised that this is a formal request for technical reports pursuant to California Water Code Section 13267(b). Any extensions of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by either this agency or the RWQCB.

All reports and documents pertaining to this investigation should also be sent to:

Rich Hiett  
San Francisco Bay Region  
Regional Water Quality Control Board  
2101 Webster St., Ste 500  
Oakland CA 94612



# 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

GATE HOUSE



FERRRO STREET  
FENCE

NOT BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE PORT OF OAKLAND. THIS PLAN IS THE PROPERTY OF THE PORT OF OAKLAND AND IS TO BE KEPT IN THE PORT OF OAKLAND ARCHIVES. THE APPLICANT'S QUALIFIED ENGINEER, AND THE APPLICANT'S QUALIFIED CIVIL ENGINEER, SHALL BE RESPONSIBLE FOR THE ACCURACY OF THIS PLAN. APPROVED AS TO CONFORMANCE WITH PORT PLANNING SUBJECT TO CIVIL ENGRG. PERMIT

Director of Engineering



ASPHALT

WASTE OIL TANKS

EXCAVATION

CONCRETE



FUEL TANKS

DRAIN

CONCRETE

CONCRETE

SURFACE DRAINS  
To oil separator

OIL/WATER SEPARATOR

ISLAND

SHOP-  
UP MOTOR FRG.

SAN FRANCISCO BAY  
400 YARDS

⊗ Monitoring Well

0 40 FEET  
SCALE (approx.)

PORT OF OAKLAND  
PLANNING DEPARTMENT  
RECEIVED



UNION PACIFIC MOTOR  
FREIGHT FACILITY  
OAKLAND, CA

DEC 1 1992

#3443

Port Permits Section 3/88

SITE MAP

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) 350-9246

FROM: Wynan 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 Terry Street in Oakland for Union  
Pacific.



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: 2  
(Including transmittal)

FOR VOICE CONTACT CALL: (510) 484-2600  
FOR RETURN FAX: (510) 462-3914

REMARKS: Please complete and return for  
your monitoring well project in Oakland,  
CA, Port of Oakland.



# ZONE 7 WATER AGENCY

11-19-92  
mailed

6997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588

VOICE (510) 484-2600  
FAX (510) 482-3914

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 1750 Ferro St.  
Oakland CA  
Union Pacific Facility

PERMIT NUMBER \_\_\_\_\_  
LOCATION NUMBER \_\_\_\_\_

CLIENT  
Name Union Pacific (Mr. Harry Patterson)  
Address Room 930 1416 Dodge St.  
City Omaha Nebraska Zip 68179-0930

Manager of Environmental Site Remediation  
PERMIT CONDITIONS  
Circled Permit Requirements Apply

APPLICANT  
Name Eric Taylor (USPCI)  
Address 24125 Aldine Westfield Rd  
City Spring, TX Zip 77375  
Fax 713-350-7246  
Voice 713-350-7266

### 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.

TYPE OF PROJECT

Well Construction	Geotechnical Investigation
Cathodic Protection	General
Water Supply	Contamination <u>X</u>
Monitoring <u>X</u>	Well Destruction

PROPOSED WATER SUPPLY WELL USE

Domestic	Industrial	Other
Municipal <u>X</u>	Irrigation	

DRILLING METHOD:

Mud Rotary	Air Rotary	Auger <u>X</u>
Cable	Other	

DRILLER'S LICENSE NO. Layne-Western, Sacramento CA 518011

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum
Casing Diameter	<u>2</u> in.	Depth
Surface Seal Depth	<u>8</u> ft.	Number

GEOTECHNICAL PROJECTS

Number of Borings		Maximum
Hole Diameter		Depth

ESTIMATED STARTING DATE 12-6-92  
ESTIMATED COMPLETION DATE 12-11-92

Approved \_\_\_\_\_ Date \_\_\_\_\_

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S Eric Taylor

# 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  
Asset Property Manager

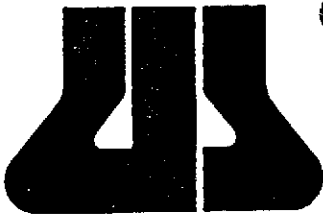
JW/MH/bb

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.

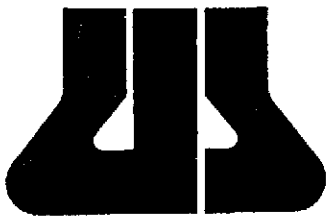
Sincerely,

Richard C. Ditmars  
Geophysicist  
Environmental Assessments

Enclosures

cc: Alan Jensen, UPRR  
~~Al Brule~~, 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: ~~John Yellich~~ 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

Tank Permit

Permit to Excavate and Install, Repair, or Remove Inflammable Liquid Tanks. No. 9342  
Oakland, California, January 25, 19 90

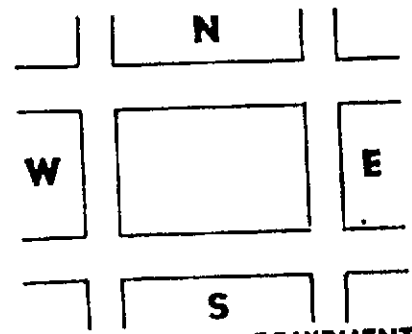
PERMISSION IS HEREBY GRANTED TO ~~XXXX~~ remove ~~XXXX~~ Gasoline tank and excavate commencing \_\_\_\_\_ feet inside property

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 Blvd. 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. 1,000

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.**

UNION PACIFIC RAILROAD

PHASE II SITE ASSESSMENT REPORT

UPMFT

1750 FERRO ST.

Oakland, CA

OCT 1993



# 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:	

WELL COMP	DPT	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL
	0	AC FILL	LITHOLOGIC CONTACT			
	5	SM	5'-10' (INTERVAL) DESCRIPTIVE PARAMETERS			
	10	ML	<p>SOIL GROUP NAME, % COARSE MATERIALS ANGULARITY, SIZE RANGE, GRADING OF SAND AND GRAVEL, PRESENCE AND SHAPE OF COBBLES, % FINES, DRY STRENGTH, DILATANCY, TOUGHNESS, PLASTICITY, COMPACTNESS OR CONSISTENCY (FROM EITHER BLOWCOUNT DATA OR THUMBNAI L 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.)</p>			
	15	SW				
	20	CL				
	25		STABILIZED WATER LEVEL INITIAL WATER LEVEL	1000	SB-1- 155-18'	100 PPM TPH G

NEAT CEMENT	SAND	TRAFFIC BOX OR PROTECTIVE CASING
BENTONITE PELLETS OR CHIPS	WELL SCREEN	WATER TIGHT LOCKING CAP
CONCRETE	BLANK CASING	END CAP

K 19212A 0612A 0612A 19

# USPCI



A Subsidiary of  
Union Pacific Corporation

## WELL LOG ABBREVIATIONS

ALT	- altered	GRY	- gray	PT	- peat and other highly organic soils
A	- angular	GRN	- green	PHNO	- phenocryst
APHNT	- aphanitic	HRD	- hard	PLST	- plastic/icity
APP	- approximately	H	- high	PRLY	- poorly, product
A/A	- as above	HOMO	- homogenous	PRPH	- porphyritic
BSLT	- basalt	IGN	- igneous	POSS	- possible
BLK	- black	IND	- individual	QTZ	- quartz
BLDR	- boulder	INDURD	- indurated	R	- rapid
BRN	- brown	INTBDD	- interbedded	RX	- reactive
BLKY	- bulky	INTERCAL	- intercalated	RD	- red
CH	- inorganic clays, high plasticity	LMNTD	- laminated	RKS	- rocks
CL	- inorganic clays, low plasticity	LT	- light	RND	- round
CMTD	- cemented	LTL	- little	SM	- silty sands
CNSLDT	- consolidated	LS	- loose	SP	- poorly graded sands or with gravel
C	- coarse	MH	- elastic silt, clayey silt, micaceous or diatomaceous fine sandy or or silty soils	SW	- well graded sands or with gravel
CBBL	- cobble	ML	- inorganic silts and very fine sands	SND	- sand
CMPT	- component	MN	- manganese	SNDST	- sandstone
CLY	- clay/clayey	MNOX	- manganese oxide	SIL	- siliceous
CLST	- claystone	MJR	- major	SLT	- silt
DMP	- damp	MSSV	- massive	SLTY	- silty
DRK	- dark	M	- medium or moderate	SL	- slightly
D.G.	- decomposed granite	MCA	- mica/cous	SL PO	- slight product odor
DNS	- dense	MNR	- minor	SLW	- slow
DLTNCY	- dilatancy	MST	- moist	SFT	- soft
ELSTC	- elastic	MTTLING	- mottling	SRTD	- sorted
ELNGD	- elongated	N	- no, none, non	STCKY	- sticky
FELD	- feldspar	NPLST	- nonplastic	STRNG	- strong
FLM	- film	NPO	- no product odor	STRNG PO	- strong product odor
F	- fine	OH	- organic clays of medium to high plasticity, organic silty clays	SA	- subangular
FRM	- firm	OL	- organic silts and organic silty clays	SR	- subround
FSSD	- fissured			SURF	- surface
FRCD	- fractured			TGHNSS	- toughness
GC	- clayey gravels			TR	- trace
GM	- silty gravels			TFF	- tuff/accous
GP	- poorly graded gravel			V	- very
GW	- well graded			VOLC	- volcanic
GAS	- gasoline			WTR	- water
GRDD	- graded			WT	- water table
GR	- grain			WHT	- white
GRNTC	- granitic			W/	- with
GRVL	- gravel			YLLW	- yellow
ORNG	- orange				
ORG	- organic			O	- odor

CLIENT: UNION PACIFIC RAILROAD			JOB NUMBER: 96120-844		
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA		
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 7-15-93		DATE COMP: 7-15-93		REF. EL.: 8.52	TOTAL DEPTH: 22.5
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4859		DEPTH TO WATER: 9.93

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 1.5 <b>ASPHALT CONCRETE</b>	NO		
			FL	1.5 to 3.0 <b>FILL MATERIAL: DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR</b>	NO		
			SW	3.0 to 4.0 <b>SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, DRY, NO ODOR</b>	NO	APL/UP-W1 (6')	TPH-D TPH-G TPH-IR BTEX As,Pb, Cd,Cr
	6 8 4 3			4.0 to 20.0 <b>SAND: BROWN TO GRAY, WITH NO GRAVEL, POORLY GRADED, WET AT 12 FEET</b>	NO		
	10				NO		
	3 2 4 7		SP			NO	APL/UP-W1 (12')
15					NO		
20			SM	20.0 to 22.5 <b>SAND: OLIVE GRAY, VERY FINE-GRAINED, NO GRAVEL, SILT, WET, NO ODOR</b>	NO		
25					NO		
30					NO		
				TOTAL DEPTH - 22.5 FEET (WELL SET AT 22 FEET)  SAMPLE ANALYTICAL RESULTS - SEE TABLES 2a and 2b ND - NOT DETECTED ELEVATION MEASURED FROM MSL  WATER LEVEL MEASURED 8-25-93			

<b>CLIENT: UNION PACIFIC RAILROAD</b>			<b>JOB NUMBER: 96120-844</b>		
<b>PROJECT: UPMF OAKLAND (PHASE II)</b>			<b>LOCATION: 1750 FERRO ST., OAKLAND, CA</b>		
<b>DRILLED BY: LAYNE WESTERN</b>		<b>DRILLER: STEVE MCCOY</b>		<b>METHOD: H-S AUGER W/ SPL SPOON</b>	
<b>DATE START: 7-15-93</b>		<b>DATE COMP: 7-15-93</b>		<b>REF. EL.: 7.50</b>	<b>TOTAL DEPTH: 17.5</b>
<b>LOGGED BY: C.S. BYERMAN</b>			<b>APPROVED BY: R.M. POLLARD - R.G.# 4659</b>		<b>DEPTH TO WATER: 9.20</b>

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.	
			ASPH	0.0 to 1.5 <b>ASPHALT CONCRETE</b>	NO			
			FL	1.5 to 3.0 <b>FILL MATERIAL: DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR</b>	NO	APL/UP-W2 (3')	TPH-D TPH-G TPH-IR BTEX As,Pb,	
	7			SW	3.0 to 5.0 <b>SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, NO ODOR</b>			
	10				5.0 to 17.0 <b>SAND: BROWN TO GRAY, NO GRAVEL, POORLY GRADED, TRACE OF SILT, LOOSE, WET AT 12 FEET, NO ODOR</b>	NO		Cd,Cr
	15			SP		NO	APL/UP-W1 (1')	TPH-D TPH-G TPH-IR BTEX As,Pb, Cd,Cr
	20			SM	17.0 to 17.5 <b>SAND: OLIVE GRAY, VERY FINE-GRAINED, WITH SILT, NO GRAVEL, POORLY GRADED, WET, NO ODOR</b>			
<p><b>TOTAL DEPTH - 17.5 FEET (WELL SET AT 17.3 FEET)</b></p> <p><b>SAMPLE ANALYTICAL RESULTS - SEE TABLES 2a and 2b</b></p> <p><b>OVM VALUES IN PPM</b></p> <p><b>NO - NOT DETECTED</b></p> <p><b>ELEVATION MEASURED FROM MSL</b></p> <p><b>WATER LEVEL MEASURED 8-25-93</b></p>								

<b>CLIENT: UNION PACIFIC RAILROAD</b>			<b>JOB NUMBER: 96120-844</b>		
<b>PROJECT: UPMF OAKLAND (PHASE II)</b>			<b>LOCATION: 1750 FERRO ST., OAKLAND, CA</b>		
<b>DRILLED BY: LAYNE WESTERN</b>		<b>DRILLER: STEVE MCCOY</b>		<b>METHOD: H-S AUGER W/ SPL SPOON</b>	
<b>DATE START: 7-14-93</b>		<b>DATE COMP: 7-14-93</b>		<b>REF. EL.: 7.29</b>	<b>TOTAL DEPTH: 17.0</b>
<b>LOGGED BY: C.S. BYERMAN</b>			<b>APPROVED BY: R.M. POLLARD - R.G.# 4659</b>		<b>DEPTH TO WATER: 0.52</b>

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
	0		ASP	0.0 to 0.5 <b>ASPHALT CONCRETE</b>	NO	NR	
	18		FL	0.5 to 4.0 <b>FILL MATERIAL: DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR</b>	NO		
	17		SW	4.0 to 10.0 <b>SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, NO ODOR</b>	NO		
	20	NO					
	5		SP	10.0 to 12.0 <b>SAND: OLIVE GRAY, NO GRAVEL, POORLY GRADED, TRACE OF SILT, LOOSE, WET AT 12 FEET, POSSIBLE SLIGHT ODOR</b>	NO		
4		SM	12.0 to 17.0 <b>SAND: OLIVE GRAY, VERY FINE-GRAINED, WITH SILT, NO GRAVEL, POORLY GRADED, WET, NO ODOR</b>	NO			
3					NO		
2					NO		
4					NO		
15					NO		
20							
25							
30							
				<p>TOTAL DEPTH - 17.0 FEET (WELL SET AT 16.3 FEET)</p> <p>SAMPLE ANALYTICAL RESULTS - SEE TABLES 2a and 2b</p> <p>OVM VALUES IN PPM</p> <p>NO - NOT DETECTED</p> <p>NR - NO SAMPLE RECOVERED</p> <p>ELEVATION MEASURED FROM MSL</p> <p>WATER LEVEL MEASURED 8-25-93</p>			

CLIENT: UNION PACIFIC RAILROAD			JOB NUMBER: 96120-844		
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA		
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE MCCOY		METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 7-14-93		DATE COMP: 7-14-93		REF. EL.: 7.40	TOTAL DEPTH: 20.5
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4659		DEPTH TO WATER: 5.94

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 <b>ASPHALT CONCRETE</b>	NO		
			FL	0.5 to 4.0 <b>FILL MATERIAL:</b> DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR	NO		
	5	11 12 10 9	SW	4.0 to 6.0 <b>SAND:</b> OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, DRY, NO ODOR	NO	OKUS-W7 (4')	TPH-D TPH-G TPH-IR BTEX As,Pd
			SP	6.0 to 11.0 <b>SAND:</b> OLIVE GRAY, WITH NO GRAVEL, TRACE SILT, POORLY GRADED, WET AT 7 FEET, NO ODOR	NO		
	10	7 7 5 5			NO	OKUS-W7 (9')	TPH-D TPH-G TPH-IR BTEX As,Pd
	15		SM	11.0 to 20.0 <b>SAND:</b> OLIVE GRAY, VERY FINE-GRAINED, NO GRAVEL, SILT, WET, NO ODOR	NO		
20		ML	<b>SILT:</b> DARK GRAY, WITH VERY FINE GRAINED SAND AND MINOR CLAY, SLIGHTLY ELASTIC, SOME DRY STRENGTH, WET, NO ODOR	NO			
	25		TOTAL DEPTH - 20.5 FEET (WELL SET AT 20 FEET)  SAMPLE ANALYTICAL RESULTS - SEE TABLES 2a and 2b NO - NOT DETECTED ELEVATION MEASURED FROM MSL  WATER LEVEL MEASURED 8-25-93				
	30						

CLIENT: UNION PACIFIC RAILROAD			JOB NUMBER: 96120-844		
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA		
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 7-14-93		DATE COMP: 7-14-93		REF. EL.: 7.11	TOTAL DEPTH: 17.0
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4859		DEPTH TO WATER: 5.88

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 ASPHALT CONCRETE	NO		
			FL	0.5 to 6.0 FILL MATERIAL: DARK BROWN TO GRAY, MIX OF GRAVEL, SAND, BRICKS, GLASS AND OTHER MATERIAL, WELL GRADED, DRY, NO ODOR	NO		
	20	18					
	17	12	SW	8.0 to 8.0 SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, NO ODOR	NO	OKUS-W8 (6')	TPH-0 TPH-6 TPH-IR BTEX As,Pb
	11		SP	8.0 to 12.0 SAND: OLIVE GRAY, NO GRAVEL, POORLY GRADED, TRACE OF SILT, LOOSE, WET AT 12 FEET, NO ODOR	NO		
7	9						
12			SM	12.0 to 17.0 SAND: OLIVE GRAY, VERY FINE-GRAINED, WITH SILT, NO GRAVEL, POORLY GRADED, WET, NO ODOR	NO	OKUS-W8 (12') DUP A	TPH-0 TPH-6 TPH-IR BTEX As,Pb
15	5						
	5						
	4						
	4						
	20						
	25						
	30						
				TOTAL DEPTH - 17.0 FEET (WELL SET AT 15.3 FEET)  SAMPLE ANALYTICAL RESULTS - SEE TABLES 2a and 2b OVM VALUES IN PPM NO - NOT DETECTED ELEVATION MEASURED FROM MSL  WATER LEVEL MEASURED 8-26-93			

CLIENT: UNION PACIFIC RAILROAD			JOB NUMBER: 96120-844		
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA.		
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 7-13-93		DATE COMP: 7-13-93		REF. EL.: 7.45	TOTAL DEPTH: 14.0
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4659		DEPTH TO WATER:

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 ASPHALT CONCRETE:	ND		
			FL	0.5 to 6.0 FILL MATERIAL: BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR	ND		
	17	30					
	5	22					
	20						
	23		SW	6.0 to 8.0 SAND: OLIVE GRAY, WITH MINOR GRAVEL, WELL GRADED, LOOSE, SLIGHTLY FOUL ODOR, NO RECOVERY FOR SAMPLE, MOIST AT 10 FEET	ND	OKUS-B6A (6')	TPH-D TPH-G TPH-IR BTEX As,Pd
	24						
	37		SP	8.0 to 10.0 SAND: OLIVE GRAY, NO GRAVEL, POORLY GRADED, WET AT 12 FEET, LOOSE, MODERATE ODOR	80	OKUS-B6A (10')	TPH-D TPH-G TPH-IR BTEX As,Pd
	27						
	10	7					
	10		SM	10.0 to 14.0 SILTY SAND: DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTLY DENSE, WET, SLIGHT ODOR	580		
	12						
	11						
	5						
	3						
	3						
	4				17		
	15						
	20						
				TOTAL DEPTH - 14.0 FEET  SAMPLE ANALYTICAL RESULTS - SEE TABLES 2a and 2b OVM VALUES IN PPM ND - NOT DETECTED ELEVATION MEASURED FROM MSL			
	25						
	30						



CLIENT: UNION PACIFIC RAILROAD						JOB NUMBER: 98120-844	
PROJECT: UPMF OAKLAND (PHASE II)				LOCATION: 1750 FERRO ST., OAKLAND, CA.			
DRILLED BY: LAYNE WESTERN			DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON		
DATE START: 7-12-93		DATE COMP: 7-12-93		REF. EL.: 8.31		TOTAL DEPTH: 10.0	
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4659		DEPTH TO WATER:		
WELL COMP	DPT	BLOMS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 <b>ASPHALT CONCRETE:</b>	ND		
			FL	0.5 to 3.0 <b>FILL MATERIAL:</b> BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR	17	OKUS-B8 (3')	TPH-D TPH-G TPH-IR BTEX As,Pb
			SW	3.0 to 5.0 <b>SAND:</b> OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, SLIGHT ODOR	85		
			SM	5.0 TO 10.0 <b>SILTY SAND:</b> DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTY DENSE, WET, SLIGHT ODOR	45	OKUS-B8 (8')	TPH-D TPH-G TPH-IR BTEX As,Pb
				TOTAL DEPTH - 10.0 FEET  SAMPLE ANALYTICAL RESULTS - SEE TABLE 2a and TABLE 2b OVM VALUES IN PPM ND - NOT DETECTED ELEVATION MEASURED FROM MSL	20		

CLIENT: UNION PACIFIC RAILROAD			JOB NUMBER: 96120-844		
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA.		
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON	
DATE START: 7-12-93		DATE COMP: 7-12-93		REF. EL.: 5.95	TOTAL DEPTH: 8.0
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4659		DEPTH TO WATER:

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 ASPHALT CONCRETE:	NO		
			FL	0.5 to 2.0 FILL MATERIAL: BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR	NO	OKUS-B9 (3')	TPH-0 TPH-6 TPH-IR BTEX As,Pd
			SW	2.0 to 3.0 SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, NO ODOR	NO	OKUS-B9 (6')	TPH-0 TPH-6 TPH-IR BTEX As,Pd
			SP	3.0 to 5.0 SAND: OLIVE GRAY, WITH MINOR SILT, NO GRAVEL, POORLY GRADED, LOOSE, NO ODOR	NO		
			SM	5.0 TO 8.0 SILTY SAND: DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTY DENSE, WET AT 8 FEET, NO ODOR	NO		
				TOTAL DEPTH - 8.0 FEET			
				SAMPLE ANALYTICAL RESULTS - SEE TABLE 2a and TABLE 2b			
				OVM VALUES IN PPM			
				NO - NOT DETECTED			
				ELEVATION MEASURED FROM MSL			

CLIENT: UNION PACIFIC RAILROAD				JOB NUMBER: 96120-844		
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA.			
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON		
DATE START: 7-12-93		DATE COMP: 7-12-93	REF. EL.: 7.12		TOTAL DEPTH: 14.0	
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4859		DEPTH TO WATER:	

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 <b>ASPHALT CONCRETE:</b>	ND		
		10 14 26 28	FL	0.5 to 4.0 <b>FILL MATERIAL:</b> BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, MODERATE ODOOR	79	OKUS-B10 (2')	TPH-0 TPH-6 TPH-IR BTEX As,Pd
		9 8 5 4 4	SW	4.0 to 6.0 <b>SAND:</b> OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, STRONG ODOOR	1790	OKUS-B10 (4')	TPH-0 TPH-6 TPH-IR BTEX As,Pd
		7 7 4 4 6	SP	6.0 to 8.0 <b>SAND:</b> OLIVE GRAY, WITH MINOR SILT, NO GRAVEL, POORLY GRADED, LOOSE, WET AT 8 FEET, STRONG ODOOR	350	OKUS-B10 (8')	TPH-0 TPH-6 TPH-IR BTEX As,Pd
		10	SM	8.0 TO 14.0 <b>SILTY SAND:</b> DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTY DENSE, MODERATE TO SLIGHT ODOOR	58		
		15					
		20					
		25					
		30					
				TOTAL DEPTH - 14.0 FEET  SAMPLE ANALYTICAL RESULTS - SEE TABLE 2a and TABLE 2b OVM VALUES IN PPM ND - NOT DETECTED ELEVATION MEASURED FROM MSL			

<b>CLIENT: UNION PACIFIC RAILROAD</b>				<b>JOB NUMBER: 96120-844</b>			
<b>PROJECT: UPMF OAKLAND (PHASE II)</b>			<b>LOCATION: 1750 FERRO ST., OAKLAND, CA.</b>				
<b>DRILLED BY: LAYNE WESTERN</b>		<b>DRILLER: STEVE MCCOY</b>		<b>METHOD: H-S AUGER W/ SPL SPOON</b>			
<b>DATE START: 7-13-93</b>		<b>DATE COMP: 7-13-93</b>		<b>REF. EL.: 7.88</b>		<b>TOTAL DEPTH: 12.0</b>	
<b>LOGGED BY: C.S. BYERMAN</b>			<b>APPROVED BY: R.M. POLLARD - R.G.# 4859</b>		<b>DEPTH TO WATER:</b>		

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			X	0.0 to 0.5 <b>ASP</b> ASPHALT CONCRETE:	NO		
			●	0.5 to 4.0 <b>FL</b> FILL MATERIAL: BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR	NO		
	17 18 12 16	5	○	4.0 to 6.0 <b>SW</b> SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, NO ODOR	NO	OKUS-B11 (4')	TPH-D TPH-G TPH-IR BTEX As,Pb
	11 9 7 7		●	6.0 to 10.0 <b>SP</b> SAND: OLIVE GRAY, WITH MINOR SILT, NO GRAVEL, POORLY GRADED, LOOSE, WET AT 8 FEET, NO ODOR	NO	OKUS-B11 (7')	TPH-D TPH-G TPH-IR BTEX As,Pb
	7 7 4 6	10		10.0 TO 12.0 <b>SM</b> SILTY SAND: DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTY DENSE, NO ODOR	NO		NR
				TOTAL DEPTH - 12.0 FEET			
				SAMPLE ANALYTICAL RESULTS - SEE TABLE 2a and TABLE 2b			
				OVM VALUES IN PPM			
				NO - NOT DETECTED			
				NR - NO SAMPLE RECOVERED			
				ELEVATION MEASURED FROM MSL			

<b>CLIENT: UNION PACIFIC RAILROAD</b>				<b>JOB NUMBER: 96120-844</b>	
<b>PROJECT: UPMF OAKLAND (PHASE II)</b>			<b>LOCATION: 1750 FERRO ST., OAKLAND, CA.</b>		
<b>DRILLED BY: LAYNE WESTERN</b>		<b>DRILLER: STEVE MCCOY</b>		<b>METHOD: H-S AUGER W/ SPL SPOON</b>	
<b>DATE START: 7-13-93</b>		<b>DATE COMP: 7-13-93</b>		<b>REF. EL.: 8.27</b>	<b>TOTAL DEPTH: 6.0</b>
<b>LOGGED BY: C.S. BYERMAN</b>			<b>APPROVED BY: R.M. POLLARD - R.G.# 4659</b>		<b>DEPTH TO WATER:</b>

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
		18	ASP	0.0 to 0.5 <b>ASPHALT CONCRETE:</b>	NO	NR	TPH-0 TPH-6 TPH-IR BTEX As,Pb
		24	FL	0.5 to 3.0 <b>FILL MATERIAL: BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR</b>	NO		
		22	SW	3.0 to 6.0 <b>SAND: OLIVE GRAY, WITH FINE GRAVEL, WELL GRADED, LOOSE, NO ODOR</b>	NO		
		20				OKUS-B12 (3')	
		10					
		12					
		10					
		5					
		10					
		15					
		20					
		25					
		30					
				TOTAL DEPTH - 6.0 FEET			
				SAMPLE ANALYTICAL RESULTS - SEE TABLE 2a and TABLE 2b			
				OVM VALUES IN PPM			
				NO - NOT DETECTED			
				NR - NO RECOVERY OF SAMPLE			
				ELEVATION MEASURED FROM MSL			

CLIENT: UNION PACIFIC RAILROAD				JOB NUMBER: 96120-844			
PROJECT: UPMF OAKLAND (PHASE II)			LOCATION: 1750 FERRO ST., OAKLAND, CA.				
DRILLED BY: LAYNE WESTERN		DRILLER: STEVE McCOY		METHOD: H-S AUGER W/ SPL SPOON			
DATE START: 7-14-93		DATE COMP: 7-14-93		REF. EL.: 7.97		TOTAL DEPTH: 14.0	
LOGGED BY: C.S. BYERMAN			APPROVED BY: R.M. POLLARD - R.G.# 4659		DEPTH TO WATER:		
WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 ASPHALT CONCRETE:	ND		
			FL	0.5 to 8.0 FILL MATERIAL: BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, MODERATE ODOOR	10 42	OKUS-B13 (3')	TPH-D TPH-G TPH-IR BTEX As,Pd
			SW	8.0 to 10.0 GRAVEL: GRAY, WITH COARSE TO FINE GRAVEL, WELL GRADED, LOOSE, MODERATE ODOOR	37		
			SP	10.0 to 12.0 SAND: OLIVE GRAY, WITH MINOR SILT, NO GRAVEL, POORLY GRADED, LOOSE, WET AT 8 FEET, STRONG ODOOR	327	OKUS-B13 (10')	TPH-D TPH-G TPH-IR BTEX As,Pd
			SM	12.0 TO 14.0 SILTY SAND: DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTY DENSE, MODERATE TO SLIGHT ODOOR	18		
				TOTAL DEPTH - 14.0 FEET			
				SAMPLE ANALYTICAL RESULTS - SEE TABLE 2a and TABLE 2b OVM VALUES IN PPM ND - NOT DETECTED ELEVATION MEASURED FROM MSL			

CLIENT: UNION PACIFIC RAILROAD		JOB NUMBER: 96120-844
PROJECT: UPMF OAKLAND (PHASE II)		LOCATION: 1750 FERRO ST., OAKLAND, CA.
DRILLED BY: LAYNE WESTERN	DRILLER: STEVE McCOY	METHOD: H-S AUGER W/ SPL SPOON
DATE START: 7-14-93	DATE COMP: 7-14-93	REF. EL.: 6.47
LOGGED BY: C.S. BYERMAN		APPROVED BY: R.M. POLLARD - R.G.# 4659
		DEPTH TO WATER:

WELL COMP	DPT	BLOWS	GRAPHIC LOG ASTM CODE	DESCRIPTION	OVM	SAMPLE NUMBER	SAMPLE ANAL.
			ASP	0.0 to 0.5 ASPHALT CONCRETE:	ND		
			FL	0.5 to 6.0 FILL MATERIAL: BROWN TO GRAY, GRAVEL, SAND, BRICK, TO GRAY SAND, DRY, LOOSE TO DENSE, NO ODOR	ND		
	5	15			45	OKUS-B14 (5')	TPH-0 TPH-6 TPH-IR BTEX As,Pb
		21	SW	6.0 to 10.0 SAND: OLIVE GRAY, WITH MINOR GRAVEL, WELL GRADED, LOOSE, SLIGHTLY FOUL ODOR, NO RECOVERY FOR SAMPLE, MOIST AT 10 FEET	38		
	10	9			17	OKUS-B14 (10')	TPH-0 TPH-6 TPH-IR BTEX As,Pb
		9	SP	10.0 to 12.0 SAND: OLIVE GRAY, NO GRAVEL, POORLY GRADED, WET AT 12 FEET, LOOSE, MODERATE ODOR	5		
		4					
		5	SM	12.0 to 15.0 SILTY SAND: DARK GRAY, VERY FINE-GRAINED, POORLY GRADED, SLIGHTLY DENSE, WET, SLIGHT ODOR			
		7					
		5					
	15	5			ND		TPH-0 TPH-6 TPH-IR BTEX As,Pb
		4	ML	15.0 to 17.0 SILT: DARK GRAY, FINE SILT WITH CLAY AND MINOR VERY FINE SAND, MODERATELY DENSE, WET, NO ODOR			
		3					
		3					
	20			TOTAL DEPTH - 17.0 FEET  SAMPLES ANALYTICAL RESULTS - LOCATED IN TABLES 2a and 2b. OVM VALUES IN PPM ND - NOT DETECTED ELEVATION MEASURED FROM MSL			
	25						
	30						

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## Analytical Services

USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

ATTENTION: CHRISTOPHER BYERMAN

RE: PROJECT: 96120-844  
USPCI-AS REPORT: 6083

Under this cover USPCI Analytical Services is submitting the analytical data for the following samples:

<u>Lab Number</u>	<u>Customer Number</u>
30007161	OKUS-B11(4')
30007162	OKUS-B11(7')
30007163	OKUS-B12(3')
30007164	OKUS-B13(3')
30007165	OKUS-B13(10')
30007166	OKUS-B6A(4')
30007167	OKUS-B6A(6')
30007168	OKUS-B6A(10')
30007169	OKUS-B10(2')
30007170	OKUS-B10(4')
30007171	OKUS-B10(6')
30007172	OKUS-B8(3')
30007173	OKUS-B8(8')
30007174	OKUS-B9(3')
30007175	OKUS-B9(6')
30007176	OKUS-W6(10')
30007177	OAK-TB#1

These samples were analyzed using EPA or other recognized methodology as specified in the report. Each test is performed under a rigorous QA/QC program including blanks, method controls and matrix spikes. All methods are calibrated using authentic reference materials with a minimum of a three point calibration curve as appropriate. All practical quantitation limits are validated and reflect method specific or project specific requirements. Some detection limits may be listed as higher than the targeted program limits due to sample specific interferences or limited sample size.



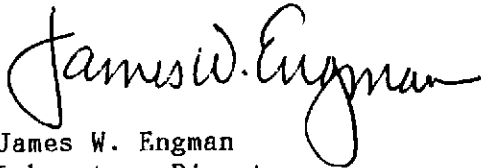
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## Analytical Services

If you need help in evaluating the data or need further information  
please call the laboratory at 918-446-1162.

Respectfully submitted for  
USPCI Analytical Services



James W. Engman  
Laboratory Director



Analytical Services

SAMPLE IDENTIFICATION: 30007161

CUSTOMER IDENTIFICATION: OKUS-B11(4')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6083  
 DATE SAMPLED: 07/13/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93  
 DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.24 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	7.7 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	215 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	BDL mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007162

CUSTOMER IDENTIFICATION: OKUS-B11(7')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	BDL mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	2.9 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	270 mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	19 mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

## Analytical Services

SAMPLE IDENTIFICATION: 30007163

CUSTOMER IDENTIFICATION: OKUS-B12(3')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	BDL mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	72.2 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	1080 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	7 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007164

CUSTOMER IDENTIFICATION: OKUS-B13(3')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6083  
 DATE SAMPLED: 07/13/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93  
 DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	2.49 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	137. mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	4540 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	58 mg/kg
Lead (Total)	SW 6010	5 mg/kg	3890 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	27 ug/kg
Ethylbenzene	SW 8020	2 ug/kg	81 ug/kg
Toluene	SW 8020	2 ug/kg	84 ug/kg
Xylenes	SW 8020	2 ug/kg	257 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007165

CUSTOMER IDENTIFICATION: OKUS-B13(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	1.03 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	110. mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	1070 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	9 mg/kg
Lead (Total)	SW 6010	5 mg/kg	149 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	1 ug/kg J
Ethylbenzene	SW 8020	2 ug/kg	50 ug/kg
Toluene	SW 8020	2 ug/kg	13 ug/kg
Xylenes	SW 8020	2 ug/kg	127 ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007166

CUSTOMER IDENTIFICATION: OKUS-B6A(4')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.05 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	8.2 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007167

CUSTOMER IDENTIFICATION: OKUS-B6A(6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 07/23/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH			
TPH	EPA 418.1	100 mg/kg	23000 mg/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT



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24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007168

CUSTOMER IDENTIFICATION: OKUS-B6A(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	24. mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	24.1 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	16900 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	180 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	37 ug/kg
Ethylbenzene	SW 8020	2 ug/kg	479 ug/kg
Toluene	SW 8020	2 ug/kg	170 ug/kg
Xylenes	SW 8020	2 ug/kg	1030 ug/kg
PCB's			
PCB's - Aroclor 1016	SW 8080	0.25 mg/kg	BDL mg/kg
PCB's - Aroclor 1221	SW 8080	0.25 mg/kg	BDL mg/kg
PCB's - Aroclor 1232	SW 8080	0.25 mg/kg	BDL mg/kg
PCB's - Aroclor 1242	SW 8080	0.25 mg/kg	BDL mg/kg
PCB's - Aroclor 1248	SW 8080	0.25 mg/kg	BDL mg/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007168

CUSTOMER IDENTIFICATION: OKUS-B6A(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
PCB's - Aroclor 1254	SW 8080	0.25 mg/kg	BDL mg/kg
PCB's - Aroclor 1260	SW 8080	0.25 mg/kg	BDL mg/kg
Total PCB's	SW 8080	0.25 mg/kg	BDL mg/kg
Volatiles			
Acetone	SW 8260	10 mg/kg	BDL mg/kg
Acrolein	SW 8260	10 mg/kg	BDL mg/kg
Acrylonitrile	SW 8260	10 mg/kg	BDL mg/kg
Bromochloromethane	SW 8260	0.5 mg/kg	BDL mg/kg
Bromomethane	SW 8260	1 mg/kg	BDL mg/kg
2-Butanone	SW 8260	5 mg/kg	BDL mg/kg
Carbon disulfide	SW 8260	2 mg/kg	BDL mg/kg
Chloroethane	SW 8260	0.5 mg/kg	BDL mg/kg
Chloroform	SW 8260	0.5 mg/kg	BDL mg/kg
Chloromethane	SW 8260	1 mg/kg	BDL mg/kg
Dichlorodifluoromethane	SW 8260	0.5 mg/kg	BDL mg/kg
1,1-Dichloroethane	SW 8260	0.5 mg/kg	BDL mg/kg
1,1-Dichloroethene	SW 8260	0.5 mg/kg	BDL mg/kg
cis-1,2-Dichloroethene	SW 8260	0.5 mg/kg	BDL mg/kg
trans-1,2-Dichloroethene	SW 8260	0.5 mg/kg	BDL mg/kg
2,2-Dichloropropane	SW 8260	0.5 mg/kg	BDL mg/kg
Methylene chloride	SW 8260	1 mg/kg	BDL mg/kg
Iodomethane	SW 8260	10 mg/kg	BDL mg/kg
1,1,1-Trichloroethane	SW 8260	0.5 mg/kg	BDL mg/kg
Trichlorofluoromethane	SW 8260	0.5 mg/kg	BDL mg/kg
Vinyl acetate	SW 8260	5 mg/kg	BDL mg/kg
Vinyl chloride	SW 8260	1 mg/kg	BDL mg/kg
Bromoform	SW 8260	0.5 mg/kg	BDL mg/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

## Analytical Services

SAMPLE IDENTIFICATION: 30007168

CUSTOMER IDENTIFICATION: OKUS-B6A(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/06/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT	
Chlorodibromomethane	SW 8260	0.5 mg/kg	BDL mg/kg	
Chlorobenzene	SW 8260	0.5 mg/kg	BDL mg/kg	
1,3-Dichloropropene	SW 8260	0.5 mg/kg	BDL mg/kg	
Ethyl benzene	SW 8260	0.5 mg/kg	0.781 mg/kg	
2-Hexanone	SW 8260	0.5 mg/kg	BDL mg/kg	
Styrene	SW 8260	0.5 mg/kg	BDL mg/kg	
1,1,1,2-Tetrachloroethane	SW 8260	0.5 mg/kg	BDL mg/kg	
Tetrachloroethene	SW 8260	0.5 mg/kg	BDL mg/kg	
Total xylenes	SW 8260	0.5 mg/kg	2.34 mg/kg	
Benzene	SW 8260	0.5 mg/kg	0.07 mg/kg	J
Bromodichloromethane	SW 8260	0.5 mg/kg	BDL mg/kg	
Carbon Tetrachloride	SW 8260	0.5 mg/kg	BDL mg/kg	
1,2-Dibromoethane	SW 8260	0.5 mg/kg	BDL mg/kg	
Dibromomethane	SW 8260	0.5 mg/kg	BDL mg/kg	
1,2-Dichloroethane	SW 8260	0.5 mg/kg	BDL mg/kg	
1,2-Dichloropropane	SW 8260	0.5 mg/kg	BDL mg/kg	
1,1-Dichloropropane	SW 8260	0.5 mg/kg	BDL mg/kg	
cis-1,3-Dichloropropene	SW 8260	0.5 mg/kg	BDL mg/kg	
trans-1,3-Dichloropropene	SW 8260	0.5 mg/kg	BDL mg/kg	
4-Methyl-2-pentanone	SW 8260	5 mg/kg	BDL mg/kg	
Toluene	SW 8260	0.5 mg/kg	0.17 mg/kg	J
1,1,2-Trichloroethane	SW 8260	0.5 mg/kg	BDL mg/kg	
Trichloroethene	SW 8260	0.5 mg/kg	BDL mg/kg	
Bromobenzene	SW 8260	0.5 mg/kg	BDL mg/kg	
1,2-Dibromo-3-chloropropane	SW 8260	10 mg/kg	BDL mg/kg	

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007169

CUSTOMER IDENTIFICATION: OKUS-B10(2')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.58 mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	78.6 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	1980 mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg	3.7 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg	18.7 mg/kg
Lead (Total)	SW 6010	5 mg/kg	21 mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	1 ug/kg
Ethylbenzene	SW 8020	2 ug/kg	4 ug/kg
Toluene	SW 8020	2 ug/kg	7 ug/kg
Xylenes	SW 8020	2 ug/kg	14 ug/kg

J

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007170

CUSTOMER IDENTIFICATION: OKUS-B10(4')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6083  
 DATE SAMPLED: 07/12/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93  
 DATE COMPLETED: 08/05/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION	LIMIT RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	22.5 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	2870. mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	96 ug/kg
Ethylbenzene	SW 8020	2 ug/kg	155 ug/kg
Toluene	SW 8020	2 ug/kg	172 ug/kg
Xylenes	SW 8020	2 ug/kg	599 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

ATTENTION: CHRISTOPHER BYERMAN

RE: PROJECT: 96120-844  
USPCI-AS REPORT: 6083

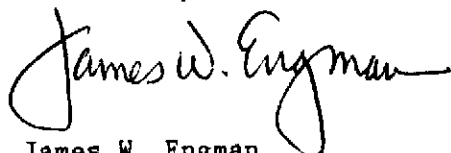
Under this cover USPCI Analytical Services is submitting the analytical data for the following samples:

<u>Lab Number</u>	<u>Customer Number</u>
30007171	OKUS-B10(6')

This sample was analyzed using EPA or other recognized methodology as specified in the report. Each test is performed under a rigorous QA/QC program including blanks, method controls and matrix spikes. All methods are calibrated using authentic reference materials with a minimum of a three point calibration curve as appropriate. All practical quantitation limits are validated and reflect method specific or project specific requirements. Some detection limits may be listed as higher than the targeted program limits due to sample specific interferences or limited sample size.

If you need help in evaluating the data or need further information please call the laboratory at 918-446-1162.

Respectfully submitted for  
USPCI Analytical Services



James W. Engman  
Laboratory Director

## Analytical Services

SAMPLE IDENTIFICATION: 30007171

CUSTOMER IDENTIFICATION: OKUS-B10(6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 09/07/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION	LIMIT	RESULT
<b>TPH Volatiles</b>				
Gasoline	CA DRAFT	0.05 mg/kg		BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg		7.86 mg/kg
<b>TPH Extractables</b>				
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg		40.3 mg/kg
Diesel	CA DRAFT	0.5 mg/kg		BDL mg/kg
<b>TPH</b>				
TPH	EPA 418.1	100 mg/kg		1000 mg/kg
<b>Total Metals by 6010</b>				
Arsenic (Total)	SW 6010	5 mg/kg		36 mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg		16.8 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg		89.6 mg/kg
Lead (Total)	SW 6010	5 mg/kg		823 mg/kg
<b>Volatiles</b>				
Benzene	SW 8020	2 ug/kg		2 ug/kg
Ethylbenzene	SW 8020	2 ug/kg		43 ug/kg
Toluene	SW 8020	2 ug/kg		15 ug/kg
Xylenes	SW 8020	2 ug/kg		149 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007171

CUSTOMER IDENTIFICATION: OKUS-B10(6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 09/07/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	97
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	97

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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## Analytical Services

SAMPLE IDENTIFICATION: 30007171

CUSTOMER IDENTIFICATION: OKUS-B10(6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION</u>	<u>LIMIT RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	7.86 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	40.3 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	36 mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg	16.8 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg	89.6 mg/kg
Lead (Total)	SW 6010	5 mg/kg	823 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	2 ug/kg
Ethylbenzene	SW 8020	2 ug/kg	43 ug/kg
Toluene	SW 8020	2 ug/kg	15 ug/kg
Xylenes	SW 8020	2 ug/kg	149 ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007172

CUSTOMER IDENTIFICATION: OKUS-B8(3')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION</u>	<u>LIMIT</u>	<u>RESULT</u>
TPH Volatiles				
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg	
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	5.67 mg/kg	
TPH Extractables				
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	5.7 mg/kg	
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg	
TPH				
TPH	EPA 418.1	100 mg/kg	1110 mg/kg	
Total Metals by 6010				
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg	
Lead (Total)	SW 6010	5 mg/kg	387 mg/kg	
Volatiles				
Benzene	SW 8020	2 ug/kg	1 ug/kg	J
Ethylbenzene	SW 8020	2 ug/kg	26 ug/kg	
Toluene	SW 8020	2 ug/kg	13 ug/kg	
Xylenes	SW 8020	2 ug/kg	102 ug/kg	

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

# USPCI

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## Analytical Services

SAMPLE IDENTIFICATION: 30007173

CUSTOMER IDENTIFICATION: OKUS-B8(8')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.47 mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	3.2 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	BDL mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	12 mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	6 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

# USPCI

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06 Aug 93 PAGE 16  
CHRISTOPHER B. MAN  
USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007174

CUSTOMER IDENTIFICATION: OKUS-B9(3')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	BDL mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	BDL mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	12 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007175

CUSTOMER IDENTIFICATION: OKUS-B9(6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 07/23/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH			
TPH	EPA 418.1	100 mg/kg	111 mg/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT



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Analytical Services

SAMPLE IDENTIFICATION: 30007176

CUSTOMER IDENTIFICATION: OKUS-W6(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION	LIMIT RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.28 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	7.2 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	3740 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	122 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007177

CUSTOMER IDENTIFICATION: OAK-TB#1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION</u>	<u>LIMIT</u>	<u>RESULT</u>
Volatiles				
Benzene	SW 8020	2.0 ug/l		BDL ug/l
Ethylbenzene	SW 8020	2.0 ug/l		BDL ug/l
Toluene	SW 8020	2.0 ug/l		BDL ug/l
Xylenes	SW 8020	2.0 ug/l		BDL ug/l

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007161

CUSTOMER IDENTIFICATION: OKUS-B11(4')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles--Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	105
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	103

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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## Analytical Services

SAMPLE IDENTIFICATION: 30007162

CUSTOMER IDENTIFICATION: OKUS-B11(7')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	101
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	101

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007163

CUSTOMER IDENTIFICATION: OKUS-B12(3')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	87
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	87

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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SAMPLE IDENTIFICATION: 30007164

CUSTOMER IDENTIFICATION: OKUS-B13(3')

PROJECT NUMBER: 96120-844  
REPORT NUMBER: 6083  
DATE SAMPLED: 07/13/93  
TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93  
DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	58 L
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	58 L

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007165

CUSTOMER IDENTIFICATION: OKUS-B13(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	81
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	81

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007166

CUSTOMER IDENTIFICATION: OKUS-B6A(4')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	108
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	108

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

## Analytical Services

SAMPLE IDENTIFICATION: 30007168

CUSTOMER IDENTIFICATION: OKUS-B6A(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	71 L
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	71 L
PCB's-Surrogates Decachlorobiphenyl	SW 8080	34 - 54	42
Volatiles-Surrogates 1,2-Dichloroethane-d4	SW 8260	76 - 114	101
Toluene-d8	SW 8260	88 - 110	97
Bromofluorobenzene	SW 8260	86 - 115	98

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007169

CUSTOMER IDENTIFICATION: OKUS-B10(2')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	78
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	78

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007170

CUSTOMER IDENTIFICATION: OKUS-B10(4')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>	
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	158	H
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	158	H

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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## Analytical Services

SAMPLE IDENTIFICATION: 30007171

CUSTOMER IDENTIFICATION: OKUS-B10(6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	97
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	97

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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SAMPLE IDENTIFICATION: 30007172

CUSTOMER IDENTIFICATION: OKUS-B8(3')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	97
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	97

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007173

CUSTOMER IDENTIFICATION: OKUS-B8(8')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	100
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	100

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007174

CUSTOMER IDENTIFICATION: OKUS-B9(3')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	100
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	100

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007176

CUSTOMER IDENTIFICATION: OKUS-W6(10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/12/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	87
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	87

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

# USPCI

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## Analytical Services

SAMPLE IDENTIFICATION: 30007177

CUSTOMER IDENTIFICATION: OAK-TB#1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6083

DATE SAMPLED: 07/13/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/14/93

DATE COMPLETED: 08/05/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	103
Volatiles-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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Ship To: USPCI Analytical Services  
4322 South 49th West Avenue  
Tulsa, OK 74107  
(918) 446-1162

REPORT TO

CONTACT Chris Overly  
COMPANY USPC  
ADDRESS 24125 ALDINE WESTFIELD  
CITY TULSA ST. TX ZIP 74133  
PHONE (918) 350-7265 FAX (918) 350-7246

BILL TO

CONTACT SMI 004147  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE ( ) \_\_\_\_\_ PO # \_\_\_\_\_

CHAIN OF CUSTODY RECORD

PROJ. NO. 76120-894  
PROJECT NAME UPMIF OAKLAND  
SAMPLERS (SIGNATURE) Cheryl B...

# CONTAINERS

STANDARD TURNAROUND 4/5  
RUSH TURNAROUND \_\_\_\_\_  
(specify required date)  
10/3

CUSTOMER SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX	# CONTAINERS	B70X	TAP 1-D	TAP 1-G	TAP 913.1	TAP 11.1, 12, 13	LABORATORY SAMPLE I.D.	REMARKS
OKUS-87 (3)	7-11-93	13:25	Soil	1	X	X	X			937172	
OKUS-88 (3)		13:25		1				X	X		
OKUS-89 (8)		13:35		*	X	X	X			937173	
OKUS-88 (8)		13:35		1				X	X		
OKUS-89 (3)		14:25		1				X	X	937174	
OKUS-89 (5)		14:25		1	X	X	X				
OKUS-89 (6)		14:30		1				X		937175	
OKUS-86(10) *										937176	* <del>Retained</del>
OKUS-86(10) *											Received this sample (2 cont.) the analysis was on labels, new

RELINQUISHED BY <u>Cheryl B...</u>	DATE / TIME <u>7-13-93 17:30</u>	RECEIVED BY <u>[Signature]</u>	DATE / TIME <u>7-14-93 10</u>	COURIER <u>091</u> <u>AA</u>
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME	AIRBILL NO.



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Ship To: USPCI Analytical Services  
4322 South 49th West Avenue  
Tulsa, OK 74107  
(918) 446-1162

REPORT TO

CONTACT Christopher Byrnes  
COMPANY USPCI  
ADDRESS 24125 ALPINE WESTFIELD  
CITY Spring ST. TX ZIP 77373  
PHONE (713) 350-7265 FAX (713) 350-7246

BILL TO

CONTACT \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE ( ) \_\_\_\_\_ PO # \_\_\_\_\_

001153

### CHAIN OF CUSTODY RECORD

PROJ. NO. <u>96120-844</u>				# CONTAINERS											STANDARD TURNAROUND <u>YES</u>			
PROJECT NAME <u>UPMF OAKLAND</u>															RUSH TURNAROUND _____ (specify required date)			
SAMPLERS (SIGNATURE) <u>Cheryl Byrnes</u>															<u>3 of 3</u>			
CUSTOMER SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX	# CONTAINERS	370X	TPH-D	TPH-G	TPH-M	As Pb	TPH 918.1							LABORATORY SAMPLE I.D.	REMARKS
<u>OKUS-B11 (4')*</u>	<u>7-13-93</u>	<u>9:48</u>	<u>Soil</u>	1	X	X	X										<u>937161</u>	<u>* Broken in shipping</u>
<u>OKUS-B11 (4')</u>		<u>9:48</u>		1					X	X								
<u>OKUS-B11 (7')</u>		<u>10:00</u>		1	X	X	X										<u>937162</u>	
<u>OKUS-B11 (7')</u>		<u>10:00</u>		1					X	X								
<u>OKUS-B12 (3')</u>		<u>10:33</u>		1	X	X	X										<u>937163</u>	
<u>OKUS-B12 (3')</u>		<u>10:33</u>		1					X	X								
<u>OKUS-B13 (5')</u>		<u>14:30</u>		1	X	X	X										<u>937164</u>	
<u>OKUS-B13 (5')</u>		<u>14:30</u>		1					X	X								
<u>OKUS-B15 (6')</u>		<u>14:50</u>		1	X	X	X										<u>937165</u>	
<u>OKUS-B12 (10')*</u>		<u>14:50</u>		1					X	X								<u>* Broken in shipment (new)</u>
																	<u>9371780C</u>	
RELINQUISHED BY <u>Cheryl Byrnes</u>				DATE / TIME <u>7-13-93</u>	RECEIVED BY <u>[Signature]</u>						DATE / TIME <u>7-14-93 10:00</u>	COURIER						
RELINQUISHED BY _____				DATE / TIME _____	RECEIVED BY _____						DATE / TIME _____	AIRBILL NO. _____						





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Ship To: USPCI Analytical Services  
4322 South 49th West Avenue  
Tulsa, OK 74107  
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REPORT TO

CONTACT Christopher Byrum  
COMPANY USPCI  
ADDRESS 2425 ALMA WESTFIELD  
CITY SPRINGDALE ST. TX ZIP 77373  
PHONE (713) 350-7205 FAX (713) 750-7246

BILL TO

CONTACT \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE ( ) \_\_\_\_\_ PO # \_\_\_\_\_

001152

### CHAIN OF CUSTODY RECORD

PROJ. NO. <u>96120-844</u>				# CONTAINERS	TAP-1 TAP-2 TAP-3 TAP-4 TAP-5 TAP-6 TAP-7 TAP-8 TAP-9 TAP-10 TAP-11 TAP-12 TAP-13 TAP-14 TAP-15 TAP-16 TAP-17 TAP-18 TAP-19 TAP-20	STANDARD TURNAROUND <u>4 wks</u>						
PROJECT NAME <u>OPMF JACKSON</u>						RUSH TURNAROUND _____ (specify required date)						
SAMPLERS (SIGNATURE) <u>Christopher Byrum</u>						<u>2 of 3</u>						
CUSTOMER SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX							LABORATORY SAMPLE I.D.	REMARKS	
<u>OKUS-86a (4)</u>	<u>7-12-93</u>	<u>16:05</u>	<u>Soil</u>	1	X	X	X				<u>937164</u>	
<u>OKUS-86a (6)</u>		<u>16:20</u>		1					X		<u>937167</u>	
<u>OKUS-86a (10)</u>		<u>16:50</u>		1	X	X	X				<u>937168</u>	
<u>*OKUS-86a (10)*</u>		<u>16:50</u>		1				X	X			<u>*Proven in shipment</u>
<u>OKUS-86a (10)</u>		<u>16:50</u>		1					X			
<u>OKUS-86a (10)</u>		<u>16:50</u>		1						X		
<u>OKUS-81a (2)</u>		<u>15:05</u>		1	X	X	X				<u>937169</u>	
<u>OKUS-81a (2)</u>		<u>15:05</u>		1				X	X			
<u>OKUS-81a (4)</u>		<u>15:20</u>		1	X	X	X				<u>937170</u>	
<u>OKUS-81a (6)</u>		<u>15:33</u>		1	X	X	X				<u>937171</u>	
<u>OKUS-81a (6)</u>		<u>15:35</u>		1				X	X			
<u>OKUS-81a (3)</u>	<u>7-13-93</u>	<u>15:20</u>	<u>WATER</u>	3	X						<u>937177</u>	<u>TRIP BACK</u>
RELINQUISHED BY <u>Christopher Byrum</u>	DATE / TIME <u>7-13-93</u>	RECEIVED BY <u>[Signature]</u>	DATE / TIME <u>7-14-93 10:00</u>	COURIER <u>98</u>	AIRBILL NO.							

# USPCI

A Subsidiary of  
Union Pacific Corporation

## Analytical Services

USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

ATTENTION: CHRIS BYERMAN

AMENDED REPORT

ISSUED 9/1/93

*TPH values removed due  
to QC failure cu*

RE: PROJECT: 96120-844  
USPCI-AS REPORT: 6106

Under this cover USPCI Analytical Services is submitting the analytical data for the following samples:

<u>Lab Number</u>	<u>Customer Number</u>
30007283	OKUS-B14 (5')
30007284	OKUS-B14 (10')
30007285	OKUS-B14 (15')
30007286	APL/UP-W1 (6')
30007287	APL/UP-W1 (12')
30007288	APL/UP-W2 (3')
30007289	APL/UP-W2 (11')
30007290	OKUS-W7 (4')
30007291	OKUS-W7 (9')
30007292	OKUS-W8 (6')
30007293	OKUS-W8 (12')
30007294	OKUS-W8 (15')
30007295	DUP A
30007296	DUP B
30007297	DUP C

These samples were analyzed using EPA or other recognized methodology as specified in the report. Each test is performed under a rigorous QA/QC program including blanks, method controls and matrix spikes. All methods are calibrated using authentic reference materials with a minimum of a three point calibration curve as appropriate. All practical quantitation limits are validated and reflect method specific or project specific requirements. Some detection limits may be listed as higher than the targeted program limits due to sample specific interferences or limited sample size.

# USPCI



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## Analytical Services

If you need help in evaluating the data or need further information  
please call the laboratory at 918-446-1162.

Respectfully submitted for  
USPCI Analytical Services

*James W. Engman*

James W. Engman  
Laboratory Director



Analytical Services

SAMPLE IDENTIFICATION: 30007283

CUSTOMER IDENTIFICATION: OKUS-B14 (5')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/14/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	2.07 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	39.0 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	1000 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	71 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	2 ug/kg
Toluene	SW 8020	2 ug/kg	6 ug/kg
Xylenes	SW 8020	2 ug/kg	34 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

Analytical Services

SAMPLE IDENTIFICATION: 30007284

CUSTOMER IDENTIFICATION: OKUS-B14 (10')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/14/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.36 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	600 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	8 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007285

CUSTOMER IDENTIFICATION: OKUS-B14 (15')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/14/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.11 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	100 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	10 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

Analytical Services

SAMPLE IDENTIFICATION: 30007286

CUSTOMER IDENTIFICATION: APL/UP-W1 (6')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/15/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.11 mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
<b>TPH</b>			
TPH	EPA 418.1	100 mg/kg	100 mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg	1.1 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg	23.2 mg/kg
Lead (Total)	SW 6010	5 mg/kg	BDL mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

Analytical Services

SAMPLE IDENTIFICATION: 30007287

CUSTOMER IDENTIFICATION: APL/UP-W1 (12')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/15/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.10 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	300 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg	1.0 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg	20.0 mg/kg
Lead (Total)	SW 6010	5 mg/kg	BDL mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007288

CUSTOMER IDENTIFICATION: APL/UP-W2 (3')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/15/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.11 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	86.5 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	600 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg	1.2 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg	21.5 mg/kg
Lead (Total)	SW 6010	5 mg/kg	5 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



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Analytical Services

SAMPLE IDENTIFICATION: 30007289

CUSTOMER IDENTIFICATION: APL/UP-W2 (11')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/15/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.10 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	76.4 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	1000 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Cadmium (Total)	SW 6010	0.5 mg/kg	1.1 mg/kg
Chromium (Total)	SW 6010	0.5 mg/kg	18.6 mg/kg
Lead (Total)	SW 6010	5 mg/kg	BDL mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

## Analytical Services

SAMPLE IDENTIFICATION: 30007290

CUSTOMER IDENTIFICATION: OKUS-W7 (4')

PROJECT NUMBER: 96120-844  
REPORT NUMBER: 6106  
DATE SAMPLED: 07/14/93  
TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.07 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	53.6 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	500 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	17 mg/kg
Lead (Total)	SW 6010	5 mg/kg	1590 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007291

CUSTOMER IDENTIFICATION: OKUS-W7 (9')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/14/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	BDL mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	200 mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	167 mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	BDL ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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01 Sep 93 PAGE 10

CHRIS BYERMAN  
USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007292

CUSTOMER IDENTIFICATION: OKUS-W8 (6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	4.21 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	21.1 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	2300 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	44 mg/kg
Lead (Total)	SW 6010	5 mg/kg	1380 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	2 ug/kg
Ethylbenzene	SW 8020	2 ug/kg	7 ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	10 ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

**Analytical Services**

SAMPLE IDENTIFICATION: 30007293

**CUSTOMER IDENTIFICATION: OKUS-W8 (12')**

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION</u>	<u>LIMIT RESULT</u>
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.06 mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	6.2 mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
<b>TPH</b>			
TPH	EPA 418.1	100 mg/kg	300 mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	498 mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007294

CUSTOMER IDENTIFICATION: OKUS-W8 (15')

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/14/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION	LIMIT	RESULT
TPH Volatiles				
Gasoline	CA DRAFT	0.05 mg/kg		BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg		0.07 mg/kg
TPH Extractables				
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg		BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg		BDL mg/kg
TPH				
TPH	EPA 418.1	100 mg/kg		400 mg/kg
Total Metals by 6010				
Arsenic (Total)	SW 6010	5 mg/kg		BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg		53 mg/kg
Volatiles				
Benzene	SW 8020	2 ug/kg		BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg		BDL ug/kg
Toluene	SW 8020	2 ug/kg		2 ug/kg
Xylenes	SW 8020	2 ug/kg		BDL ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

**Analytical Services**

SAMPLE IDENTIFICATION: 30007295

**CUSTOMER IDENTIFICATION: DUP A**

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/14/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.92 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	106. mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	400 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	390 mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT





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**Analytical Services**

SAMPLE IDENTIFICATION: 30007296

**CUSTOMER IDENTIFICATION: DUP B**

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6106  
 DATE SAMPLED: 07/15/93  
 TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
<b>TPH Volatiles</b>			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	BDL mg/kg
<b>TPH Extractables</b>			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	100 mg/kg
<b>Total Metals by 6010</b>			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	6 mg/kg
<b>Volatiles</b>			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	BDL ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



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SAMPLE IDENTIFICATION: 30007297

CUSTOMER IDENTIFICATION: DUP C

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/15/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/kg	BDL mg/kg
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/kg	0.13 mg/kg
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/kg	BDL mg/kg
Diesel	CA DRAFT	0.5 mg/kg	BDL mg/kg
TPH			
TPH	EPA 418.1	100 mg/kg	400 mg/kg
Total Metals by 6010			
Arsenic (Total)	SW 6010	5 mg/kg	BDL mg/kg
Lead (Total)	SW 6010	5 mg/kg	BDL mg/kg
Volatiles			
Benzene	SW 8020	2 ug/kg	BDL ug/kg
Ethylbenzene	SW 8020	2 ug/kg	BDL ug/kg
Toluene	SW 8020	2 ug/kg	2 ug/kg
Xylenes	SW 8020	2 ug/kg	3 ug/kg

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007283

CUSTOMER IDENTIFICATION: OKUS-B14 (5')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	58 L
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	58 L

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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SAMPLE IDENTIFICATION: 30007284

CUSTOMER IDENTIFICATION: OKUS-B14 (10')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	104
TPH Extractables-Surrogates Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	104

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

## Analytical Services

SAMPLE IDENTIFICATION: 30007285

CUSTOMER IDENTIFICATION: OKUS-B14 (15')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	94
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	94

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



Analytical Services

SAMPLE IDENTIFICATION: 30007286

CUSTOMER IDENTIFICATION: APL/UP-W1 (6')

PROJECT NUMBER: 96120-844  
REPORT NUMBER: 6106  
DATE SAMPLED: 07/15/93  
TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	100
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	100

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SAMPLE IDENTIFICATION: 30007287

CUSTOMER IDENTIFICATION: APL/UP-W1 (12')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/15/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	110
TPH Extractables-Surrogates Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	110

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007288

**CUSTOMER IDENTIFICATION: APL/UP-W2 (3')**

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/15/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	91
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	91

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.





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SAMPLE IDENTIFICATION: 30007289

CUSTOMER IDENTIFICATION: APL/UP-W2 (11')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/15/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	101
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	101

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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SAMPLE IDENTIFICATION: 30007290

CUSTOMER IDENTIFICATION: OKUS-W7 (4')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	96
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	96

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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SAMPLE IDENTIFICATION: 30007291

CUSTOMER IDENTIFICATION: OKUS-W7 (9')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	107
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	107

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007292

CUSTOMER IDENTIFICATION: OKUS-W8 (6')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	106
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	106

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



Analytical Services

SAMPLE IDENTIFICATION: 30007293

CUSTOMER IDENTIFICATION: OKUS-W8 (12')

PROJECT NUMBER: 96120-844  
REPORT NUMBER: 6106  
DATE SAMPLED: 07/14/93  
TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93  
DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	95
TPH Extractables-Surrogates Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	95

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



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Analytical Services

SAMPLE IDENTIFICATION: 30007294

CUSTOMER IDENTIFICATION: OKUS-W8 (15')

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	87
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	87

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007295

CUSTOMER IDENTIFICATION: DUP A

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/14/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	89
TPH Extractables-Surrogates			
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	89

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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## Analytical Services

SAMPLE IDENTIFICATION: 30007296

CUSTOMER IDENTIFICATION: DUP B

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/15/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	93
TPH Extractables-Surrogates Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	93

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



# USPCI

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## Analytical Services

SAMPLE IDENTIFICATION: 30007297

### CUSTOMER IDENTIFICATION: DUP C

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6106

DATE SAMPLED: 07/15/93

TYPE OF MATERIAL: SOLID

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	101
TPH Extractables-Surrogates Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	101

# USPCI

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USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING, TX 77373

## Analytical Services

QA/QC Report  
Project: 96120-844  
Cross Reference

### USPCI SAMPLE I.D.

30007161  
30007162  
30007163  
30007164  
30007165  
30007166  
30007167  
30007168  
30007169  
30007170  
30007171  
30007172  
30007173  
30007174  
30007175  
30007176  
30007177

### CUSTOMER SAMPLE I.D.

OKUS-B11 (4')  
OKUS-B11 (7')  
OKUS-B12 (3')  
OKUS-B13 (3')  
OKUS-B13 (10')  
OKUS-B6A (4')  
OKUS-B6A (6')  
OKUS-B6A (10')  
OKUS-B10 (2')  
OKUS-B10 (4')  
OKUS-B10 (6')  
OKUS-B8 (3')  
OKUS-B8 (8')  
OKUS-B9 (3')  
OKUS-B9 (6')  
OKUS-W6 (10')  
OAK-TB#1

QA/QC Report  
 BTEX  
 Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007118</b>									
BENZENE	BDL	29.9	30.0	69.0	67.5	130.3%	125.3%	127.8%	2.2%
TOLUENE	BDL	41.2	30.0	82.3	78.5	137.0%	124.3%	130.7%	4.7%
CHLOROBENZENE	BDL	BDL	30.0	31.3	30.4	104.3%	101.3%	102.8%	2.9%
ETHYL BENZENE	BDL	82.4	30.0	123.3	120.1	136.3%	125.7%	131.0%	2.6%
M&P XYLENE	BDL	345.3	60.0	426.2	413.5	134.8%	113.7%	124.3%	3.0%
O XYLENE	BDL	146.6	30.0	192.9	186.7	154.3%	133.7%	144.0%	3.3%
1,3-DICHLOROBENZENE	BDL	BDL	30.0	40.5	38.8	135.0%	129.3%	132.2%	4.3%
1,4-DICHLOROBENZENE	BDL	BDL	30.0	33.8	32.4	112.7%	108.0%	110.3%	4.2%
1,2-DICHLOROBENZENE	BDL	BDL	30.0	30.3	29.1	101.0%	97.0%	99.0%	4.0%
<b>Method Control</b>									
BENZENE	BDL	BDL	30.0	33.8	32.8	112.7%	109.3%	111.0%	3.0%
TOLUENE	BDL	BDL	30.0	40.8	33.8	136.0%	112.7%	124.3%	18.8%
CHLOROBENZENE	BDL	BDL	30.0	30.5	31.6	101.7%	105.3%	103.5%	3.5%
ETHYL BENZENE	BDL	BDL	30.0	35.5	35.4	118.3%	118.0%	118.2%	0.3%
M&P XYLENE	BDL	BDL	60.0	84.3	81.8	140.5%	136.3%	138.4%	3.0%
O XYLENE	BDL	BDL	30.0	40.8	38.1	136.0%	127.0%	131.5%	6.8%
1,3-DICHLOROBENZENE	BDL	BDL	30.0	34.1	32.7	113.7%	109.0%	111.3%	4.2%
1,4-DICHLOROBENZENE	BDL	BDL	30.0	31.8	29.2	106.0%	97.3%	101.7%	8.5%
1,2-DICHLOROBENZENE	BDL	BDL	30.0	30.5	28.6	101.7%	95.3%	98.5%	6.4%

UNITS ARE LISTED AS UG/L

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
 BTEX  
 Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007162</b>									
BENZENE	BDL	BDL	0.0300	0.0296	0.0303	98.7%	101.0%	99.8%	2.3%
TOLUENE	BDL	BDL	0.0300	0.0295	0.0303	98.3%	101.0%	99.7%	2.7%
CHLOROBENZENE	BDL	BDL	0.0300	0.0287	0.0295	95.7%	98.3%	97.0%	2.7%
ETHYL BENZENE	BDL	BDL	0.0300	0.0288	0.0299	96.0%	99.7%	97.8%	3.7%
M&P XYLENE	BDL	BDL	0.0600	0.0585	0.0599	97.5%	99.8%	98.7%	2.4%
O XYLENE	BDL	BDL	0.0300	0.0293	0.0303	97.7%	101.0%	99.3%	3.4%
1,3-DICHLOROBENZENE	BDL	BDL	0.0300	0.0255	0.0263	85.0%	87.7%	86.3%	3.1%
1,4-DICHLOROBENZENE	BDL	BDL	0.0300	0.0265	0.0269	88.3%	89.7%	89.0%	1.5%
1,2-DICHLOROBENZENE	BDL	BDL	0.0300	0.0267	0.0264	89.0%	88.0%	88.5%	1.1%
<b>Method Control</b>									
BENZENE	BDL	BDL	0.0300	0.0296	0.0294	98.7%	98.0%	98.3%	0.7%
TOLUENE	BDL	BDL	0.0300	0.0296	0.0299	98.7%	99.7%	99.2%	1.0%
CHLOROBENZENE	BDL	BDL	0.0300	0.0297	0.0297	99.0%	99.0%	99.0%	0.0%
ETHYL BENZENE	BDL	BDL	0.0300	0.0298	0.0296	99.3%	98.7%	99.0%	0.7%
M&P XYLENE	BDL	BDL	0.0600	0.0604	0.0605	100.7%	100.8%	100.7%	0.2%
O XYLENE	BDL	BDL	0.0300	0.0302	0.0303	100.7%	101.0%	100.8%	0.3%
1,3-DICHLOROBENZENE	BDL	BDL	0.0300	0.0289	0.0293	96.3%	97.7%	97.0%	1.4%
1,4-DICHLOROBENZENE	BDL	BDL	0.0300	0.0300	0.0301	100.0%	100.3%	100.2%	0.3%
1,2-DICHLOROBENZENE	BDL	BDL	0.0300	0.0296	0.0299	98.7%	99.7%	99.2%	1.0%

Units are listed as mg/kg.

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
 Volatiles  
 Matrix Spike: 30006899  
 Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
1,1-DICHLOROETHENE	BDL	BDL	40.0	44.2	44.9	110.5%	112.3%	111.4%	1.7%
METHYLENE CHLORIDE	BDL	BDL	40.0	45.4	46.0	113.4%	115.0%	114.2%	1.4%
trans-1,2 DICHLOROETHENE	BDL	BDL	40.0	46.3	47.7	115.7%	119.2%	117.5%	3.0%
1,1-DICHLOROETHANE	BDL	BDL	40.0	42.1	42.9	105.2%	107.2%	106.2%	1.9%
CHLOROFORM	BDL	BDL	40.0	42.6	42.7	106.5%	106.7%	106.6%	0.2%
1,1,1-TRICHLOROETHANE	BDL	BDL	40.0	43.1	43.4	107.7%	108.4%	108.0%	0.7%
CARBON TETRACHLORIDE	BDL	BDL	40.0	43.0	43.3	107.4%	108.3%	107.9%	0.9%
BENZENE	BDL	BDL	40.0	43.3	43.6	108.2%	108.9%	108.5%	0.6%
1,2-DICHLOROETHANE	BDL	BDL	40.0	49.7	51.2	124.3%	128.1%	126.2%	3.0%
TRICHLOROETHENE	BDL	BDL	40.0	38.8	39.3	97.0%	98.1%	97.6%	1.2%
1,2-DICHLOROPROPANE	BDL	BDL	40.0	40.9	41.2	102.1%	102.9%	102.5%	0.7%
BROMODICHLOROMETHANE	BDL	BDL	40.0	41.1	40.8	102.7%	102.0%	102.3%	0.7%
cis-1,3-DICHLOROPROPENE	BDL	BDL	40.0	26.9	23.7	67.3%	59.2%	63.2%	12.7%
TOLUENE	BDL	BDL	40.0	35.5	35.0	88.6%	87.4%	88.0%	1.4%
trans-1,3-DICHLOROPROPENE	BDL	BDL	40.0	8.7	8.0	21.6%	20.0%	20.8%	7.9%
1,1,2-TRICHLOROETHANE	BDL	BDL	40.0	42.9	42.5	107.3%	106.1%	106.7%	1.1%
TETRACHLOROETHENE	BDL	BDL	40.0	40.4	41.1	100.9%	102.8%	101.8%	1.9%
CHLORODIBROMOMETHANE	BDL	BDL	40.0	51.7	53.4	129.2%	133.6%	131.4%	3.4%
CHLOROBENZENE	BDL	BDL	40.0	39.6	40.6	98.9%	101.4%	100.2%	2.5%
ETHYL BENZENE	BDL	BDL	40.0	39.1	40.1	97.8%	100.3%	99.1%	2.6%
BROMOFORM	BDL	BDL	40.0	47.5	49.9	118.8%	124.9%	121.8%	5.0%
1,1,2,2-TETRACHLOROETHANE	BDL	BDL	40.0	77.3	78.2	193.1% *	195.4% *	194.3% *	1.2%

Units are listed as ug/kg.

BDL = Below Detection Limits ; NIS = Not in Spike mix ; \* = Out of QC Limits

QA/QC Report  
 Volatiles  
 Method Control  
 Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
1,1-DICHLOROETHENE	BDL	BDL	40.0	42.2	41.3	105.6%	103.4%	104.5%	2.1%
METHYLENE CHLORIDE	BDL	BDL	40.0	39.3	38.9	98.2%	97.2%	97.7%	1.0%
trans-1,2 DICHLOROETHENE	BDL	BDL	40.0	42.9	42.5	107.1%	106.3%	106.7%	0.7%
1,1-DICHLOROETHANE	BDL	BDL	40.0	38.5	37.2	96.3%	93.1%	94.7%	3.4%
CHLOROFORM	BDL	BDL	40.0	39.9	38.9	99.8%	97.3%	98.5%	2.5%
1,1,1-TRICHLOROETHANE	BDL	BDL	40.0	40.2	41.6	100.5%	104.0%	102.2%	3.4%
CARBON TETRACHLORIDE	BDL	BDL	40.0	47.5	44.6	118.7%	111.6%	115.1%	6.1%
BENZENE	BDL	BDL	40.0	42.1	40.7	105.3%	101.8%	103.5%	3.5%
1,2-DICHLOROETHANE	BDL	BDL	40.0	46.1	44.7	115.3%	111.8%	113.6%	3.1%
TRICHLOROETHENE	BDL	BDL	40.0	41.8	41.2	104.5%	103.1%	103.7%	1.3%
1,2-DICHLOROPROPANE	BDL	BDL	40.0	40.8	37.5	102.1%	93.7%	97.9%	8.6%
BROMODICHLOROMETHANE	BDL	BDL	40.0	41.8	40.6	104.5%	101.4%	102.9%	3.0%
cis-1,3-DICHLOROPROPENE	BDL	BDL	40.0	39.7	37.8	99.2%	94.6%	96.9%	4.8%
TOLUENE	BDL	BDL	40.0	40.6	39.4	101.5%	98.5%	100.0%	3.0%
trans-1,3-DICHLOROPROPENE	BDL	BDL	40.0	13.0	12.4	32.4%	30.9%	31.7%	4.8%
1,1,2-TRICHLOROETHANE	BDL	BDL	40.0	44.8	41.6	111.9%	103.9%	107.9%	7.4%
TETRACHLOROETHENE	BDL	BDL	40.0	42.4	42.2	106.0%	105.5%	105.7%	0.4%
CHLORODIBROMOMETHANE	BDL	BDL	40.0	43.9	43.7	109.8%	109.3%	109.5%	0.5%
CHLOROBENZENE	BDL	BDL	40.0	40.7	40.9	101.6%	102.2%	101.9%	0.5%
ETHYL BENZENE	BDL	BDL	40.0	41.4	41.2	103.6%	102.9%	103.2%	0.7%
BROMOFORM	BDL	BDL	40.0	46.5	45.1	116.2%	112.8%	114.5%	2.9%
1,1,2,2-TETRACHLOROETHANE	BDL	BDL	40.0	48.7	46.8	121.8%	117.1%	119.4%	4.0%

Units are listed as ug/kg.

BDL = Below Detection Limits ; NIS = Not in Spike mix ; \* = Out of QC Limits

QA/QC Report  
 Volatiles  
 Matrix Spike: 30007168  
 Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
1,1-DICHLOROETHENE	BDL	BDL	40.0	41.5	40.8	103.8%	102.1%	102.9%	1.6%
METHYLENE CHLORIDE	BDL	BDL	40.0	39.4	38.9	98.6%	97.2%	97.9%	1.4%
trans-1,2-DICHLOROETHENE	BDL	BDL	40.0	42.4	43.0	106.0%	107.5%	106.7%	1.4%
1,1-DICHLOROETHANE	BDL	BDL	40.0	46.6	44.4	116.4%	110.9%	113.7%	4.9%
CHLOROFORM	BDL	BDL	40.0	42.1	40.0	105.3%	100.0%	102.6%	5.2%
1,1,1-TRICHLOROETHANE	BDL	BDL	40.0	42.4	38.6	106.0%	96.4%	101.2%	9.5%
CARBON TETRACHLORIDE	BDL	BDL	40.0	40.0	37.2	100.0%	92.9%	96.5%	7.4%
BENZENE	BDL	BDL	40.0	45.8	45.6	114.5%	113.9%	114.2%	0.5%
1,2-DICHLOROETHANE	BDL	BDL	40.0	42.0	36.0	105.1%	90.0%	97.5%	15.5%
TRICHLOROETHENE	BDL	BDL	40.0	44.9	43.3	112.4%	108.3%	110.3%	3.7%
1,2-DICHLOROPROPANE	BDL	BDL	40.0	46.2	45.3	115.6%	113.3%	114.4%	1.9%
BROMODICHLOROMETHANE	BDL	BDL	40.0	41.0	38.5	102.5%	96.3%	99.4%	6.2%
cis-1,3-DICHLOROPROPENE	BDL	BDL	40.0	43.9	43.0	109.6%	107.5%	108.6%	2.0%
TOLUENE	BDL	BDL	40.0	49.6	48.9	123.9%	122.1%	123.0%	1.4%
trans-1,3-DICHLOROPROPENE	BDL	BDL	40.0	12.7	12.2	31.8%	30.5%	31.1%	4.3%
1,1,2-TRICHLOROETHANE	BDL	BDL	40.0	45.0	40.9	112.4%	102.2%	107.3%	9.6%
TETRACHLOROETHENE	BDL	BDL	40.0	46.8	46.0	117.0%	114.9%	116.0%	1.9%
CHLORODIBROMOMETHANE	BDL	BDL	40.0	42.5	40.0	106.2%	99.9%	103.0%	6.1%
CHLOROBENZENE	BDL	BDL	40.0	45.1	44.6	112.7%	111.4%	112.0%	1.1%
ETHYL BENZENE	BDL	BDL	40.0	51.3	52.8	128.3%	132.1%	130.2%	2.9%
BROMOFORM	BDL	BDL	40.0	39.1	37.2	97.8%	93.0%	95.4%	5.1%
1,1,2,2-TETRACHLOROETHANE	BDL	BDL	40.0	45.6	45.6	114.0%	113.9%	114.0%	0.1%

Units are listed as ug/kg.

BDL = Below Detection Limits ; NIS = Not in Spike mix ; \* = Out of QC limits

# USPCI

A Subsidiary of  
Union Pacific Corporation

CHRISTOPHER BYERMAN  
USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING, TX 77373

## Analytical Services

QA/QC Report  
Project: 96120-844  
Cross Reference  
Total Metals

### USPCI SAMPLE I.D.

30007283  
30007284  
30007285  
30007286  
30007287  
30007288  
30007289  
30007290  
30007291  
30007292  
30007293  
30007294  
30007295  
30007296  
30007297

### CUSTOMER SAMPLE I.D.

OKUS-B14 (5')  
OKUS-B14 (10')  
OKUS-B14 (15')  
APL/UP-W1 (6')  
APL/UP-W1 (12')  
APL/UP-W2 (3')  
APL/UP-W2 (11')  
OKUS-W7 (4')  
OKUS-W7 (9')  
OKUS-W8 (6')  
OKUS-W8 (12')  
OKUS-W8 (15')  
DUP A  
DUP B  
DUP C

## Total Metals

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC	SOURCE
Arsenic	BDL	3.000	3.166	3.112	1.7	106	104	105	30007161
Arsenic	0.314	3.000	3.442	3.454	0.3	104	105	104	30007292
Arsenic	BDL	3.000	3.107	2.908	6.6	104	97	100	30007297
Cadmium	0.032	0.500	0.506	0.490	3.2	95	92	93	30007161
Cadmium+	0.027	1.000	1.109	1.096	1.2	108	107	108	30007292
Cadmium	0.020	0.500	0.450	0.445	1.1	86	85	86	30007297
Chromium	0.435	0.500	0.967	0.990	2.4	106	111	109	30007161
Chromium	0.744	0.500	1.147	1.311	13.3	81	113	97	30007292
Chromium	0.390	0.500	0.909	0.835	8.5	104	89	96	30007297
Lead	BDL	2.000	2.216	2.268	2.3	111	113	112	30007161
Lead+	1.945	4.000	6.544	6.531	0.2	115	115	115	30007292
Lead	BDL	2.000	2.034	1.971	3.1	102	99	100	30007297

Units listed as mg/kg.

ORG = Original Sample Result  
SA = Spike Added  
SP1 = Spike 1  
SP2 = Spike Dup  
BDL = Below Detection Limit  
RPD = Relative Percent Difference  
%RC1 = Percent Recovery 1  
%RC2 = Percent Recovery 2  
AV%RC = Average Percent Recovery  
MC = Method Control  
\* = Outside QC Acceptable Limits  
+ = Instrument Spike (QC acceptable limits 75-125%)



QA/QC Report  
TPH Volatiles  
Sample ID: 30007298

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
Matrix Spike: 30007297									
GASOLINE (C5-C10 TPH)	BDL	BDL	1.61	1.31	1.32	81.4%	82.0%	81.7%	0.8%
Method Control									
GASOLINE (C5-C10 TPH)	BDL	BDL	1.61	1.62	1.61	100.6%	100.0%	100.3%	0.6%

UNITS ARE LISTED AS MG/KG

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
TPH Volatiles  
Sample ID: 30007298

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007334</b>									
GASOLINE (C5-C10 TPH)	BDL	0.9	1.61	2.55	2.84	101.2%	119.3%	110.2%	10.8%
<b>Method Control</b>									
GASOLINE (C5-C10 TPH)	BDL	BDL	1.61	1.56	1.50	96.9%	93.2%	95.0%	3.9%

UNITS ARE LISTED AS MG/KG

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
TPH Extractables  
Sample ID: 30007298

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007284</b>									
DIESEL (C10-C50 TPH)	BDL	BDL	25.0	14.6	11.6	58.3%	46.2%	52.3%	23.0%
<b>Method Control</b>									
DIESEL (C10-C50 TPH)	BDL	BDL	25.0	27.9	24.5	111.8%	97.8%	104.8%	13.3%

UNITS ARE LISTED AS MG/KG

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
 BTEX  
 Sample ID: 30007298

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007297</b>									
BENZENE	BDL	BDL	0.0300	0.0289	0.0299	96.3%	99.7%	98.0%	3.4%
TOLUENE	BDL	0.0010	0.0300	0.0307	0.0315	99.0%	101.7%	100.3%	2.6%
CHLOROBENZENE	BDL	BDL	0.0300	0.0262	0.0289	87.3%	96.3%	91.8%	9.8%
ETHYL BENZENE	BDL	BDL	0.0300	0.0256	0.0287	85.3%	95.7%	90.5%	11.4%
M&P XYLENE	BDL	BDL	0.0600	0.0500	0.0564	83.3%	94.0%	88.7%	12.0%
O XYLENE	BDL	BDL	0.0300	0.0267	0.0299	89.0%	99.7%	94.3%	11.3%
1,3-DICHLOROBENZENE	BDL	BDL	0.0300	0.0213	0.0265	71.0%	88.3%	79.7%	21.8%
1,4-DICHLOROBENZENE	BDL	BDL	0.0300	0.0202	0.0252	67.3%	84.0%	75.7%	22.0%
1,2-DICHLOROBENZENE	BDL	BDL	0.0300	0.0211	0.0260	70.3%	86.7%	78.5%	20.8%
<b>Method Control</b>									
BENZENE	BDL	BDL	0.0300	0.0299	0.0303	99.7%	101.0%	100.3%	1.3%
TOLUENE	BDL	BDL	0.0300	0.0298	0.0303	99.3%	101.0%	100.2%	1.7%
CHLOROBENZENE	BDL	BDL	0.0300	0.0298	0.0305	99.3%	101.7%	100.5%	2.3%
ETHYL BENZENE	BDL	BDL	0.0300	0.0303	0.0308	101.0%	102.7%	101.8%	1.6%
M&P XYLENE	BDL	BDL	0.0600	0.0605	0.0612	100.8%	102.0%	101.4%	1.2%
O XYLENE	BDL	BDL	0.0300	0.0311	0.0311	103.7%	103.7%	103.7%	0.0%
1,3-DICHLOROBENZENE	BDL	BDL	0.0300	0.0308	0.0310	102.7%	103.3%	103.0%	0.6%
1,4-DICHLOROBENZENE	BDL	BDL	0.0300	0.0300	0.0305	100.0%	101.7%	100.8%	1.7%
1,2-DICHLOROBENZENE	BDL	BDL	0.0300	0.0317	0.0318	105.7%	106.0%	105.8%	0.3%

UNITS ARE LISTED AS MG/KG

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
 General Chemistry  
 Sample ID: 30007298

PARAMETER: TH AND TPH BY IR SPECTROSCOPY      mg/kg

BLANK RESULTS	ORIG.	DUP.	RPD	SAMPLE RESULTS	SPIKE LEVEL	SPIKE RESULTS I	% REC I	SPIKE II RESULTS	% REC II	RPD	AVG. % REC	SAMPLE	DATE
108					4054	3962	98	NA	NA	NA	NA	BLK & MC	8/24/93
	1000	1200	18.18									30007289	8/24/93

NA = NOT ANALYZED OR NOT AVAILABLE  
 BDL = BELOW DETECTION LIMIT  
 "H" = OUT OF CONTROL LIMITS  
 RPD = RELATIVE % DIFFERENCE  
 % REC = PERCENT RECOVERY  
 AVG % REC = AVERAGE PERCENT RECOVERY

QA/QC Report  
 TPH  
 Holding Times

TPH

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC	SOURCE
TPH	1390	2054	3344	3416	2.2	95	99	97	30007298

Holding Times

Date at Lab: 1025 07/17/93

PARAMETER	SAMPLE ID	HOLDING TIME	SAMPLING DATE	EXTRACTION	ANALYSIS
TPH Ext Diesel	30007283	14 days for extraction, 40 days after for analysis	1740 07/14/93	07/20/93 (ALL SAMPLES)	07/22/93
	30007284		1750 07/14/93		07/22/93
	30007285		1800 07/14/93		07/22/93
	30007286		1755 07/14/93		07/22/93
	30007287		1810 07/14/93		07/22/93
	30007288		2005 07/15/93		07/23/93
	30007289		2045 07/15/93		07/23/93
	30007290		0955 07/14/93		07/23/93
	30007291		1005 07/14/93		07/22/93
	30007292		1450 07/14/93		07/23/93
	30007293		1500 07/14/93		07/23/93
	30007294		1515 07/14/93		07/22/93
	30007295		1200 07/14/93		07/23/93
	30007296		1200 07/15/93		07/23/93
	30007297		1300 07/15/93		07/23/93
TPH Vols BTEX Gasoline	30007283	14 days	1740 07/14/93		07/23/93
	30007284		1750 07/14/93		07/23/93
	30007285		1800 07/14/93		07/23/93
	30007286		1755 07/14/93		07/23/93
	30007287		1810 07/14/93		07/23/93
	30007288		2005 07/15/93		07/23/93
	30007289		2045 07/15/93		07/23/93
	30007290		0955 07/14/93		07/24/93
	30007291		1005 07/14/93		07/24/93
	30007292		1450 07/14/93		07/24/93
	30007293		1500 07/14/93		07/24/93
	30007294		1515 07/14/93		07/24/93
	30007295		1200 07/14/93		07/24/93
	30007296		1200 07/15/93		07/24/93
	30007297		1300 07/15/93		07/24/93

Samples exceeding method recommended holding times are indicated with an asterisk (\*).

QA/QC Report  
Holding Times

Holding Times

Date at Lab: 1025 07/17/93

PARAMETER	SAMPLE ID	HOLDING TIME	SAMPLING DATE	ANALYSIS
Total	30007283	6 months	1740 07/14/93	08/06/93 (ALL SAMPLES)
Metals	30007285			
	30007286			
	30007287			
	30007288			
	30007289			
	30007290			
	30007291			
	30007292			
	30007293			
	30007294			
	30007295			
	30007296			
	30007297			
			1800 07/14/93	
			1755 07/14/93	
			1810 07/14/93	
			2005 07/15/93	
			2045 07/15/93	
			0955 07/14/93	
			1005 07/14/93	
			1450 07/14/93	
			1500 07/14/93	
			1515 07/14/93	
			1200 07/14/93	
			1200 07/15/93	
			1300 07/15/93	
TPH by IR	30007283	28 days	1740 07/14/93	07/20/93 (ALL SAMPLES)
	30007284			
	30007285			
	30007286			
	30007287			
	30007288			
	30007289			
	30007290			
	30007291			
	30007292			
	30007293			
	30007294			
	30007295			
	30007296			
	30007297			
			1750 07/14/93	
			1800 07/14/93	
			1755 07/14/93	
			1810 07/14/93	
			2005 07/15/93	
			2045 07/15/93	
			0955 07/14/93	
			1005 07/14/93	
			1450 07/14/93	
			1500 07/14/93	
			1515 07/14/93	
			1200 07/14/93	
			1200 07/15/93	
			1300 07/15/93	

Samples exceeding method recommended holding times are indicated with an asterisk (\*).



A Subsidiary of  
Union Pacific Corporation

Ship To: USPCI Analytical Services  
4322 South 49th West Avenue  
Tulsa, OK 74107  
(918) 446-1162

REPORT TO

CONTACT CHRISTOPHER BERMAN  
COMPANY USPCI  
ADDRESS 24125 ALDINE WESTFIELD  
CITY SPRING ST. TR ZIP 77373  
PHONE (713) 350-7265 FAX (713) 350-7246

BILLET TO

CONTACT \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE ( ) \_\_\_\_\_ PO # \_\_\_\_\_

004150

### CHAIN OF CUSTODY RECORD

PROJ. NO. <u>96120-844</u>				# CONTAINERS	A70K	T14-G	T14H-D	T14K-11	T14K-11	T. Metals	As Pb	T. Metals	As Cd Cr Pb	STANDARD TURNAROUND <u>YES</u>		
PROJECT NAME <u>UPMR OAKLAND</u>														RUSH TURNAROUND _____ (specify required date)		
SAMPLERS (SIGNATURE) <u>Christopher Berman</u>														LABORATORY SAMPLE I.D.	REMARKS	
CUSTOMER SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX													
APL/WF-W2(3)	7-15-93	20:05	Soil	1	X	X	X							937288		
APL/WF-W2(3)	↓	20:05	↓	1				X					X			
APL/WF-W2(11)		20:45		1	X	X	X								937289	
APL/WF-W2(11)		20:45		1				X						X		
PUP-B		12:00		1	X	X	X								937296	
DUP-B		12:00		1				X			X					
DUP-C		13:00		1	X	X	X								937297	
DUP-C		13:00		1				X			X					
																937298QC

RELINQUISHED BY <u>Christopher Berman</u>	DATE/TIME <u>7-16-93 18:00</u>	RECEIVED BY <u>Joe Cauderoff</u>	DATE/TIME <u>7/17/93 10:25AM</u>	COURIER
RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	AIRBILL NO.





A Subsidiary of  
Union Pacific Corporation

Ship To: USPCI Analytical Services  
4322 South 49th West Avenue  
Tulsa, OK 74107  
(918) 446-1162

REPORT TO

CONTACT CHRISTOPHER BYERMAN  
COMPANY USPCI  
ADDRESS 24125 ALDINE WESTFIELD  
CITY SPRING ST. \_\_\_\_\_ ZIP 77373  
PHONE (713) 350-7265 FAX (713) 350-7296

BILL TO

CONTACT SAME 004148  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE ( ) \_\_\_\_\_ PO # \_\_\_\_\_

### CHAIN OF CUSTODY RECORD

PROJ. NO. <u>96120-844</u>				# CONTAINERS	GTEX	TPH-G	TPH-D	TPH 418.1	TIMETALS As, Pb												STANDARD TURNAROUND <u>YES</u>	RUSH TURNAROUND (specify required date)	
PROJECT NAME <u>UIMF OAK LAND</u>																							LABORATORY SAMPLE I.D.
SAMPLERS (SIGNATURE) <u>Christopher Byerman</u>				CUSTOMER SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX																
OKUS-W7 (8)	7/14/93	9:55	Soil	1	X	X	X															937290	
OKUS-W7 (6)		9:55		1				X	X														
OKUS-W7 (9)		9:05		1	X	X	X															937291	
OKUS-W7 (9)		10:05		1				X	X														
DUP A		12:00		1	X	X	X															937295	
DUP A		12:00		1				X	X														
OKUS-W8 (6)		14:50		1	X	X	X															937292	
OKUS-W8 (6)		14:50		1				X	X														
OKUS-W8 (12)		15:00		1	X	X	X															937293	
OKUS-W8 (12)		15:00		1				X	X														
OKUS-W8 (15)		15:15		1	X	X	X															937294	
OKUS-W8 (15)		15:15		1				X	X														
RELINQUISHED BY <u>Christopher Byerman</u>	DATE / TIME <u>7-16-93 18:00</u>	RECEIVED BY <u>Joe Vandeygriff</u>	DATE / TIME <u>7/17/93 16:25 AM</u>															COURIER					
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME															AIRBILL NO.					

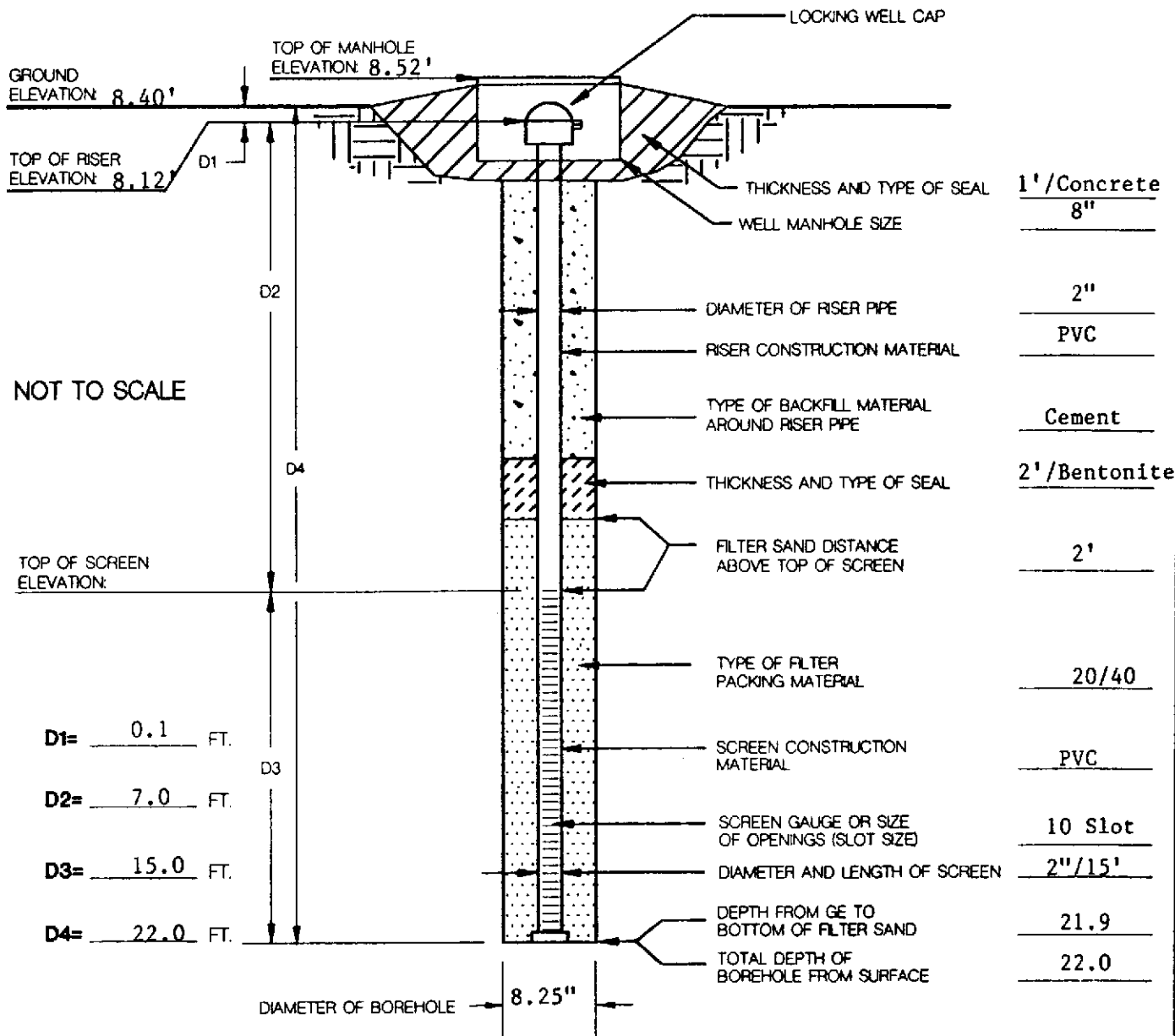
**GROUNDWATER ASSESSMENT DATA FOR THE  
PHASE II SITE ASSESSMENT**

**USPCI MONITORING WELL  
CONSTRUCTION AND  
INSTALLATION DIAGRAM**

USPCI PROJECT NO. 96120-844

PROJECT NAME: UPMF - 1750 Ferro Street, Oakland, CA

MONITORING WELL NO. APL/UP-W1



MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR <b>Layne Western Company</b>		
DRILLER <b>Steve McCoy</b>	DRILLING RIG TYPE <b>Mobile 61</b>	
DATE STARTED <b>7/15/93</b>	DATE COMPLETED <b>7/15/93</b>	DRILLING METHOD <b>HSA</b>

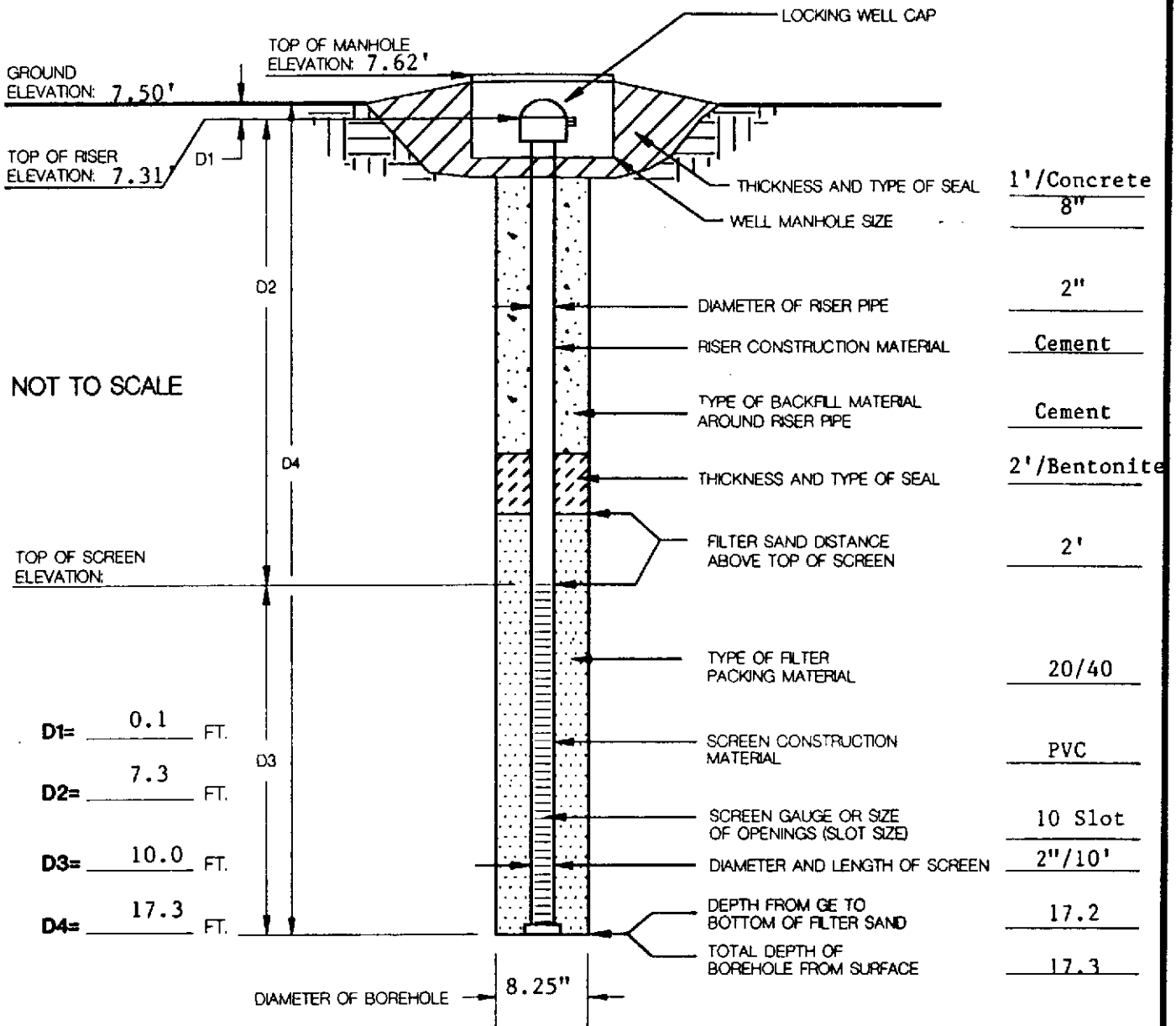
**USPCI**  
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**USPCI MONITORING WELL  
CONSTRUCTION AND  
INSTALLATION DIAGRAM**

USPCI PROJECT NO. 96120-844

PROJECT NAME: UPMF - 1750 Ferro Street, Oakland, CA

MONITORING WELL NO. APL/IIP-W2



MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR <b>Layne Western Company</b>		
DRILLER <b>Steve McCoy</b>	DRILLING RIG TYPE <b>Mobile 61</b>	
DATE STARTED <b>7/15/93</b>	DATE COMPLETED <b>7/15/93</b>	DRILLING METHOD <b>HSA</b>

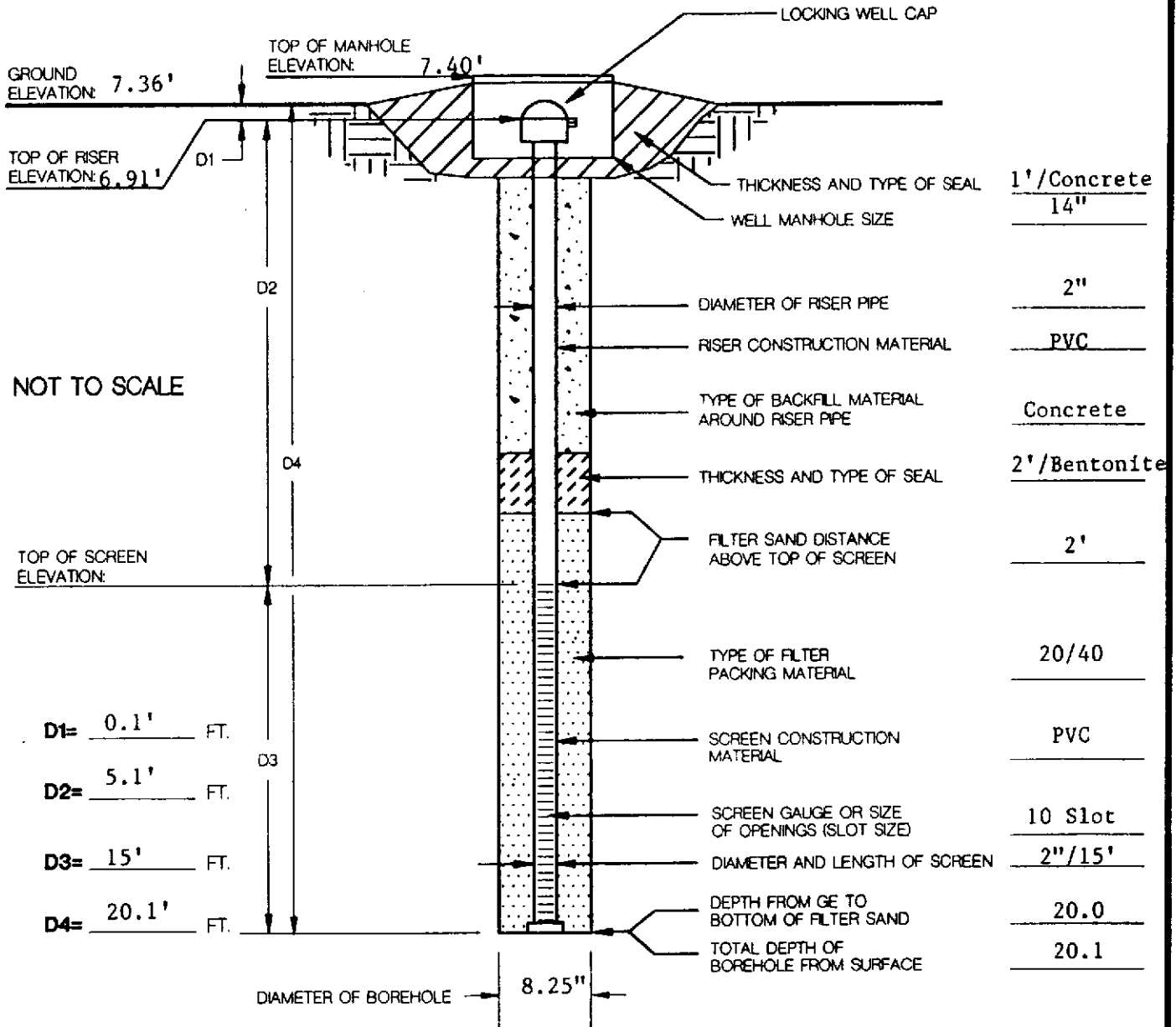
**USPCI**  
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Union Pacific Corporation

**USPCI MONITORING WELL  
CONSTRUCTION AND  
INSTALLATION DIAGRAM**

USPCI PROJECT NO. 96120-844

PROJECT NAME: UPMF - 1750 Ferro Street, Oakland, CA

MONITORING WELL NO. OKUS-W7



NOT TO SCALE

- D1= 0.1' FT.
- D2= 5.1' FT.
- D3= 15' FT.
- D4= 20.1' FT.

DIAMETER OF BOREHOLE → 8.25" ←



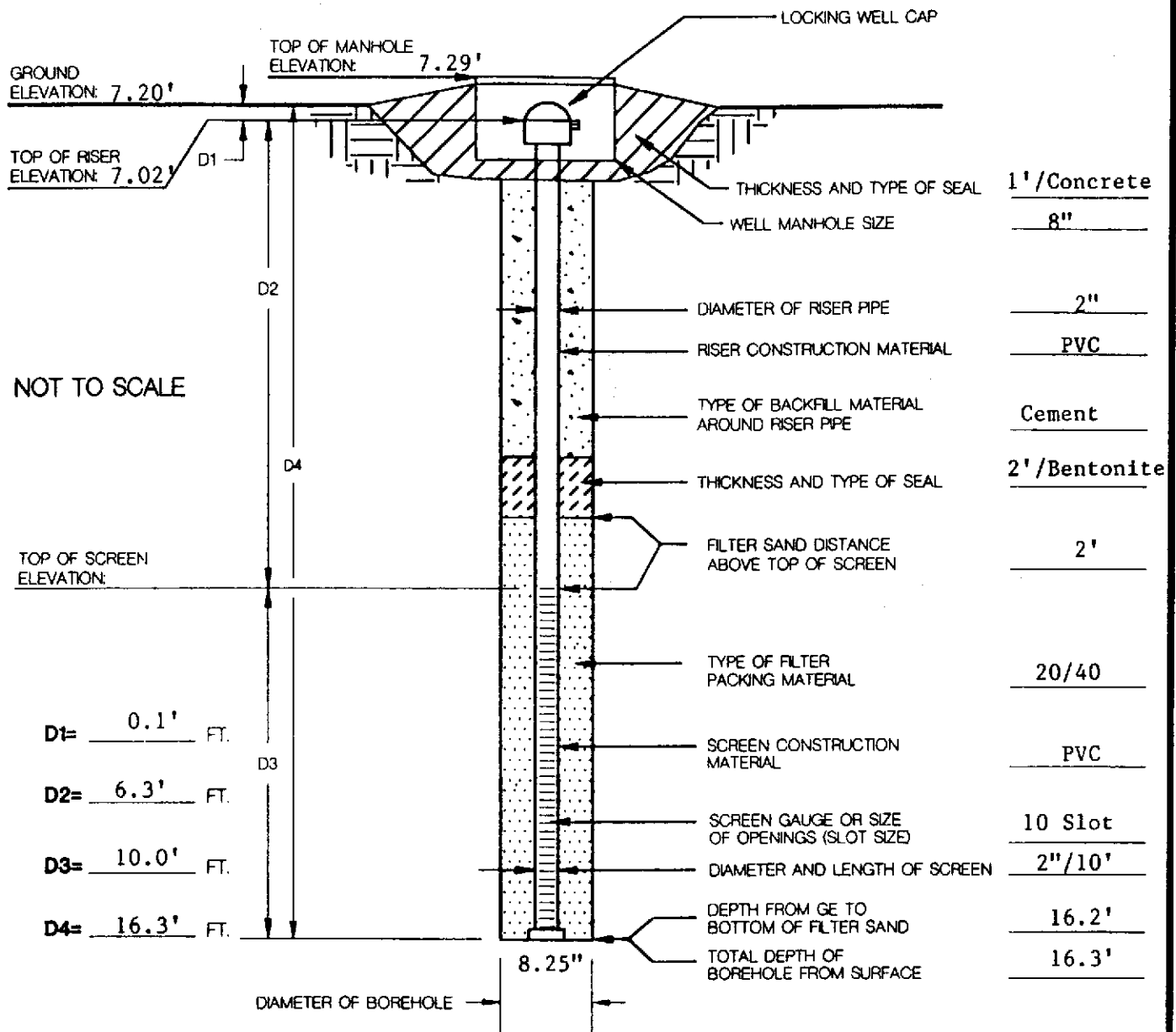
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR Layne Western Company		
DRILLER Steve McCoy	DRILLING FIG TYPE Mobile 61	
DATE STARTED 7/14/93	DATE COMPLETED 7/14/93	DRILLING METHOD HSA

**USPCI MONITORING WELL  
CONSTRUCTION AND  
INSTALLATION DIAGRAM**

USPCI PROJECT NO. 96120-844

PROJECT NAME: UPMF - 1750 Ferro Street, Oakland, CA

MONITORING WELL NO. OKUS-W6



MONITORING WELL INSTALLATION INFORMATION			
DRILLING CONTRACTOR <u>Layne Western Company</u>			
DRILLER <u>Steve McCoy</u>	DRILLING RIG TYPE <u>Mobile 61</u>		
DATE STARTED <u>7/13/93</u>	DATE COMPLETED <u>7/13/93</u>	DRILLING METHOD <u>HSA</u>	

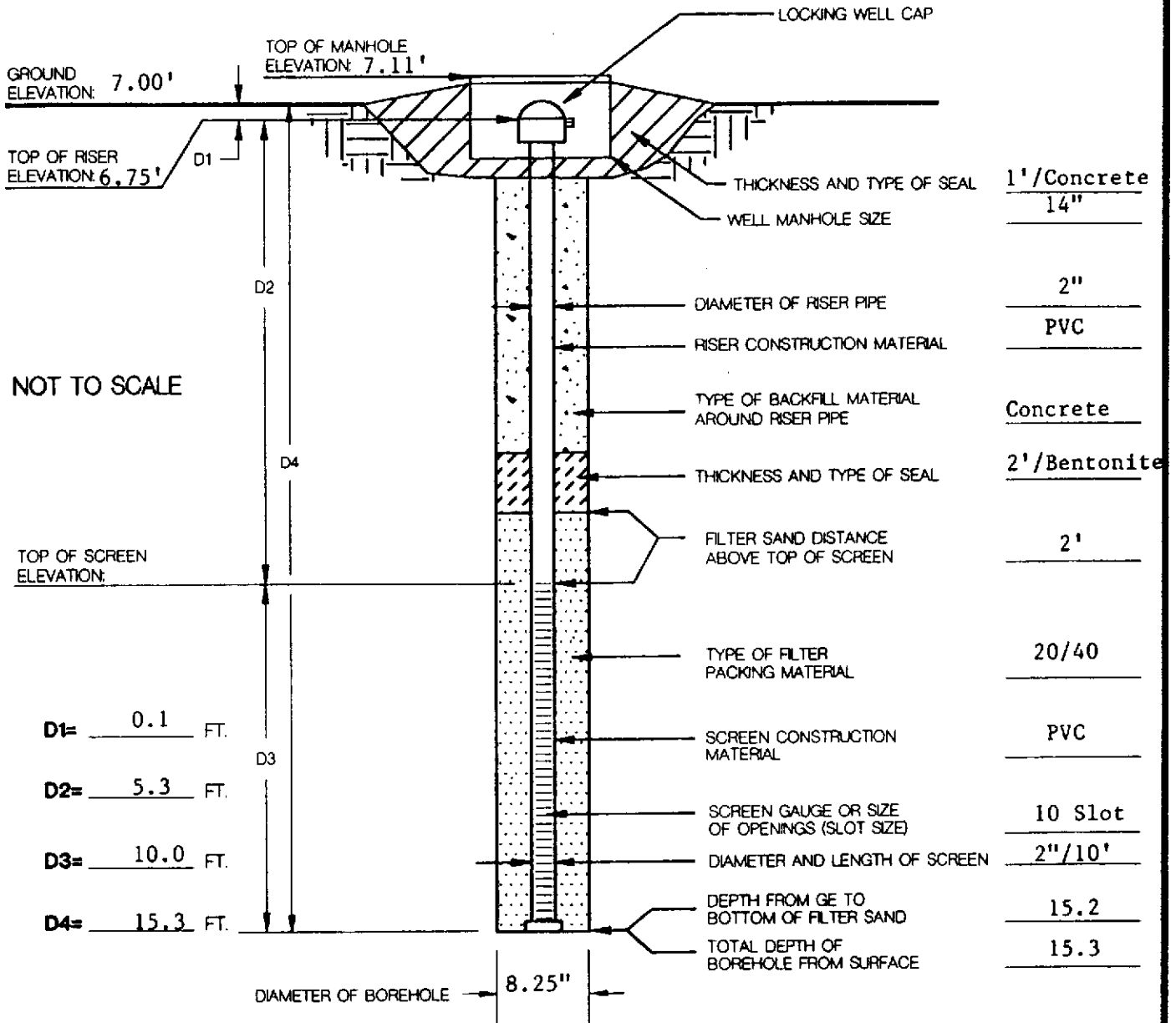


**USPCI MONITORING WELL  
CONSTRUCTION AND  
INSTALLATION DIAGRAM**

USPCI PROJECT NO. 96120-844

PROJECT NAME: UPMF - 1750 Ferro Street Oakland, CA

MONITORING WELL NO. OKUS-W8



MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR <b>Layne Western Company</b>		
DRILLER <b>Steve McCoy</b>	DRILLING RIG TYPE <b>Mobile 61</b>	
DATE STARTED <b>7/14/93</b>	DATE COMPLETED <b>7/14/93</b>	DRILLING METHOD <b>HSA</b>







USPCI Project Name: **UPMF Oakland Facility Phase II Assessment** USPCI Project Number: **96120-844**

Measuring Point (MP): **Top of casing** Well No. **APL/UP-W2**

Well Depth: (Below MP): **17.30** Feet

Casing diameter: **2** Inches Sampling Date: **7/16/93**

Depth To Ground Water (Below MP): **9.38** Feet Sample ID No. **APL/UP-W2**

**Method Of Well Development** Time: **1055**

Tap  Submersible Pump  Inertia Pump Riser Elevation (MP): **7.62**

Bailer  Centrifugal Pump  Other Top of Screen Elevation: **2.62** Feet

**Sampling Collection Method:** Sample Appearance: **slightly turbid**

Tap  Submersible Pump  Inertia Pump: Odor: **none**

Bailer Type:  Teflon  Stainless Steel Sampling Problems (if any):

HDPE Plastic  PVC  Disposable

Pump Intake Or Bailer Set At: Feet Below MP Decontamination Performed:

Tubing Type (if Used):

Tubing Used for:  Sample Collection  Well Development/Field Tests Samples Collected: **BTEX,TPH/G/D/418.1.**

**As, Pb, 8010**

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)
1100	7.6	1800	20.7		2.0	
1105	7.6	2000	20.1		4.0	
1110	7.6	1900	20.1		6.0	
samples collected at 1110						

At Least **3** Well Bore Volumes Were Purged Before Sample Discharge Rate = **GPM x 0.00223 = cfs**

Comments: **20 gallons removed for development prior to purging.**

(Comments may continue on back)

Form Completed By: **Don Ostrand** Witnessed By: **Ara Mardirosian**



USPCI Project Name: **UPMF Oakland Facility Phase II Assessment** USPCI Project Number: **96120-844**

Measuring Point (MP): **Top of casing** Well No.: **OKUS-W7**  
 Well Depth: (Below MP): **20.50** Feet  
 Casing diameter: **2** Inches Sampling Date: **7/16/93**  
 Depth To Ground Water (Below MP): **5.56** Feet Sample ID No.: **OKUS-W7**  
 Depth To Product (Below MP): **N/A**

Method Of Well Development Time: **1515**  
 Tap  Submersible Pump  Inertia Pump Riser Elevation (MP): **7.4**  
 Bailer  Centrifugal Pump  Other Top of Screen Elevation: **2.4** Feet

Sampling Collection Method: Sample Appearance: **slightly turbid**  
 Tap  Submersible Pump  Inertia Pump Odor: **none**  
 Bailer Type:  Teflon  Stainless Steel Sampling Problems (if any):  
 HDPE Plastic  PVC  Disposable

Pump Intake Or Bailer Set At: Feet Below MP Decontamination Performed:

Tubing Type (if Used):  
 Tubing Used for:  Sample Collection  Well Development/Field Tests Samples Collected: **BTEX,TPH/Q/D/418.1,**

As. Pb. 8010

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)
1520	7.4	3300	24.4		3.0	
1525	7.3	3400	23.7		6.0	
1530	7.4	3400	23.9		9.0	
samples taken at 1545						

At Least **3** Well Bore Volumes Were Purged Before Sampl Discharge Rate = **GPM x 0.00223 = cfs**  
 Comments: **20 gallons removed for development prior to purging.**

(Comments may continue on back)

Completed By: **Don Ostrand** Witnessed By: **Ara Mardirosain**



# USPCI

A Subsidiary of  
Union Pacific Corporation

## Analytical Services

USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

ATTENTION: CHRIS BYERMAN

RE: PROJECT: 96120-844  
USPCI-AS REPORT: 6105

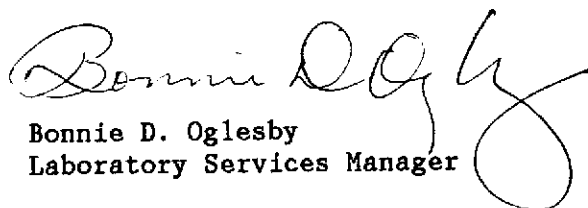
Under this cover USPCI Analytical Services is submitting the analytical data for the following samples:

<u>Lab Number</u>	<u>Customer Number</u>
30007274	APL/UP-W1
30007275	APL/UP-W2
30007276	OKUS-W6
30007277	OKUS-W7
30007278	OKUS-W8
30007279	QA/QC-1
30007280	OAK-FB#1
30007281	OAK-TB#2

These samples were analyzed using EPA or other recognized methodology as specified in the report. Each test is performed under a rigorous QA/QC program including blanks, method controls and matrix spikes. All methods are calibrated using authentic reference materials with a minimum of a three point calibration curve as appropriate. All practical quantitation limits are validated and reflect method specific or project specific requirements. Some detection limits may be listed as higher than the targeted program limits due to sample specific interferences or limited sample size.

If you need help in evaluating the data or need further information please call the laboratory at 918-446-1162.

Respectfully submitted for  
USPCI Analytical Services

  
Bonnie D. Oglesby  
Laboratory Services Manager

# USPCI

A Subsidiary of  
 Union Pacific Corporation

## Analytical Services

SAMPLE IDENTIFICATION: 30007274

CUSTOMER IDENTIFICATION: APL/UP-W1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION	LIMIT RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/l	0.3 mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/l	BDL mg/l
Diesel	CA DRAFT	0.5 mg/l	BDL mg/l
TPH			
TPH	EPA 418.1	10 mg/l	11 mg/l
Dissolved Arsenic	SW 7060	0.002 mg/l	0.011 mg/l
Dissolved Lead	SW 7421	0.002 mg/l	BDL mg/l
Purgeable Halocarbon			
Bromodichloromethane	SW 8010	1 ug/l	BDL ug/l
Bromoform	SW 8010	1 ug/l	BDL ug/l
Carbon tetrachloride	SW 8010	1 ug/l	BDL ug/l
Chlorobenzene	SW 8010	1 ug/l	BDL ug/l
Chloroethane	SW 8010	1 ug/l	BDL ug/l
Chloroform	SW 8010	1 ug/l	5.4 ug/l
Dibromochloromethane	SW 8010	1 ug/l	BDL ug/l
Dibromomethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,3-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,4-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007274

CUSTOMER IDENTIFICATION: APL/UP-W1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
Dichlorodifluoromethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethylene	SW 8010	1 ug/l	BDL ug/l
trans-1,2-Dichloroethene	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloropropane	SW 8010	1 ug/l	BDL ug/l
cis-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
trans-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
Methylene chloride	SW 8010	1 ug/l	BDL ug/l
1,1,2,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,1,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
Tetrachloroethene	SW 8010	1 ug/l	BDL ug/l
1,1,1-Trichloroethane	SW 8010	1 ug/l	4.2 ug/l
1,1,2-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
Trichloroethene	SW 8010	1 ug/l	BDL ug/l
Volatiles			
Benzene	SW 8020	2.0 ug/l	25.4 ug/l
Ethylbenzene	SW 8020	2.0 ug/l	BDL ug/l
Toluene	SW 8020	2.0 ug/l	1.7 ug/l
Xylenes	SW 8020	2.0 ug/l	3.0 ug/l

J

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
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# USPCI

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18 Aug 93 PAGE 3  
CHRIS BYERMAN  
USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007275

CUSTOMER IDENTIFICATION: APL/UP-W2

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Benzene	CA DRAFT	0.001 mg/l	0.008 mg/l
Ethylbenzene	CA DRAFT	0.001 mg/l	BDL mg/l
Toluene	CA DRAFT	0.001 mg/l	BDL mg/l
Xylenes	CA DRAFT	0.001 mg/l	BDL mg/l
Gasoline	CA DRAFT	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/l	BDL mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/l	BDL mg/l
Diesel	CA DRAFT	0.5 mg/l	BDL mg/l
TPH			
TPH	EPA 418.1	10 mg/l	19 mg/l
Dissolved Arsenic	SW 7060	0.002 mg/l	0.016 mg/l
Dissolved Lead	SW 7421	0.002 mg/l	BDL mg/l
Purgeable Halocarbon			
Bromodichloromethane	SW 8010	1 ug/l	BDL ug/l
Bromoform	SW 8010	1 ug/l	BDL ug/l
Carbon tetrachloride	SW 8010	1 ug/l	BDL ug/l
Chlorobenzene	SW 8010	1 ug/l	BDL ug/l
Chloroethane	SW 8010	1 ug/l	BDL ug/l
Chloroform	SW 8010	1 ug/l	2.5 ug/l
Dibromochloromethane	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
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# USPCI

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18 Aug 93 PAGE 4  
CHRIS BYERMAN  
USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007275

CUSTOMER IDENTIFICATION: APL/UP-W2

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
Dibromomethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,3-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,4-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
Dichlorodifluoromethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethylene	SW 8010	1 ug/l	BDL ug/l
trans-1,2-Dichloroethene	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloropropane	SW 8010	1 ug/l	BDL ug/l
cis-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
trans-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
Methylene chloride	SW 8010	1 ug/l	BDL ug/l
1,1,2,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,1,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
Tetrachloroethene	SW 8010	1 ug/l	BDL ug/l
1,1,1-Trichloroethane	SW 8010	1 ug/l	3.7 ug/l
1,1,2-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
Trichloroethene	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
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# USPCI

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Union Pacific Corporation

18 Aug 93 PAGE 5  
CHRIS BYERMAN  
USPCI - REMEDIAL SERVICES  
24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007276

CUSTOMER IDENTIFICATION: OKUS-W6

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/l	BDL mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/l	BDL mg/l
Diesel	CA DRAFT	0.5 mg/l	BDL mg/l
Dissolved Arsenic	SW 7060	0.002 mg/l	0.004 mg/l
Dissolved Lead	SW 7421	0.002 mg/l	BDL mg/l
Purgeable Halocarbon			
Bromodichloromethane	SW 8010	1 ug/l	BDL ug/l
Bromoform	SW 8010	1 ug/l	BDL ug/l
Carbon tetrachloride	SW 8010	1 ug/l	BDL ug/l
Chlorobenzene	SW 8010	1 ug/l	BDL ug/l
Chloroethane	SW 8010	1 ug/l	BDL ug/l
Chloroform	SW 8010	1 ug/l	BDL ug/l
Dibromochloromethane	SW 8010	1 ug/l	BDL ug/l
Dibromomethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,3-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,4-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
Dichlorodifluoromethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloroethane	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
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# USPCI

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## Analytical Services

SAMPLE IDENTIFICATION: 30007276

CUSTOMER IDENTIFICATION: OKUS-W6

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

PARAMETER	REFERENCE	PRACTICAL	
	METHOD	QUANTITATION	LIMIT RESULT
1,1-Dichloroethylene	SW 8010	1 ug/l	BDL ug/l
trans-1,2-Dichloroethene	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloropropane	SW 8010	1 ug/l	BDL ug/l
cis-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
trans-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
Methylene chloride	SW 8010	1 ug/l	BDL ug/l
1,1,2,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,1,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
Tetrachloroethene	SW 8010	1 ug/l	BDL ug/l
1,1,1-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,2-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
Trichloroethene	SW 8010	1 ug/l	BDL ug/l
Volatiles			
Benzene	SW 8020	2.0 ug/l	2.5 ug/l
Ethylbenzene	SW 8020	2.0 ug/l	BDL ug/l
Toluene	SW 8020	2.0 ug/l	BDL ug/l
Xylenes	SW 8020	2.0 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007277

CUSTOMER IDENTIFICATION: OKUS-W7

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/l	BDL mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/l	BDL mg/l
Diesel	CA DRAFT	0.5 mg/l	BDL mg/l
TPH			
TPH	EPA 418.1	10 mg/l	16 mg/l
Dissolved Arsenic	SW 7060	0.002 mg/l	0.009 mg/l
Dissolved Lead	SW 7421	0.002 mg/l	BDL mg/l
Purgeable Halocarbon			
Bromodichloromethane	SW 8010	1 ug/l	BDL ug/l
Bromoform	SW 8010	1 ug/l	BDL ug/l
Carbon tetrachloride	SW 8010	1 ug/l	BDL ug/l
Chlorobenzene	SW 8010	1 ug/l	BDL ug/l
Chloroethane	SW 8010	1 ug/l	BDL ug/l
Chloroform	SW 8010	1 ug/l	BDL ug/l
Dibromochloromethane	SW 8010	1 ug/l	BDL ug/l
Dibromomethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,3-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,4-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007277

CUSTOMER IDENTIFICATION: OKUS-W7

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
Dichlorodifluoromethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethylene	SW 8010	1 ug/l	BDL ug/l
trans-1,2-Dichloroethene	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloropropane	SW 8010	1 ug/l	BDL ug/l
cis-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
trans-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
Methylene chloride	SW 8010	1 ug/l	BDL ug/l
1,1,2,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,1,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
Tetrachloroethene	SW 8010	1 ug/l	BDL ug/l
1,1,1-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,2-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
Trichloroethene	SW 8010	1 ug/l	BDL ug/l
Volatiles			
Benzene	SW 8020	2.0 ug/l	2.1 ug/l
Ethylbenzene	SW 8020	2.0 ug/l	BDL ug/l
Toluene	SW 8020	2.0 ug/l	BDL ug/l
Xylenes	SW 8020	2.0 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007278

CUSTOMER IDENTIFICATION: OKUS-W8

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/l	BDL mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/l	0.7 mg/l
Diesel	CA DRAFT	0.5 mg/l	BDL mg/l
TPH			
TPH	EPA 418.1	10 mg/l	15 mg/l
Dissolved Arsenic	SW 7060	0.002 mg/l	0.012 mg/l
Dissolved Lead	SW 7421	0.002 mg/l	0.003 mg/l
Purgeable Halocarbon			
Bromodichloromethane	SW 8010	1 ug/l	BDL ug/l
Bromoform	SW 8010	1 ug/l	BDL ug/l
Carbon tetrachloride	SW 8010	1 ug/l	BDL ug/l
Chlorobenzene	SW 8010	1 ug/l	BDL ug/l
Chloroethane	SW 8010	1 ug/l	BDL ug/l
Chloroform	SW 8010	1 ug/l	BDL ug/l
Dibromochloromethane	SW 8010	1 ug/l	BDL ug/l
Dibromomethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,3-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,4-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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## Analytical Services

SAMPLE IDENTIFICATION: 30007278

CUSTOMER IDENTIFICATION: OKUS-W8

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
Dichlorodifluoromethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1-Dichloroethylene	SW 8010	1 ug/l	BDL ug/l
trans-1,2-Dichloroethene	SW 8010	1 ug/l	BDL ug/l
1,2-Dichloropropane	SW 8010	1 ug/l	BDL ug/l
cis-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
trans-1,3-Dichloropropene	SW 8010	1 ug/l	BDL ug/l
Methylene chloride	SW 8010	1 ug/l	BDL ug/l
1,1,2,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,1,2-Tetrachloroethane	SW 8010	1 ug/l	BDL ug/l
Tetrachloroethene	SW 8010	1 ug/l	BDL ug/l
1,1,1-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
1,1,2-Trichloroethane	SW 8010	1 ug/l	BDL ug/l
Trichloroethene	SW 8010	1 ug/l	BDL ug/l
Volatiles			
Benzene	SW 8020	2.0 ug/l	BDL ug/l
Ethylbenzene	SW 8020	2.0 ug/l	BDL ug/l
Toluene	SW 8020	2.0 ug/l	BDL ug/l
Xylenes	SW 8020	2.0 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



Analytical Services

SAMPLE IDENTIFICATION: 30007279

CUSTOMER IDENTIFICATION: QA/QC-1

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6105  
 DATE SAMPLED: 07/16/93  
 TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	CA DRAFT	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	CA DRAFT	0.05 mg/l	0.21 mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	CA DRAFT	0.5 mg/l	BDL mg/l
Diesel	CA DRAFT	0.5 mg/l	BDL mg/l
TPH			
TPH	EPA 418.1	10 mg/l	12 mg/l
Dissolved Arsenic	SW 7060	0.002 mg/l	0.012 mg/l
Dissolved Lead	SW 7421	0.002 mg/l	BDL mg/l
Purgeable Halocarbon			
Bromodichloromethane	SW 8010	1 ug/l	BDL ug/l
Bromoform	SW 8010	1 ug/l	BDL ug/l
Carbon tetrachloride	SW 8010	1 ug/l	BDL ug/l
Chlorobenzene	SW 8010	1 ug/l	BDL ug/l
Chloroethane	SW 8010	1 ug/l	BDL ug/l
Chloroform	SW 8010	1 ug/l	9.3 ug/l
Dibromochloromethane	SW 8010	1 ug/l	BDL ug/l
Dibromomethane	SW 8010	1 ug/l	BDL ug/l
1,2-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,3-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l
1,4-Dichlorobenzene	SW 8010	1 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
 J = VALUE REPORTED BELOW QUANTITATION LIMIT



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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007279

CUSTOMER IDENTIFICATION: QA/QC-1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
Dichlorodifluoromethane	SW 8010	1 ug/1	BDL ug/1
1,1-Dichloroethane	SW 8010	1 ug/1	BDL ug/1
1,2-Dichloroethane	SW 8010	1 ug/1	BDL ug/1
1,1-Dichloroethylene	SW 8010	1 ug/1	BDL ug/1
trans-1,2-Dichloroethene	SW 8010	1 ug/1	BDL ug/1
1,2-Dichloropropane	SW 8010	1 ug/1	BDL ug/1
cis-1,3-Dichloropropene	SW 8010	1 ug/1	BDL ug/1
trans-1,3-Dichloropropene	SW 8010	1 ug/1	BDL ug/1
Methylene chloride	SW 8010	1 ug/1	BDL ug/1
1,1,2,2-Tetrachloroethane	SW 8010	1 ug/1	BDL ug/1
1,1,1,2-Tetrachloroethane	SW 8010	1 ug/1	BDL ug/1
Tetrachloroethene	SW 8010	1 ug/1	BDL ug/1
1,1,1-Trichloroethane	SW 8010	1 ug/1	1.2 ug/1
1,1,2-Trichloroethane	SW 8010	1 ug/1	BDL ug/1
Trichloroethene	SW 8010	1 ug/1	BDL ug/1
Volatiles			
Benzene	SW 8020	2.0 ug/1	22.4 ug/1
Ethylbenzene	SW 8020	2.0 ug/1	BDL ug/1
Toluene	SW 8020	2.0 ug/1	BDL ug/1
Xylenes	SW 8020	2.0 ug/1	2.4 ug/1

BDL = BELOW QUANTITATION LIMIT    % REC = PERCENT RECOVERY    (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

# USPCI

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## Analytical Services

SAMPLE IDENTIFICATION: 30007280

CUSTOMER IDENTIFICATION: OAK-FB#1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
Volatiles			
Benzene	SW 8020	2.0 ug/1	BDL ug/1
Ethylbenzene	SW 8020	2.0 ug/1	BDL ug/1
Toluene	SW 8020	2.0 ug/1	BDL ug/1
Xylenes	SW 8020	2.0 ug/1	BDL ug/1

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

# USPCI

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## Analytical Services

SAMPLE IDENTIFICATION: 30007281

CUSTOMER IDENTIFICATION: OAK-TB#2

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>PRACTICAL QUANTITATION LIMIT</u>	<u>RESULT</u>
Volatiles			
Benzene	SW 8020	2.0 ug/l	BDL ug/l
Ethylbenzene	SW 8020	2.0 ug/l	BDL ug/l
Toluene	SW 8020	2.0 ug/l	BDL ug/l
Xylenes	SW 8020	2.0 ug/l	BDL ug/l

BDL = BELOW QUANTITATION LIMIT      % REC = PERCENT RECOVERY      (T) = TOTALS  
J = VALUE REPORTED BELOW QUANTITATION LIMIT

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007274

CUSTOMER IDENTIFICATION: APL/UP-W1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	96
TPH Volatiles-pH pH Preserved Sample	STRIP		1. pH
TPH Extractables-pH pH Preserved Sample	STRIP		1. pH
Purgeable Halocarbon-pH pH Preserved Sample	STRIP		2. pH
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	96
Volatiles-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007275

CUSTOMER IDENTIFICATION: APL/UP-W2

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	99
TPH Volatiles-pH pH Preserved Sample	STRIP		1. pH
TPH Extractables-pH pH Preserved Sample	STRIP		1. pH
Purgeable Halocarbon-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007276

CUSTOMER IDENTIFICATION: OKUS-W6

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/09/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	96
TPH Volatiles-pH pH Preserved Sample	STRIP		1. pH
TPH Extractables-pH pH Preserved Sample	STRIP		1. pH
Purgeable Halocarbon-pH pH Preserved Sample	STRIP		2. pH
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	96
Volatiles-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



Analytical Services

SAMPLE IDENTIFICATION: 30007277

CUSTOMER IDENTIFICATION: OKUS-W7

PROJECT NUMBER: 96120-844  
REPORT NUMBER: 6105  
DATE SAMPLED: 07/16/93  
TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93  
DATE COMPLETED: 08/18/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	91
TPH Volatiles-pH pH Preserved Sample	STRIP		1. pH
TPH Extractables-pH pH Preserved Sample	STRIP		1. pH
Purgeable Halocarbon-pH pH Preserved Sample	STRIP		2. pH
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	91
Volatiles-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.



Analytical Services

SAMPLE IDENTIFICATION: 30007278

CUSTOMER IDENTIFICATION: OKUS-W8

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	RECOVERY LIMITS (%)	RESULT (%)
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	97
TPH Volatiles-pH pH Preserved Sample	STRIP		1. pH
TPH Extractables-pH pH Preserved Sample	STRIP		1. pH
Purgeable Halocarbon-pH pH Preserved Sample	STRIP		2. pH
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	97
Volatiles-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.





Analytical Services

SAMPLE IDENTIFICATION: 30007279

CUSTOMER IDENTIFICATION: QA/QC-1

PROJECT NUMBER: 96120-844  
 REPORT NUMBER: 6105  
 DATE SAMPLED: 07/16/93  
 TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93  
 DATE COMPLETED: 08/18/93

PARAMETER	REFERENCE METHOD	RECOVERY LIMITS (%)	RESULT (%)
TPH Volatiles-Surrogates Bromofluorobenzene	CA DRAFT	72 - 134	103
TPH Volatiles-pH pH Preserved Sample	STRIP		1. pH
TPH Extractables-pH pH Preserved Sample	STRIP		1. pH
Purgeable Halocarbon-pH pH Preserved Sample	STRIP		2. pH
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	103
Volatiles-pH pH Preserved Sample	STRIP		2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007280

CUSTOMER IDENTIFICATION: OAK-FB#1

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
Volatiles-Surrogates			
Bromofluorobenzene	SW 8020	72 - 134	88
Volatiles-pH			
pH Preserved Sample	STRIP		1. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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24125 ALDINE WESTFIELD  
SPRING TX 77373

## Analytical Services

SAMPLE IDENTIFICATION: 30007281

CUSTOMER IDENTIFICATION: OAK-TB#2

PROJECT NUMBER: 96120-844

REPORT NUMBER: 6105

DATE SAMPLED: 07/16/93

TYPE OF MATERIAL: WATER

DATE RECEIVED: 07/19/93

DATE COMPLETED: 08/06/93

<u>PARAMETER</u>	<u>REFERENCE METHOD</u>	<u>RECOVERY LIMITS (%)</u>	<u>RESULT (%)</u>
Volatiles-Surrogates Bromofluorobenzene	SW 8020	72 - 134	87
Volatiles-pH pH Preserved Sample	STRIP		1. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

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SPRING, TX 77373

## Analytical Services

QA/QC Report  
Project: 96120-844  
Cross Reference  
Metals

### USPCI SAMPLE I.D.

30007274  
30007275  
30007276  
30007277  
30007278  
30007279  
30007280  
30007281

### CUSTOMER SAMPLE I.D.

APL/UP-W1  
APL/UP-W2  
APL/UP-W6  
APL/UP-W7  
APL/UP-W8  
QC/QC-1  
OAK-FB#1  
OAK-TB#2

### Metals

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC	SOURCE
Arsenic	0.01130	0.0400	0.0516	0.0528	2.3	101	104	102	30007274
Lead	BDL	0.0400	0.0369	0.0380	2.9	92	95	94	30007274

Units listed as mg/l.

ORG = Original Sample Result  
SA = Spike Added  
SP1 = Spike 1  
SP2 = Spike Dup  
BDL = Below Detection Limit  
RPD = Relative Percent Difference  
%RC1 = Percent Recovery 1  
%RC2 = Percent Recovery 2  
AV%RC = Average Percent Recovery  
MC = Method Control  
\* = Outside QC Acceptable Limits  
+ = Instrument Spike (QC acceptable limits 75-125%)

QA/QC Report  
TPH Volatiles  
Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007162</b>									
GASOLINE (C5-C10 TPH)	BDL	BDL	1.61	1.52	1.34	94.4%	83.2%	88.8%	12.6%
<b>Method Control</b>									
GASOLINE (C5-C10 TPH)	BDL	BDL	1.61	1.69	1.70	105.0%	105.6%	105.3%	0.6%

Units are listed as mg/kg.

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
PCB's  
Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
Matrix Spike: 30007168									
AROCLOR 1016	BDL	BDL	1.00	0.93	1.07	93.0%	107.0%	100.0%	14.0%
Method Control									
AROCLOR 1016	BDL	BDL	1.00	0.91	0.86	91.0%	86.0%	88.5%	5.6%

Units are listed as mg/kg.

BDL = Below Detection Limits ; NIS = Not in Spike mix ; \* = Out of QC limits

QA/QC Report  
 General Chemistry  
 Total Metals

General Chemistry

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC	SOURCE
TPH by IR	BDL	4108	4484			109			MC
	264	4108	4152	3544	15.80	95	80	87	30007161
	BDL	4108	2416	3359	33.0	59	82	70	30007175

PARAMETER	ORIGINAL	DUPLICATE	%DIFFERENCE	SOURCE
TPH by IR	111	94	16.59	30007175

Units listed as mg/kg.

Total Metals

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC	SOURCE
Arsenic	BDL	3.000	3.166	3.112	1.7	106	104	105	30007161
Cadmium	0.032	0.500	0.506	0.490	3.2	95	92	93	30007161
Chromium	0.435	0.500	0.967	0.990	2.4	106	111	109	30007161
Lead	BDL	2.000	2.216	2.268	2.3	111	113	112	30007161

Units listed as mg/kg.

- ORG = Original Sample Result
- SA = Spike Added
- SP1 = Spike 1
- SP2 = Spike Dup
- BDL = Below Detection Limit
- RPD = Relative Percent Difference
- %RC1 = Percent Recovery 1
- %RC2 = Percent Recovery 2
- AV%RC = Average Percent Recovery
- MC = Method Control
- \* = Outside QC Acceptable Limits
- + = Instrument Spike (QC acceptable limits 75-125%)

QA/QC Report  
Holding Times

Holding Times

Date at Lab: 1000 07/14/93

PARAMETER	SAMPLE ID	HOLDING TIME	SAMPLING DATE	ANALYSIS		
TPH Vols BTEX Gasoline	30007161	14 days	0948 07/13/93	07/17/93		
	30007162		1000 07/13/93	07/16/93		
	30007163		1033 07/13/93	07/17/93		
	30007164		1430 07/13/93	07/17/93		
	30007165		1450 07/13/93	07/17/93		
	30007166		1605 07/12/93	07/17/93		
	30007168		1650 07/12/93	07/17/93		
	30007169		1505 07/12/93	07/17/93		
	30007170		1520 07/12/93	07/17/93		
	30007171		1535 07/12/93	07/17/93		
	30007172		1325 07/12/93	07/17/93		
	30007173		1335 07/12/93	07/17/93		
	30007174		1425 07/12/93	07/17/93		
	30007176		----- --/--/--	07/17/93		
BTEX	30007177	14 days	1520 07/13/93	07/17/93		
Volatiles	30007168	14 days	1650 07/12/93	07/16/93		
Total Metals	30007161	6 months	0948 07/13/93	07/20/93		
	30007162		1000 07/13/93	(ALL SAMPLES)		
	30007163		1033 07/13/93			
	30007164		1430 07/13/93			
	30007165		1450 07/13/93			
	30007168		1650 07/12/93			
	30007169		1505 07/12/93			
	30007171		1535 07/12/93			
	30007172		1325 07/12/93			
	30007173		1335 07/12/93			
	30007174		1425 07/12/93			
	30007176		----- --/--/--			
	TPH by IR		30007161	28 days	0948 07/13/93	07/16/93
			30007162		1000 07/13/93	07/16/93
30007163		1033 07/13/93	07/16/93			
30007164		1430 07/13/93	07/16/93			
30007165		1450 07/13/93	07/21/93			
30007167		1620 07/12/93	07/16/93			
30007168		1650 07/12/93	07/21/93			
30007169		1505 07/12/93	07/16/93			
30007172		1325 07/12/93	07/16/93			
30007173		1335 07/12/93	07/16/93			
30007174		1425 07/12/93	07/16/93			
30007175		1430 07/12/93	07/16/93			
30007176		----- --/--/--	07/16/93			

Samples exceeding method recommended holding times are indicated with an asterisk (\*).



QA/QC Report  
TPH Volatiles  
Sample ID: 30007282

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007274</b>									
GASOLINE (C5-C10 TPH)	BDL	300	1600	1960	1780	103.8%	92.5%	98.1%	9.6%
<b>Method Control</b>									
GASOLINE (C5-C10 TPH)	BDL	BDL	1600	1680	1660	105.0%	103.8%	104.4%	1.2%

UNITS ARE LISTED AS UG/L

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
TPH Extractables  
Sample ID: 30007282

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
Matrix Spike: 30007274									
DIESEL (C10-C50 TPH)	BDL	BDL	12.5	10.9	8.5	87.2%	68.0%	77.6%	24.7%
Method Control									
DIESEL (C10-C50 TPH)	BDL	BDL	12.5	9.5	8.9	76.0%	71.2%	73.6%	6.5%

UNITS ARE LISTED AS MG/L

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
 BTEX  
 Sample ID: 30007282

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007274</b>									
BENZENE	BDL	25.4	30.0	62.2	64.3	122.7%	129.7%	126.2%	3.3%
TOLUENE	BDL	1.7	30.0	33.9	34.3	107.3%	108.7%	108.0%	1.2%
CHLOROBENZENE	BDL	1.1	30.0	35.2	34.1	113.7%	110.0%	111.8%	3.2%
ETHYL BENZENE	BDL	BDL	30.0	38.1	37.8	127.0%	126.0%	126.5%	0.8%
M&P XYLENE	BDL	2.3	60.0	70.3	69.7	113.3%	112.3%	112.8%	0.9%
O XYLENE	BDL	1.0	30.0	37.5	36.6	121.7%	118.7%	120.2%	2.4%
1,3-DICHLOROBENZENE	BDL	BDL	30.0	32.8	32.2	109.3%	107.3%	108.3%	1.8%
1,4-DICHLOROBENZENE	BDL	BDL	30.0	33.8	31.8	112.7%	106.0%	109.3%	6.1%
1,2-DICHLOROBENZENE	BDL	BDL	30.0	33.9	32.0	113.0%	106.7%	109.8%	5.8%
<b>Method Control</b>									
BENZENE	BDL	BDL	30.0	30.2	30.7	100.7%	102.3%	101.5%	1.6%
TOLUENE	BDL	BDL	30.0	30.4	31.4	101.3%	104.7%	103.0%	3.2%
CHLOROBENZENE	BDL	BDL	30.0	31.4	31.3	104.7%	104.3%	104.5%	0.3%
ETHYL BENZENE	BDL	BDL	30.0	30.3	31.1	101.0%	103.7%	102.3%	2.6%
M&P XYLENE	BDL	BDL	60.0	60.7	62.1	101.2%	103.5%	102.3%	2.3%
O XYLENE	BDL	BDL	30.0	32.1	30.6	107.0%	102.0%	104.5%	4.8%
1,3-DICHLOROBENZENE	BDL	BDL	30.0	29.0	29.1	96.7%	97.0%	96.8%	0.3%
1,4-DICHLOROBENZENE	BDL	BDL	30.0	29.6	27.7	98.7%	92.3%	95.5%	6.6%
1,2-DICHLOROBENZENE	BDL	BDL	30.0	30.0	27.0	100.0%	90.0%	95.0%	10.5%

Units are listed as ug/l.

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits

QA/QC Report  
 General Chemistry  
 Sample ID: 30007282

PARAMETER: TH AND TPH BY IR SPECTROSCOPY      mg/l

BLANK RESULTS	ORIG.	DUP.	RPD	SAMPLE RESULTS	SPIKE LEVEL	SPIKE RESULTS I	% REC I	SPIKE II RESULTS	% REC II	RPD	AVG. % REC	SAMPLE	DATE
BDL					33.26	29.69	89	NA	NA	NA	NA	BLK & MC	8/17/93

NA = NOT ANALYZED OR NOT AVAILABLE  
 BDL = BELOW DETECTION LIMIT  
 "" = OUT OF CONTROL LIMITS  
 RPD = RELATIVE % DIFFERENCE  
 % REC = PERCENT RECOVERY  
 AVG % REC = AVERAGE PERCENT RECOVERY

QA/QC Report  
Purgeable Halocarbon

Purgeable Halocarbon

METHOD CONTROL

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC
Trichloroethene	BDL	0.030	0.0240	0.0176	31.0	80	59	70
Tetrachloroethene	BDL	0.030	0.0123	0.0124	0.0	41	42	41
Chlorobenzene	BDL	0.030	0.0187	0.0152	20.6	62	51	57
1,3-Dichlorobenzene	BDL	0.030	0.0178	0.0173	2.7	60	58	59
1,4-Dichlorobenzene	BDL	0.030	0.0194	0.0194	0.0	65	65	65
1,2-Dichlorobenzene	BDL	0.030	0.0258	0.0261	1.2	86	87	87

MATRIX SPIKE

SOURCE: 30007276

PARAMETER	ORG	SA	SP1	SP2	RPD	%RC1	%RC2	AV%RC
Trichloroethene	BDL	0.030	0.0263	0.0248	6.1	88	83	85
Tetrachloroethene	BDL	0.030	0.0159	0.0143	10.7	53	48	50
Chlorobenzene	BDL	0.030	0.0189	0.0210	10.5	63	70	66
1,3-Dichlorobenzene	BDL	0.030	0.0198	0.0223	12.0	66	74	70
1,4-Dichlorobenzene	BDL	0.030	0.0207	0.0255	20.6	69	85	77
1,2-Dichlorobenzene	BDL	0.030	0.0246	0.0333	29.9	82	111	97

Units listed as mg/l.

ORG = Original Sample Result  
SA = Spike Added  
SP1 = Spike 1  
SP2 = Spike Dup  
BDL = Below Detection Limit  
RPD = Relative Percent Difference  
%RC1 = Percent Recovery 1  
%RC2 = Percent Recovery 2  
AV%RC = Average Percent Recovery  
MC = Method Control  
\* = Outside QC Acceptable Limits  
+ = Instrument Spike (QC acceptable limits 75-125%)

QA/QC Report  
Holding Times

Holding Times

Date at Lab: 1025 07/17/93

PARAMETER	SAMPLE ID	HOLDING TIME	SAMPLING DATE	EXTRACTION	ANALYSIS
Purgeable Halocarbon	30007274	14 days	1030 07/16/93		07/28/93
	30007275		1110 07/16/93		07/28/93
	30007276		1700 07/16/93		07/28/93
	30007277		1545 07/16/93		07/28/93
	30007278		1520 07/16/93		07/28/93
	30007279		1200 07/16/93		07/29/93
TPH Vols BTEX Gasoline	30007274	14 days	1040 07/16/93		07/23/93
	30007275		1115 07/16/93		(ALL SAMPLES)
	30007276		1705 07/16/93		
	30007277		1550 07/16/93		
	30007278		1525 07/16/93		
	30007279		1200 07/16/93		
BTEX	30007280	14 days	1105 07/16/93		07/23/93
	30007281		1055 07/16/93		07/23/93
Total Metals	30007274	6 months	1047 07/16/93		07/21/93
	30007275		1122 07/16/93		(ALL SAMPLES)
	30007276		1710 07/16/93		
	30007277		1557 07/16/93		
	30007278		1532 07/16/93		
	30007279		1200 07/16/93		
TPH by IR (SEE NOTE)	30007274	28 days	1045 07/16/93		08/17/93*
	30007275		1120 07/16/93		(ALL SAMPLES)
	30007277		1555 07/16/93		
	30007278		1530 07/16/93		
	30007279		1200 07/16/93		
TPH Ext Diesel	30007274	14 days for extraction, 40 days after for analysis	1045 07/16/93	07/21/93	07/24/93
	30007275		1120 07/16/93	(ALL SAMPLES)	07/24/93
	30007277		1555 07/16/93		07/24/93
	30007278		1530 07/16/93		07/24/93
	30007279		1200 07/16/93		07/24/93

Samples exceeding method recommended holding times are indicated with an asterisk (\*).

NOTE: Due to instrument failure, TPH by IR samples were run outside holding time.

QA/QC Report  
 Volatiles  
 Method Control  
 Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
1,1-DICHLOROETHENE	BDL	BDL	40.0	48.3	40.0	120.7%	100.1%	110.4%	18.6%
METHYLENE CHLORIDE	BDL	BDL	40.0	43.0	37.0	107.5%	92.5%	100.0%	15.1%
trans-1,2 DICHLOROETHENE	BDL	BDL	40.0	48.5	42.0	121.3%	105.0%	113.1%	14.4%
1,1-DICHLOROETHANE	BDL	BDL	40.0	47.5	41.9	118.8%	104.8%	111.8%	12.5%
CHLOROFORM	BDL	BDL	40.0	44.5	38.8	111.3%	97.1%	104.2%	13.6%
1,1,1-TRICHLOROETHANE	BDL	BDL	40.0	45.6	39.2	114.1%	97.9%	106.0%	15.3%
CARBON TETRACHLORIDE	BDL	BDL	40.0	42.4	40.6	106.0%	101.5%	103.7%	4.3%
BENZENE	BDL	BDL	40.0	47.6	44.1	119.0%	110.3%	114.6%	7.6%
1,2-DICHLOROETHANE	BDL	BDL	40.0	45.2	41.1	113.1%	102.7%	107.9%	9.5%
TRICHLOROETHENE	BDL	BDL	40.0	45.7	41.8	114.1%	104.4%	109.3%	8.9%
1,2-DICHLOROPROPANE	BDL	BDL	40.0	47.2	44.5	118.1%	111.2%	114.7%	6.0%
BROMODICHLOROMETHANE	BDL	BDL	40.0	42.8	39.7	107.1%	99.2%	103.1%	7.6%
cis-1,3-DICHLOROPROPENE	BDL	BDL	40.0	45.1	41.6	112.7%	104.1%	108.4%	8.0%
TOLUENE	BDL	BDL	40.0	47.7	46.8	119.3%	117.1%	118.2%	1.8%
trans-1,3-DICHLOROPROPENE	BDL	BDL	40.0	13.1	12.7	32.8%	31.7%	32.3%	3.4%
1,1,2-TRICHLOROETHANE	BDL	BDL	40.0	46.7	46.3	116.7%	115.8%	116.2%	0.8%
TETRACHLOROETHENE	BDL	BDL	40.0	46.5	46.3	116.2%	115.7%	115.9%	0.4%
CHLORODIBROMOMETHANE	BDL	BDL	40.0	42.3	42.7	105.7%	106.6%	106.2%	0.9%
CHLOROBENZENE	BDL	BDL	40.0	42.7	44.4	106.8%	111.0%	108.9%	3.9%
ETHYL BENZENE	BDL	BDL	40.0	44.4	44.3	111.0%	110.7%	110.8%	0.2%
BROMOFORM	BDL	BDL	40.0	38.8	40.3	97.1%	100.8%	99.0%	3.7%
1,1,2,2-TETRACHLOROETHANE	BDL	BDL	40.0	45.4	47.9	113.6%	119.8%	116.7%	5.3%

Units are listed as ug/kg.

BDL = Below Detection Limits ; NIS = Not in Spike mix ; \* = Out of QC Limits

QA/QC Report  
TPH Extractables  
Sample ID: 30007178

PARAMETER	BLANK RESULTS	SAMPLE RESULTS	SPIKE LEVEL	SPIKE I RESULTS	SPIKE II RESULTS	RECOVERY I	RECOVERY II	AVERAGE RECOVERY	DIFFERENCE
<b>Matrix Spike: 30007161</b>									
DIESEL (C10-C50 TPH)	BDL	5.5	25.0	25.3	20.1	79.5%	58.8%	69.1%	22.8%
<b>Method Control</b>									
DIESEL (C10-C50 TPH)	BDL	BDL	25.0	24.2	27.1	96.8%	108.4%	102.6%	11.3%

UNITS ARE LISTED AS MG/KG.

BDL = Below Detection Limits ; NIS = Not in Spike Mix ; \* = Out of QC Limits





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 Union Pacific Corporation  
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 Spring, TX 77373  
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REPORT TO

CONTACT CHRIS TOPHER BERMAN  
 COMPANY USPCI  
 ADDRESS 24125 ALDINE WESTFIELD  
 CITY SPRING ST. TX ZIP 77373  
 PHONE 713-350-7265 FAX 713-350-7246

BILL TO

CONTACT SAME  
 COMPANY \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
 PHONE \_\_\_\_\_ PO # \_\_\_\_\_

910 000219

CHAIN OF CUSTODY RECORD

PROJ. NO. <u>96120-844</u>				# CONTAINERS <u>8010</u>	<u>8700/7000-6</u>	<u>7000/7000-7R</u>	<u>Dissolved Metals</u>	<u>Asy. PL</u>	STANDARD TURNAROUND <u>Yes</u>									
PROJECT NAME <u>UPMK JARLAND</u>									RUSH TURNAROUND _____ (specify required date)									
SAMPLERS (SIGNATURE) <u>Cheryl By</u>									LABORATORY SAMPLE I.D.									
CUSTOMER SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS												LABORATORY SAMPLE I.D.	REMARKS	
<u>OKUS-W6</u>	<u>7-16-93</u>	<u>17:00</u>	<u>H<sub>2</sub>O</u>	<u>3</u>	<u>X</u>											<u>937276</u>	<u>Dissolved Metals</u>	
<u>OKUS-W6</u>		<u>17:05</u>		<u>3</u>	<u>X</u>												<u>used to be filtered</u>	
<u>OKUS-W6</u>		<u>10:10</u>		<u>1</u>			<u>X*</u>										<u>and preserved in</u>	
<u>OKUS-W6</u>		<u>17:12</u>		<u>1</u>				<u>X</u>									<u>lab</u>	
<u>OKUS-W7</u>		<u>15:45</u>		<u>3</u>	<u>X</u>											<u>937277</u>	<u>THANKS!</u>	
<u>OKUS-W7</u>		<u>15:50</u>		<u>3</u>		<u>X</u>											<u>[scribble]</u>	
<u>OKUS-W7</u>		<u>15:55</u>		<u>1</u>			<u>X</u>										<u>*Broken</u>	
<u>OKUS-W7</u>		<u>15:57</u>		<u>1</u>				<u>X</u>									<u>Shipment</u>	
<u>OKUS-W8</u>		<u>15:20</u>		<u>3</u>	<u>X</u>											<u>937278</u>		
<u>OKUS-W8</u>		<u>15:25</u>		<u>3</u>		<u>X</u>												
<u>OKUS-W8</u>		<u>15:30</u>		<u>1</u>			<u>X</u>											
<u>OKUS-W8</u>		<u>15:32</u>		<u>1</u>			<u>X</u>											
RELINQUISHED BY <u>Cheryl By</u>				DATE / TIME <u>7-16-93</u>	RECEIVED BY <u>Joe Vandenberg</u>				DATE / TIME <u>7/16/93 10:25AM</u>	COURIER								
RELINQUISHED BY _____				DATE / TIME _____	RECEIVED BY _____				DATE / TIME _____	AIRBILL NO. _____								



A Subsidiary of  
Union Pacific Corporation

Ship To: USPCI Analytical Services  
4322 South 49th West Avenue  
Tulsa, OK 74107  
(918) 446-1162

REPORT TO

CONTACT CHRISTOPHER GIERMAL  
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ADDRESS 24125 ALONG WESTFIELD  
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BILL TO

CONTACT SAME 004151  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE ( ) \_\_\_\_\_ PO # \_\_\_\_\_

**CHAIN OF CUSTODY RECORD**

PROJ. NO. <u>96120-844</u>				# CONTAINERS	8010	BTEX / APH-X	TPH-D / TPH-IR	Dissolved Metals As, Pb	BTEX only	STANDARD TURNAROUND <u>Yes</u>			
PROJECT NAME <u>UPMF - OAKLAND</u>										RUSH TURNAROUND _____ (specify required date)			
SAMPLERS (SIGNATURE) <u>Ch. Lph. By</u>										LABORATORY SAMPLE I.D.			
CUSTOMER SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED	MATRIX										
APL/UP-W1	7-16-93	10:30	H <sub>2</sub> O	3	X							937274	Metal samples
APL/UP-W1		10:40		3	X								need to be
APL/UP-W1		10:45		1		X							preserved & filtered
APL/UP-W1		10:47		1			X						in lab!
APL/UP-W2		11:10		3	X							937275	Thanks!
APL/UP-W2		11:15		3	X								
APL/UP-W2		11:20		1		X							
APL/UP-W2		11:22		1			X						
<del>QA/OC-1</del>		<del>12:00</del>		<del>3</del>	<del>X</del>							<del>937279</del>	
<del>QA/OC-1</del>		<del>12:00</del>		<del>3</del>	<del>X</del>								
<del>QA/OC-1</del>		<del>12:00</del>		<del>1</del>		X							
<del>QA/OC-1</del>		<del>12:00</del>		<del>1</del>			X						
OAK-TB#2		10:55		3					X			937281	937282OC
OAK-FB#1		11:05		3					X			937280	
RELINQUISHED BY <u>Ch. Lph. By</u>	DATE / TIME 7-16-93 18:00	RECEIVED BY <u>Kric Vanduyoff</u>	DATE / TIME 7/17/93 10:25AM	COURIER		AIRBILL NO.							

**GROUNDWATER ASSESSMENT DATA FOR THE  
THIRD QUARTER 1993 MONITORING EVENT**





USPCI Project Name: **UPMF Oakland Facility Quarterly Monitoring** USPCI Project Number: **96120-844**

Measuring Point (MP) **Top of casing** Well No. **OKUS-W3**

Well Depth: (Below MP): **21.50** Feet

Casing diameter: **2** Inches Sampling Date: **8/23/93**

Depth To Ground Water (Below MP): **9.82** Feet Sample ID No. **OKUS-W3**

Depth To Product (Below MP): **N/A**

Method Of Well Development Time: **1106**

Tap  Submersible Pump  Inertia Pump Riser Elevation (MP): **9.80**

Bailer  Centrifugal Pump  Other Top of Screen Elevation: **4.80** Feet

Sampling Collection Method: Sample Appearance: **turbid**

Tap  Submersible Pump  Inertia Pump: Odor: **moderate petroleum**

Bailer Type:  Teflon  Stainless Steel Sampling Problems (if any):

HDPE Plastic  PVC  Disposable

Pump Intake Or Bailer Set At: Feet Below MP Decontamination Performed:

Tubing Type (if Used):

Tubing Used for:  Sample Collection  Well Development/Field Tests Samples Collected: **BTEX,TPH/G/D/418.1.**

As. Pb. 8010

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)
1116	7.7	1300	22.5		5.0	
1124	7.8	1400	22.6		10.0	
1133	7.6	1400	22.6		15.0	
samples taken at 1134						

At Least **3** Well Bore Volumes Were Purged Before Sampl Discharge Rate = **GPM x 0.00223 =** cfs

Comments: **15 gallons of water removed during purging.**

(Comments may continue on back)

Completed By: **Don Ostrand** Witnessed By: **Ara Mardrosain**









USPCI Project Name: **UPMF Oakland Facility Quarterly Monitoring** USPCI Project Number: **96120-844**

Measuring Point (MP) **Top of casing** Well No. **OKUS-W7**

Well Depth: (Below MP): **20.50** Feet

Casing diameter: **2** Inches Sampling Date: **8/25/93**

Depth To Ground Water (Below MP): **5.94** Feet Sample ID No. **OKUS-W7**

Depth To Product (Below MP): **N/A**

Method Of Well Development Time: **1528**

Tap  Submersible Pump  Inertia Pump Riser Elevation (MP): **7.4**

Bailer  Centrifugal Pump  Other Top of Screen Elevation: **2.4** Feet

Sampling Collection Method: Sample Appearance: **slightly turbid**

Tap  Submersible Pump  Inertia Pump: Odor: **none**

Bailer Type:  Teflon  Stainless Steel Sampling Problems (if any):

HDPE Plastic  PVC  Disposable

Pump Intake Or Bailer Set At: Feet Below MP Decontamination Performed:

Tubing Type (if Used):

Tubing Used for:  Sample Collection  Well Development/Field Tests Samples Collected: **BTEX,TPH/G/D/418.1.**

As. Pb. 9010

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)
1538	7.9	3100	26.4		5.0	
1547	7.9	3400	24.5		10.0	
1558	7.9	3300	23.6		15.0	
samples taken at 1604						

At Least **3** Well Bore Volumes Were Purged Before Sampl Discharge Rate = **GPM x 0.00223 =** cfs

Comments: **15 gallons of water removed during purging.**

(Comments may continue on back)

Completed By: **Don Ostrand** Witnessed By: **Ara Mardirossian**









# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 308-1050

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Reported: Sep 9, 1993

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 308-1050 OKUS-W3	Sample I.D. 308-1051 OKUS-W2	Sample I.D. 308-1052 OKUS-W1	Sample I.D. 308-1053 OKUS-W7	Sample I.D. 308-1054 OKUS-W6	Sample I.D. 308-1055 TB-1
Purgeable Hydrocarbons	50	9,400	22,000	N.D.	56	N.D.	N.D.
Benzene	0.5	280	420	N.D.	2.9	2.6	N.D.
Toluene	0.5	55	92	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	4,300	10,000	N.D.	1.2	4.9	N.D.
Total Xylenes	0.5	41	210	N.D.	N.D.	1.3	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	--	Gasoline	--	--

### Quality Control Data

Report Limit Multiplication Factor:	50	100	1.0	1.0	1.0	1.0
Date Analyzed:	9/1/93	9/1/93	9/1/93	9/1/93	9/1/93	9/13/93
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	102	102	102	102	102	100

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

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U.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Matrix: Water  
Analysis Method: EPA 5030/8015/8020  
First Sample #: 308-1162

Sampled: 8/26-8/27/93  
Received: Aug 27, 1993  
Reported: Sep 9, 1993

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 308-1162 OKUS-W4	Sample I.D. 308-1163 OKUS-W9	Sample I.D. 308-1164 APL/UP-W2	Sample I.D. 308-1165 APL/UP-W1	Sample I.D. 308-1166 OKUS-W8	Sample I.D. 308-1167 TB-2
Purgeable Hydrocarbons	50	6,700	6,200	94	720	120	N.D.
Benzene	0.5	350	340	N.D.	47	1.3	N.D.
Toluene	0.5	72	78	N.D.	1.3	N.D.	N.D.
Ethyl Benzene	0.5	4,800	4,500	35	360	N.D.	N.D.
Total Xylenes	0.5	130	100	2.4	14	0.85	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline	Gasoline & Non-Gasoline Mixture (>C10)	--

### Quality Control Data

Report Limit Multiplication Factor:	100	100	1.0	2.0	1.0	1.0
Date Analyzed:	9/3/93	9/3/93	9/7/93	9/7/93	9/7/93	9/13/93
Instrument Identification:	HP-5	HP-5	HP-4	HP-5	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	102	102	89	105	93	102

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



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S.P.C.I. 24125 Aldine Westfield Rd. Spring, TX 77373 Attention: Chris Byerman	Client Project ID: UPRR Oakland MF Yard Sample Matrix: Water Analysis Method: EPA 3510/3520/8015 First Sample #: 308-1050	Sampled: Aug 25, 1993 Received: Aug 26, 1993 Reported: Sep 9, 1993
--	--	--

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 308-1050 OKUS-W3	Sample I.D. 308-1051 OKUS-W2	Sample I.D. 308-1052 OKUS-W1	Sample I.D. 308-1053 OKUS-W7	Sample I.D. 308-1054 OKUS-W6
Extractable Hydrocarbons	50	2,700	6,500	100	930	590
Chromatogram Pattern:		Diesel & Non-Diesel Mixture (<C14; >C20)	Diesel & Non-Diesel Mixture (<C14)	Diesel & Non-Diesel Mixture (>C20)	Diesel & Non-Diesel Mixture (>C20)	Diesel & Non-Diesel Mixture (>C20)

### Quality Control Data

Report Limit Multiplication Factor:	1.0	10	1.0	1.0	1.0
Date Extracted:	8/30/93	8/30/93	8/30/93	8/30/93	8/30/93
Date Analyzed:	8/31/93	9/1/93	8/31/93	8/31/93	8/31/93
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL



Karen L. Enstrom  
Project Manager





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J.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Matrix: Water  
Analysis Method: EPA 3510/3520/8015  
First Sample #: 308-1162

Sampled: 8/26-8/27/93  
Received: Aug 27, 1993  
Reported: Sep 9, 1993

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 308-1162 OKUS-W4	Sample I.D. 308-1163 OKUS-W9	Sample I.D. 308-1164 APL/UP-W2	Sample I.D. 308-1165 APL/UP-W1	Sample I.D. 308-1166 OKUS-W8
Extractable Hydrocarbons	50	2,200	2,700	240	810	1,100
Chromatogram Pattern:		Diesel & Non-Diesel Mixture (<C14; >C20)	Diesel & Non-Diesel Mixture (<C14; >C20)	Diesel & Non-Diesel Mixture (<C14; >C20)	Diesel & Non-Diesel Mixture (<C14; >C20)	Diesel & Non-Diesel Mixture (>C20)

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/30/93	8/30/93	8/30/93	8/30/93	8/30/93
Date Analyzed:	9/1/93	9/1/93	9/1/93	9/1/93	9/1/93
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.  
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



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U.S.P.C.I.  
4125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix Descript: Water  
Analysis Method: EPA 418.1 (I.R. with clean-up)  
First Sample #: 308-1050

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Extracted: Aug 30, 1993  
Analyzed: Aug 31, 1993  
Reported: Sep 9, 1993

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample Number	Sample Description	Petroleum Oil mg/L (ppm)
308-1050	OKUS-W3	1.5
308-1051	OKUS-W2	5.8
308-1052	OKUS-W1	N.D.
308-1053	OKUS-W7	N.D.
308-1054	OKUS-W6	N.D.

Detection Limits:

1.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

3081050.UUU <10>



# SEQUOIA ANALYTICAL

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U.S.P.C.I.  
125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix Descript: Water  
Analysis Method: EPA 418.1 (I.R. with clean-up)  
First Sample #: 308-1162

Sampled: 8/26 & 8/27/93  
Received: Aug 27, 1993  
Extracted: Aug 30, 1993  
Analyzed: Aug 31, 1993  
Reported: Sep 9, 1993

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS

Sample Number	Sample Description	Petroleum Oil mg/L (ppm)
308-1162	OKUS-W4	N.D.
308-1163	OKUS-W9	N.D.
308-1164	APL/UP-W2	N.D.
308-1165	APL/UP-W1	N.D.
308-1166	OKUS-W8	N.D.

Detection Limits:

1.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
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Project Manager

3081162.UUU <10>



# SEQUOIA ANALYTICAL

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U.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water  
Analysis for: Dissolved Arsenic  
First Sample #: 308-1050

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Extracted: Aug 26, 1993  
Analyzed: Sep 8, 1993  
Reported: Sep 9, 1993

## LABORATORY ANALYSIS FOR: Dissolved Arsenic

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
308-1050	OKUS-W3	0.0050	0.089
308-1051	OKUS-W2	0.0050	0.080
308-1052	OKUS-W1	0.0050	N.D.
308-1053	OKUS-W7	0.0050	N.D.
308-1054	OKUS-W6	0.0050	0.013

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



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U.S.P.C.I.  
4125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water  
Analysis for: Dissolved Arsenic  
First Sample #: 308-1162

Sampled: 8/26 & 8/27/93  
Received: Aug 27, 1993  
Extracted: Sep 7, 1993  
Analyzed: Sep 8, 1993  
Reported: Sep 9, 1993

## LABORATORY ANALYSIS FOR: Dissolved Arsenic

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
308-1162	OKUS-W4	0.0050	0.098
308-1163	OKUS-W9	0.0050	0.10
308-1164	APL/UP-W2	0.0050	0.023
308-1165	APL/UP-W1	0.0050	0.013
308-1166	OKUS-W8	0.0050	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
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3081162.UUU <8>



# SEQUOIA ANALYTICAL

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U.S.P.C.I.  
4125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water  
Analysis for: Dissolved Lead  
First Sample #: 308-1050

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Extracted: Aug 26, 1993  
Analyzed: Sep 3, 1993  
Reported: Sep 9, 1993

## LABORATORY ANALYSIS FOR: Dissolved Lead

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
308-1050	OKUS-W3	0.0050	N.D.
308-1051	OKUS-W2	0.0050	N.D.
308-1052	OKUS-W1	0.0050	N.D.
308-1053	OKUS-W7	0.0050	N.D.
308-1054	OKUS-W6	0.0050	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager

3081050.UUU <9>



# SEQUOIA ANALYTICAL

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U.S.P.C.I.  
4125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water  
Analysis for: Dissolved Lead  
First Sample #: 308-1162

Sampled: 8/26 & 8/27/93  
Received: Aug 27, 1993  
Extracted: Sep 7, 1993  
Analyzed: Sep 9, 1993  
Reported: Sep 9, 1993

## LABORATORY ANALYSIS FOR: Dissolved Lead

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
308-1162	OKUS-W4	0.0050	N.D.
308-1163	OKUS-W9	0.0050	N.D.
308-1164	APL/UP-W2	0.0050	N.D.
308-1165	APL/UP-W1	0.0050	N.D.
308-1166	OKUS-W8	0.0050	0.0053

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

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S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W1  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1052

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Analyzed: Aug 30, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager





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S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W2  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1051

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Analyzed: Aug 27, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	2.5	N.D.
Bromoform.....	2.5	N.D.
Bromomethane.....	5.0	N.D.
Carbon tetrachloride.....	2.5	N.D.
<b>Chlorobenzene.....</b>	<b>2.5</b>	<b>78</b>
Chloroethane.....	5.0	N.D.
<b>2-Chloroethylvinyl ether.....</b>	<b>5.0</b>	<b>20</b>
Chloroform.....	2.5	N.D.
Chloromethane.....	5.0	N.D.
<b>Dibromochloromethane.....</b>	<b>2.5</b>	<b>18</b>
1,3-Dichlorobenzene.....	2.5	N.D.
1,4-Dichlorobenzene.....	2.5	N.D.
1,2-Dichlorobenzene.....	2.5	N.D.
1,1-Dichloroethane.....	2.5	N.D.
1,2-Dichloroethane.....	2.5	N.D.
<b>1,1-Dichloroethene.....</b>	<b>2.5</b>	<b>21</b>
cis-1,2-Dichloroethene.....	2.5	N.D.
trans-1,2-Dichloroethene.....	2.5	N.D.
1,2-Dichloropropane.....	2.5	N.D.
<b>cis-1,3-Dichloropropene.....</b>	<b>2.5</b>	<b>10</b>
trans-1,3-Dichloropropene.....	2.5	N.D.
Methylene chloride.....	25	N.D.
<b>1,1,2,2-Tetrachloroethane.....</b>	<b>2.5</b>	<b>20</b>
Tetrachloroethene.....	2.5	N.D.
1,1,1-Trichloroethane.....	2.5	N.D.
1,1,2-Trichloroethane.....	2.5	N.D.
Trichloroethene.....	2.5	N.D.
Trichlorofluoromethane.....	2.5	N.D.
Vinyl chloride.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

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S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W3  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1050

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Analyzed: Aug 27, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	2.5	N.D.
Bromoform.....	2.5	N.D.
Bromomethane.....	5.0	N.D.
Carbon tetrachloride.....	2.5	N.D.
<b>Chlorobenzene.....</b>	<b>2.5</b>	<b>22</b>
Chloroethane.....	5.0	N.D.
<b>2-Chloroethyl/vinyl ether.....</b>	<b>5.0</b>	<b>5.4</b>
Chloroform.....	2.5	N.D.
Chloromethane.....	5.0	N.D.
<b>Dibromochloromethane.....</b>	<b>2.5</b>	<b>3.0</b>
1,3-Dichlorobenzene.....	2.5	N.D.
1,4-Dichlorobenzene.....	2.5	N.D.
1,2-Dichlorobenzene.....	2.5	N.D.
1,1-Dichloroethane.....	2.5	N.D.
1,2-Dichloroethane.....	2.5	N.D.
<b>1,1-Dichloroethene.....</b>	<b>2.5</b>	<b>3.2</b>
cis-1,2-Dichloroethene.....	2.5	N.D.
trans-1,2-Dichloroethene.....	2.5	N.D.
1,2-Dichloropropane.....	2.5	N.D.
<b>cis-1,3-Dichloropropene.....</b>	<b>2.5</b>	<b>3.3</b>
trans-1,3-Dichloropropene.....	2.5	N.D.
Methylene chloride.....	25	N.D.
<b>1,1,2,2-Tetrachloroethane.....</b>	<b>2.5</b>	<b>10</b>
Tetrachloroethene.....	2.5	N.D.
1,1,1-Trichloroethane.....	2.5	N.D.
1,1,2-Trichloroethane.....	2.5	N.D.
Trichloroethene.....	2.5	N.D.
Trichlorofluoromethane.....	2.5	N.D.
Vinyl chloride.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

*Karen Enstrom*  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

J.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W4  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1162

Sampled: Aug 26, 1993  
Received: Aug 27, 1993  
Analyzed: Aug 30, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
<b>Chlorobenzene.....</b>	<b>5.0</b>	<b>30</b>
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
<b>1,1,2,2-Tetrachloroethane.....</b>	<b>5.0</b>	<b>16</b>
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

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S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W6  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1054

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Analyzed: Aug 30, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



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U.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W7  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1053

Sampled: Aug 25, 1993  
Received: Aug 26, 1993  
Analyzed: Aug 30, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



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U.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W8  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1166

Sampled: Aug 27, 1993  
Received: Aug 27, 1993  
Analyzed: Sep 2, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

  
Karen L. Enstrom  
Project Manager



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J.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, OKUS-W9  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1163

Sampled: Aug 26, 1993  
Received: Aug 27, 1993  
Analyzed: Sep 1, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	5.0	N.D.
Bromoform.....	5.0	N.D.
Bromomethane.....	10	N.D.
Carbon tetrachloride.....	5.0	N.D.
<b>Chlorobenzene.....</b>	<b>5.0</b>	<b>22</b>
Chloroethane.....	10	N.D.
2-Chloroethylvinyl ether.....	10	N.D.
Chloroform.....	5.0	N.D.
Chloromethane.....	10	N.D.
Dibromochloromethane.....	5.0	N.D.
1,3-Dichlorobenzene.....	5.0	N.D.
1,4-Dichlorobenzene.....	5.0	N.D.
1,2-Dichlorobenzene.....	5.0	N.D.
1,1-Dichloroethane.....	5.0	N.D.
1,2-Dichloroethane.....	5.0	N.D.
1,1-Dichloroethene.....	5.0	N.D.
cis-1,2-Dichloroethene.....	5.0	N.D.
trans-1,2-Dichloroethene.....	5.0	N.D.
1,2-Dichloropropane.....	5.0	N.D.
cis-1,3-Dichloropropene.....	5.0	N.D.
trans-1,3-Dichloropropene.....	5.0	N.D.
Methylene chloride.....	50	N.D.
<b>1,1,2,2-Tetrachloroethane.....</b>	<b>5.0</b>	<b>15</b>
Tetrachloroethene.....	5.0	N.D.
1,1,1-Trichloroethane.....	5.0	N.D.
1,1,2-Trichloroethane.....	5.0	N.D.
Trichloroethene.....	5.0	N.D.
Trichlorofluoromethane.....	5.0	N.D.
Vinyl chloride.....	10	N.D.

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



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U.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Sample Descript: Water, APL/UP-W1  
Analysis Method: EPA 5030/8010  
Lab Number: 308-1165

Sampled: Aug 26, 1993  
Received: Aug 27, 1993  
Analyzed: Sep 2, 1993  
Reported: Sep 9, 1993

## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
<b>Chlorobenzene.....</b>	<b>0.50</b>	<b>0.75</b>
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
<b>1,1-Dichloroethane.....</b>	<b>0.50</b>	<b>0.69</b>
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
<b>cis-1,2-Dichloroethene.....</b>	<b>0.50</b>	<b>0.60</b>
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
<b>1,1,2,2-Tetrachloroethane.....</b>	<b>0.50</b>	<b>2.2</b>
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager





# SEQUOIA ANALYTICAL

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S.P.C.I. 24125 Aldine Westfield Rd. Spring, TX 77373 Attention: Chris Byerman	Client Project ID: UPRR Oakland MF Yard Sample Descript: Water, APL/UP-W2 Analysis Method: EPA 5030/8010 Lab Number: 308-1164	Sampled: Aug 26, 1993 Received: Aug 27, 1993 Analyzed: Sep 2, 1993 Reported: Sep 9, 1993
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## HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane.....	0.50	N.D.
Bromoform.....	0.50	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	0.50	N.D.
Chlorobenzene.....	0.50	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	0.50	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	0.50	N.D.
1,3-Dichlorobenzene.....	0.50	N.D.
1,4-Dichlorobenzene.....	0.50	N.D.
1,2-Dichlorobenzene.....	0.50	N.D.
1,1-Dichloroethane.....	0.50	N.D.
1,2-Dichloroethane.....	0.50	N.D.
1,1-Dichloroethene.....	0.50	N.D.
cis-1,2-Dichloroethene.....	0.50	N.D.
trans-1,2-Dichloroethene.....	0.50	N.D.
1,2-Dichloropropane.....	0.50	N.D.
cis-1,3-Dichloropropene.....	0.50	N.D.
trans-1,3-Dichloropropene.....	0.50	N.D.
Methylene chloride.....	5.0	N.D.
1,1,2,2-Tetrachloroethane.....	0.50	N.D.
Tetrachloroethene.....	0.50	N.D.
1,1,1-Trichloroethane.....	0.50	N.D.
1,1,2-Trichloroethane.....	0.50	N.D.
Trichloroethene.....	0.50	N.D.
Trichlorofluoromethane.....	0.50	N.D.
Vinyl chloride.....	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL



Karen L. Enstrom  
Project Manager



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J.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix: Water

QC Sample Group: 3081162-1167

Reported: Sep 9, 1993

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel	Oil & Grease
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	EPA 418.1
<b>Analyst:</b>	J.F.	J.F.	J.F.	J.F.	K.Wimer	S.L.
<b>Conc. Spiked:</b>	20	20	20	60	300	5.0
<b>Units:</b>	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
<b>LCS Batch#:</b>	3LCS090393	3LCS090393	3LCS090393	3LCS090393	BLK083093	LCS083093
<b>Date Prepared:</b>	9/3/93	9/3/93	9/3/93	9/3/93	8/30/93	8/30/93
<b>Date Analyzed:</b>	9/3/93	9/3/93	9/3/93	9/3/93	9/1/93	8/31/93
<b>Instrument I.D.#:</b>	HP-5	HP-5	HP-5	HP-5	HP-3A	Miran IFF
<b>LCS % Recovery:</b>	114	107	100	98	84	90
<b>Control Limits:</b>	70-130	70-130	70-130	70-130	80-120	70-130

MS/MSD	Batch #:	3081190	3081190	3081190	3081190	BLK083093	BLK083093
<b>Date Prepared:</b>		9/3/93	9/3/93	9/3/93	9/3/93	8/30/93	8/30/93
<b>Date Analyzed:</b>		9/3/93	9/3/93	9/3/93	9/3/93	9/1/93	8/31/93
<b>Instrument I.D.#:</b>		HP-5	HP-5	HP-5	HP-5	HP-3A	Miran IFF
<b>Matrix Spike % Recovery:</b>		115	110	105	100	84	90
<b>Matrix Spike Duplicate % Recovery:</b>		110	105	105	100	82	102
<b>Relative % Difference:</b>		4.4	4.6	0.0	0.0	3.2	13

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**Please Note:**

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

  
Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

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U.S.P.C.I.  
4125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix: Water

QC Sample Group: 3081162-1166

Reported: Sep 9, 1993

## QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloroethene	Trichloroethene	Chloro-Benzene	Arsenic	Lead
Method:	EPA 8010	EPA 8010	EPA 8010	EPA 206.2	EPA 239.2
Analyst:	K.N.	K.N.	K.N.	K.A.	K.V.S.
Conc. Spiked:	10	10	10	0.10	0.10
Units:	µg/L	µg/L	µg/L	mg/L	mg/L
LCS Batch#:	LCS090193	LCS090193	LCS090193	BLK090793 MS-1	BLK090793-1
Date Prepared:	9/1/93	9/1/93	9/1/93	9/7/93	9/7/93
Date Analyzed:	9/1/93	9/1/93	9/1/93	9/8/93	9/9/93
Instrument I.D.#:	HP-5890/6	HP-5890/6	HP-5890/6	SpectrAA-400	SpectrAA-400
LCS % Recovery:	110	110	110	90	94
Control Limits:	70-130	70-130	70-130	75-125	75-125

MS/MSD	Batch #:	3081186	3081186	3081186	3081227	3081227
Date Prepared:	9/1/93	9/1/93	9/1/93	9/7/93	9/7/93	9/7/93
Date Analyzed:	9/1/93	9/1/93	9/1/93	9/8/93	9/9/93	9/9/93
Instrument I.D.#:	HP-5890/6	HP-5890/6	HP-5890/6	SpectrAA-400	SpectrAA-400	SpectrAA-400
Matrix Spike % Recovery:	99	100	100	65	86	
Matrix Spike Duplicate % Recovery:	100	100	100	73	78	
Relative % Difference:	1.0	0.0	0.0	12	9.8	

**Please Note:**  
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520  
(510) 686-9600 • FAX (510) 686-9689

U.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix: Water

QC Sample Goup: 3081162-1166

Reported: Sep 9, 1993

## QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloro-ethene	Trichloroethene	Chloro-Benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.	K.N.
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS090293	LCS090293	LCS090293
Date Prepared:	9/2/93	9/2/93	9/2/93
Date Analyzed:	9/2/93	9/2/93	9/2/93
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1
LCS % Recovery:	78	87	75
Control Limits:	70-130	70-130	70-130

MS/MSD	Batch #:	3081200	3081200	3081200
Date Prepared:	9/2/93	9/2/93	9/2/93	9/2/93
Date Analyzed:	9/2/93	9/2/93	9/2/93	9/2/93
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1	HP-5890/1
Matrix Spike % Recovery:	87	89	79	
Matrix Spike Duplicate % Recovery:	91	100	86	
Relative % Difference:	3.4	12	7.8	

**Please Note:**  
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SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



- 680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600 FAX (415) 364-9233
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- 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600 FAX (510) 686-9689

Company Name: <u>USPCI</u>			Project Name: <u>UPRR Oakland MF Yard</u>		
Address: <u>24125 Aldine Westfield Rd</u>			Billing Address (if different): <u>same</u>		
City: <u>Spring</u>	State: <u>TX</u>	Zip Code: <u>77373</u>			
Telephone: <u>(713) 350-7265</u>		FAX #:	P.O. #:		
Report To: <u>Chris Byerman</u>		Sampler: <u>Ara Mardirian</u>		QC Data: <input type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround  10 Working Days  3 Working Days  2 - 8 Hours  
 Time:  7 Working Days  2 Working Days  
 5 Working Days  24 Hours

Drinking Water  
 Waste Water  
 Other

**Analyses Requested**

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested										Comments		
						TPH-D	418.1	Disinfectants	Arsenic + Lead	BTEX	TPH-G	8010						
1. OKUS-W4	8-26-93 1528 hrs	Water	1	12 amber		✓											3081162	A-G
2. "	"	"	1	12 clear			✓											
3. "	"	"	1	12 Poly				✓										Filter in lab
4. "	"	"	1	VOA					✓									
5. "	"	"	1	VOA						✓								
6. "	"	"	2	VOA							✓							
7. OKUS-W9	8-26-93 1528 hrs	Water	1	12 amber		✓											3081163	A-G
8. "	"	"	1	12 clear			✓											
9. "	"	"	1	12 Poly				✓										Filter in lab
10. "	"	"	1	VOA					✓									

Relinquished By: <u>[Signature]</u>	Date: <u>8/27/93</u>	Time: <u>1045</u>	Received By: <u>Melissa Crowe</u>	Date: <u>8/27/93</u>	Time: <u>1045 A</u>
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: _____	Date: _____	Time: _____

Pink - Client  
Yellow - Sequoia  
White - Sequoia

Company Name: <b>USPCI</b>			Project Name: <b>UPRR Oakland MF Yard</b>		
Address: <b>24125 Aldine Westfield Rd</b>			Billing Address (if different): <b>Same</b>		
City: <b>Spring</b>	State: <b>TX</b>	Zip Code: <b>77373</b>			
Telephone: <b>(713) 350-7265</b>		FAX #: _____	P.O. #: _____		
Report To: <b>Chris Byerman</b>		Sampler: <b>Ara Mardirozian</b>	QC Data: <input type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D		

Turnaround  10 Working Days  3 Working Days  2 - 8 Hours  
 Time:  7 Working Days  2 Working Days  
 5 Working Days  24 Hours

Drinking Water  
 Waste Water  
 Other

**Analyses Requested**

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested							Comments				
						TPH-D	YS-1	Dissolved Asbestos Lead	BTEX	TPH-G	BOLO						
1. OKUS-W1	8-26-93 1538 hrs	Water	1	VOA													
2. "	"	"	2	VOA													
3. APL/UP-W2	8-26-93 1653 hrs	Water	1	1L amber													3081164 A-G
4. "	"	"	1	1L clear													
5. "	"	"	1	1L POLY													Filter in Lab
6. "	"	"	1	VOA													
7. "	"	"	1	VOA													
8. "	"	"	2	VOA													
9. APL/UP-W1	8-26-93 1742 hrs	Water	1	1L amber													3081165 A-G
10. "	"	"	1	1L clear													

Relinquished By: <i>[Signature]</i>	Date: <b>8/27/93</b>	Time: <b>1045</b>	Received By: <b>William Crews</b>	Date: <b>8/27/93</b>	Time: <b>1045A</b>
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: _____	Date: _____	Time: _____

Pink - Client  
Yellow - Sequoia  
White - Sequoia



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- 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600 FAX (510) 686-9689

Company Name: <b>USPCI</b>			Project Name: <b>UPRR Oakland MF Yard</b>		
Address: <b>24125 Aldine Westfield Rd.</b>			Billing Address (if different): <b>Same</b>		
City: <b>Spring</b>	State: <b>TX</b>	Zip Code: <b>77373</b>			
Telephone: <b>(713) 350-7265</b>		FAX #:	P.O. #:		
Report To: <b>Chris Byerman</b>		Sampler: <b>Ara Mardirosian</b>		QC Data: <input type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround  10 Working Days  3 Working Days  2 - 8 Hours  
 Time:  7 Working Days  2 Working Days  
 5 Working Days  24 Hours

Drinking Water  
 Waste Water  
 Other

**Analyses Requested**

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested							Comments	
						TPH-D	H18-1	Dissolved arsenic+lead	BTEX	TPH-6	PO10			
1. APL/wp-w1	8-26-93 1742hrs	Water	1	12 Poly				✓						Filter in lab
2. "	"	"	1	VOA					✓					
3. "	"	"	1	VOA					✓					
4. "	"	"	2	VOA						✓				
5. OKUS-W8	8-27-93 0843hrs	Water	1	12 amber		✓								3081165 A-G
6. "	"	"	1	12 clear		✓								
7. "	"	"	1	12 Poly				✓						Filter in lab
8. "	"	"	1	VOA					✓					
9. "	"	"	1	VOA						✓				
10. "	"	"	2	VOA							✓			3081167 (ML)

Relinquished By: <i>[Signature]</i>	Date: <b>8/27/93</b>	Time: <b>1045</b>	Received By: <i>[Signature]</i>	Date: <b>8/27/93</b>	Time: <b>1045 A</b>
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____
Relinquished By: _____	Date: _____	Time: _____	Received By Lab: _____	Date: _____	Time: _____

Pink - Client  
Yellow - Sequoia  
White - Sequoia



# SEQUOIA ANALYTICAL

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S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix: Water

QC Sample Group: 3081050-1055

Reported: Sep 9, 1993

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Diesel	Oil & Grease
<b>Method:</b>	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	EPA 418.1
<b>Analyst:</b>	J.F.	J.F.	J.F.	J.F.	K.Wimer	S.L.
<b>Conc. Spiked:</b>	20	20	20	60	300	5.0
<b>Units:</b>	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
<b>LCS Batch#:</b>	2LCS080193	2LCS080193	2LCS080193	2LCS080193	BLK083093	LCS083091
<b>Date Prepared:</b>	9/1/93	9/1/93	9/1/93	9/1/93	8/30/93	8/30/93
<b>Date Analyzed:</b>	9/1/93	9/1/93	9/1/93	9/1/93	9/1/93	8/31/93
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2	HP-3A	Miran IFF
<b>LCS % Recovery:</b>	99	96	95	97	84	90
<b>Control Limits:</b>	70-130	70-130	70-130	70-130	80-120	70-130

MS/MSD	Batch #:	3081287	3081287	3081287	3081287	BLK083093	BLK083093
<b>Date Prepared:</b>	9/1/93	9/1/93	9/1/93	9/1/93	9/1/93	8/30/93	8/30/93
<b>Date Analyzed:</b>	9/1/93	9/1/93	9/1/93	9/1/93	9/1/93	9/1/93	8/31/93
<b>Instrument I.D.#:</b>	HP-2	HP-2	HP-2	HP-2	HP-2	HP-3A	Miran IFF
<b>Matrix Spike % Recovery:</b>	105	100	100	103	84	84	90
<b>Matrix Spike Duplicate % Recovery:</b>	105	100	100	103	82	82	102
<b>Relative % Difference:</b>	0.0	0.0	0.0	0.0	3.2	3.2	13

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager

**Please Note:**

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# SEQUOIA ANALYTICAL

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J.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix: Water

QC Sample Group: 3081050-154

Reported: Sep 9, 1993

## QUALITY CONTROL DATA REPORT

### ANALYTE

Arsenic

Lead

Method: EPA 206.2

EPA 239.2

Analyst: K.A.

K.V.S.

Conc. Spiked: 0.10

0.10

Units: mg/L

mg/L

LCS Batch#: BLK082693MS-1

BLK082693MS-1

Date Prepared: 8/26/93

8/26/93

Date Analyzed: 9/8/93

9/8/93

Instrument I.D.#: SpectrAA-400

SpectrAA-400

LCS %

Recovery: 85

92

Control Limits: 75-125

75-125

MS/MSD

Batch #: 3080707

3080707

Date Prepared: 8/26/93

8/26/93

Date Analyzed: 9/8/93

9/8/93

Instrument I.D.#: SpectrAA-400

SpectrAA-400

Matrix Spike

% Recovery: 69

86

Matrix Spike

Duplicate %

Recovery: 76

91

Relative %

Difference: 9.7

5.7

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager

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J.S.P.C.I.  
24125 Aldine Westfield Rd.  
Spring, TX 77373  
Attention: Chris Byerman

Client Project ID: UPRR Oakland MF Yard  
Matrix: Water

QC Sample Goup: 3081050-154

Reported: Sep 9, 1993

## QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloro- ethene	Trichloroethene	Chloro- Benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.	K.N.
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS082793	LCS082793	LCS082793
Date Prepared:	8/27/93	8/27/93	8/27/93
Date Analyzed:	8/27/93	8/27/93	8/27/93
Instrument I.D.#:	HP-5890/6	HP-5890/6	HP-5890/6
LCS % Recovery:	100	110	100
Control Limits:	70-130	70-130	70-130

MS/MSD Batch #:	3081052	3081052	3081052
Date Prepared:	8/27/93	8/27/93	8/27/93
Date Analyzed:	8/27/93	8/27/93	8/27/93
Instrument I.D.#:	HP-5890/6	HP-5890/6	HP-5890/6
Matrix Spike % Recovery:	84	100	100
Matrix Spike Duplicate % Recovery:	100	110	110
Relative % Difference:	17	9.5	9.5

**Please Note:**

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SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



# SEQUOIA ANALYTICAL

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(510) 686-9600 • FAX (510) 686-9689

S.P.C.I. 24125 Aldine Westfield Rd. Spring, TX 77373 Attention: Chris Byerman	Client Project ID: UPRR Oakland MF Yard Matrix: Water	QC Sample Goup: 3081050-154	Reported: Sep 9, 1993
--	--	-----------------------------	-----------------------

## QUALITY CONTROL DATA REPORT

ANALYTE:	1,1-Dichloro-ethene	Trichloroethene	Chloro-Benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.	K.N.
Conc. Spiked:	10	10	10
Units:	µg/L	µg/L	µg/L
LCS Batch#:	LCS083093	LCS083093	LCS083093
Date Prepared:	8/30/93	8/30/93	8/30/93
Date Analyzed:	8/30/93	8/30/93	8/30/93
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1
LCS % Recovery:	88	89	77
Control Limits:	70-130	70-130	70-130

MS/MSD	Batch #:	3081065	3081065	3081065
Date Prepared:	8/30/93	8/30/93	8/30/93	8/30/93
Date Analyzed:	8/30/93	8/30/93	8/30/93	8/30/93
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1	HP-5890/1
Matrix Spike % Recovery:	100	88	75	
Matrix Spike Duplicate % Recovery:	94	93	79	
Relative % Difference:	6.2	5.5	5.2	

**Please Note:**

The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

SEQUOIA ANALYTICAL

Karen L. Enstrom  
Project Manager



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- 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600 FAX (510) 686-9689

Company Name: <u>USPCI</u>			Project Name: <u>UPRR Oakland MF Yard</u>		
Address: <u>24125 Aldine Westfield Rd.</u>			Billing Address (if different): <u>Same</u>		
City: <u>Spring</u>	State: <u>TX</u>	Zip Code: <u>77373</u>			
Telephone: <u>(713) 350-7265</u>		FAX #:	P.O. #:		
Report To: <u>Chris Byerman</u>		Sampler: <u>Ara Mardirosian</u>		QC Data: <input type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	

Turnaround  10 Working Days  3 Working Days  2 - 8 Hours  
 Time:  7 Working Days  2 Working Days  
 5 Working Days  24 Hours

Analyses Requested  
 Drinking Water  
 Waste Water  
 Other

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested							Comments	
						TPH-D	418.1	Dissolved Arsenic + Lead	BTEX	TPH-6	SO10			
1. OKUS-W3	8-25-93 1134 hrs	Water	1	1L amber		✓								3081050 A-G
2. "	"	"	1	1L clear			✓							
3. "	"	"	1	1L Poly				✓						Filtered in Field
4. "	"	"	1	VOA					✓					
5. "	"	"	1	VOA						✓				
6. "	"	"	2	VOA							✓			
7. OKUS-W2	8-25-93 1345 hrs	"	1	1L amber		✓								3081051 A-G
8. "	"	"	1	1L clear			✓							
9. "	"	"	1	1L Poly				✓						Filtered in Field
10. "	"	"	1	VOA					✓					

Relinquished By: <u>[Signature]</u>	Date: <u>8/26/93</u>	Time: <u>8:20 AM</u>	Received By: <u>[Signature]</u>	Date: <u>8/26/93</u>	Time: <u>3:20 PM</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Pink - Client  
Yellow - Sequoia  
White - Sequoia



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 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600 FAX (510) 686-9689

Company Name: <u>USPCI</u>			Project Name: <u>UPRR Oakland MF Yard</u>		
Address: <u>24125 Aldine Westfield Rd.</u>			Billing Address (if different): <u>Same</u>		
City: <u>Spring</u>	State: <u>TX</u>	Zip Code: <u>71313</u>			
Telephone: <u>(713) 350-7265</u>		FAX #:	P.O. #:		
Report To: <u>Chris Byerman</u>		Sampler: <u>Ara Mardirosian</u>	QC Data: <input type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D		

Turnaround  10 Working Days  3 Working Days  2 - 8 Hours  
 Time:  7 Working Days  2 Working Days  
 5 Working Days  24 Hours

Drinking Water  
 Waste Water  
 Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested								Comments	
						TPH-D	418-1	Disolved Arsenic & Lead	BTEX	TPH-G	8010				
1. OKUS-W2	8-25-93 1345 hrs	Water	1	VOA	<del>XXXX</del>					✓					
2. "	"	"	2	VOA							✓				
3. OKUS-W1	8-25-93 1452 hrs	"	1	1 l amber		✓								3081052 A-G	
4. "	"	"	1	1 l clear			✓								
5. "	"	"	1	1 l Poly				✓						Filtered in Field	
6. "	"	"	1	VOA					✓						
7. "	"	"	1	VOA					✓						
8. "	"	"	2	VOA						✓					
9. OKUS-W7	8-25-93 1604 hrs	"	1	1 l amber		✓								3081053 A-G	
10. "	"	"	1	1 l clear			✓								

Relinquished By: <u>[Signature]</u>	Date: <u>8/26/93</u>	Time: <u>8:20 AM</u>	Received By: <u>[Signature]</u>	Date: <u>8/26/93</u>	Time: <u>8:20 AM</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Pink - Client  
 Yellow - Sequoia  
 White - Sequoia



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Company Name: <u>USPCI</u>			Project Name: <u>UPRR Oakland MF Yard</u>		
Address: <u>24125 Aldine Westfield Rd.</u>			Billing Address (if different): <u>Same</u>		
City: <u>Spring</u>	State: <u>TX</u>	Zip Code: <u>77373</u>	P.O. #:		
Telephone: <u>(713) 350-7265</u>		FAX #: <u>713-350-7246</u>		QC Data: <input type="checkbox"/> Level A (Standard) <input type="checkbox"/> Level B <input type="checkbox"/> Level C <input type="checkbox"/> Level D	
Report To: <u>Chris Byerman</u>		Sampler: <u>Ara Mardirosian</u>			

Turnaround  10 Working Days  3 Working Days  2 - 8 Hours  
 Time:  7 Working Days  2 Working Days  
 5 Working Days  24 Hours

Drinking Water  
 Waste Water  
 Other

**Analyses Requested**

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested							Comments	
						TPH-P	H18-1	Dissolved Arsenic/Lead	BTEX	TPH-G	SOLO			
1. OKUS-W7	8-25-93 1604 hrs	water	1	12 poly			✓							Filtered in Field
2. "	"	"	1	voc				✓						
3. "	"	"	1	voc					✓					
4. "	"	"	2	voc						✓				
5. OKUS-W6	8-25-93 1707 hrs	"	1	12 amber		✓								3081054 A-G
6. "	"	"	1	12 clear		✓								
7. "	"	"	1	12 poly			✓							Filtered in Field
8. "	"	"	1	voc				✓						
9. "	"	"	1	voc					✓					
10. "	"	"	2	voc						✓				3081055

Relinquished By: <u>[Signature]</u>	Date: <u>8/26/93</u>	Time: <u>8:25 am</u>	Received By: <u>[Signature]</u>	Date: <u>8/26/93</u>	Time: <u>8:20 A</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date:	Time:

Pink - Client  
 Yellow - Sequoia  
 White - Sequoia

**WASTE MANIFEST AND DISPOSAL INFORMATION  
FROM THE 1990 UST REMOVALS**

**UNIFORM HAZARDOUS WASTE MANIFEST**

Generator's US EPA ID No. **CIA L 0 0 0 0 0 2 9 5 0 0** Manifest Document No. **6 1 9 1 6 0 1 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**

A. State Manifest Document Number  
**8 9 8 6 9 6 0 6**

4. Generator's Phone ( **402 271-4054** )

B. State Generator's ID  
**CIA L 0 0 0 0 0 2 9 5 0 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  
**0 0 1 7 1 6**

7. Transporter 2 Company Name  
**Southern Pacific Railroad**

8. US EPA ID Number  
**CIA D 0 0 6 9 1 1 3 2 0 6**

D. Transporter's Phone **(405) (801) 252-2000**

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 1 3 0 1 1 7 4 8**

E. State Transporter's ID  
**0 0 1 7 1 6**

F. Transporter's Phone **(415) 534-1495**

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		13. Total Quantity	14. Unit Wt/Vol	1. Waste No.
	No.	Type			
a. <b>California Regulated Waste Only (fiberglass fuel tanks, soil &amp; fuel island debris)</b>	<b>0 0 1</b>	<b>C M</b>	<b>0 0 0 2 1</b>	<b>Y</b>	State <b>611</b> EPA/Other
b.					State EPA/Other
c.					State EPA/Other
d.					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 **13 15 1990**

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name **Jim Brooks** Signature *Jim Brooks* Month Day Year **03 05 1990**

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 \_\_\_\_\_

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8602; WITHIN CALIFORNIA CALL 1-800-852-7550  
 GENERATOR  
 TRANSPORTER  
 FACILITY



**UNIFORM HAZARDOUS WASTE MANIFEST**  
(Continuation Sheet)

1. Generator's US EPA ID No.

Manifest Document No.

22. Page

2 of 2

Information in the shaded areas is not required by Federal law.

CAL0000295006966

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

24. Transporter Company Name  
U S Pollution Control, Inc.

25. US EPA ID Number  
UTD98063589

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 Type

30. Total Quantity

31. Unit Wt/Val

R. Waste No.

a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

5. 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

35. Discrepancy Indication Space

GENERATOR

TRANSPORTER FACILITY



**U.S. POLLUTION CONTROL, INC.**

SUITE 400 SOUTH  
2000 CLASSEN CENTER  
OKLAHOMA CITY, OKLA. 73108

PHONE: OKLA. CITY - (405) 528-6371  
TULSA - (918) 448-2788

LOAD TICKET

PERMIT NUMBER  
OCC: MC-27481 & DS 67  
OSDH: SD 47002, 2 2004  
EPA ID: OKT 41001L  
OKT 410010468  
ICC: MC 153414

No. 58396

DATE <b>3-5-90</b>
-----------------------

**OFFICE USE ONLY**

CUSTOMER <b>Union Pacific Railroad</b>	DISPOSAL PLAN NO.
---	-------------------

CUSTOMER NO.
--------------

SHIP FROM <b>1750 FERRO ST. OAKLAND, CA</b>	ADDRESS <b>1750 FERRO ST. OAKLAND, CA</b>	CITY AND STATE <b>OAKLAND, CA</b>	ZIP CODE <b>94706</b>
--	--	--------------------------------------	--------------------------

P.O. NO.
----------

BILL TO <b>731-M N. MARKET ST. SACRAMENTO, CA</b>	ADDRESS <b>731-M N. MARKET ST. SACRAMENTO, CA</b>	CITY AND STATE <b>SACRAMENTO, CA</b>	ZIP CODE <b>95834</b>
<input type="checkbox"/> Same As Above	ATTENTION <b>SPECIAL SERVICES 9/2</b>		

CHARGES
---------

MANIFEST NO. <b>89869607</b>	DISPOSAL SITE <b>GRASSY MTN. ULT.</b>	UNIT NO. <b>180-714</b>	USPCI DRIVER <b>Jim Brooks</b>
AMOUNT <b>21</b>	<input checked="" type="checkbox"/> Yds <sup>3</sup> <input type="checkbox"/> Bbls.	<input checked="" type="checkbox"/> Gals. <input type="checkbox"/> Lbs.	TIME START <b>2:00</b>
			FINISH <b>2:30</b>
			TOTAL TIME <b>1/2 Hrs.</b>
			DEMURRAGE TIME <b>0 Hrs.</b>

DESCRIPTION
-------------

Waste Code No. **California Regulated Waste only**

DISBURSEMENT
--------------

Waste Code No. **FIBERGLASS FUEL TANKS, SOIL FUEL ISLAND debris**

**ONT # To Go By RAIL**  
**Job # 94608**  
**W.M. # 89-1972-89**

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 *Eric J. Samba*  
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER - NOT AN INVOICE

Please print or type: (Form designed for use on slide (1) typewriter).

PROJECT # 54603

**UNIFORM HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. **QA L Q Q Q Q 2 9 5 0 1 0**  
Manifest Document No. **89 1 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

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**

7. Transporter 2 Company Name  
**Southern Pacific Railroad**

8. US EPA ID Number  
**Q A D Q Q 6 9 1 3 2 0 6**

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**

A. State Manifest Document Number  
**89869607**

B. State Generator's ID  
**Q A L Q Q Q Q 2 9 5 0 1 0**

C. State Transporter's ID  
**000839**

D. Transporter's Phone (801) 252-2000

E. State Transporter's ID  
**000839**

F. Transporter's Phone (415) 534-1495

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.	13. Total Quantity	14. Unit Wt/Vol	1. Waste No.	
				State	EPA/Other
a. California Regulated Waste Only (fiberglass fuel tank, soil & fuel island debris)	Q Q	IC M	0 10 10 12 11	Y	611
b.					
c.					
d.					

Cont. # 6067 / 458396

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: **13 13 1990**

17. Transporter 1 Acknowledgement of Receipt of Materials  
Printed/Typed Name: **Jim Brooks** Signature: *Jim Brooks* Month Day Year: **03 05 1990**

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:

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550  
 GENERATOR  
 TRANSPORTER  
 FACILITY

**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 6 9 6 0 7

Manifest Document No.

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. 68719  
(402) 271-4054

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

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

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		30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
		No	Type			
a.						
b.						
c.						
d.						
e.						
f.						
g.						
h.						
i.						

31. 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

35. Emergency Indication Space

GENERATOR

TRANSPORTER



**U.S. POLLUTION CONTROL, INC.**

SUITE 400 SOUTH  
2000 CLASSEN CENTER  
OKLAHOMA CITY, OKLA. 73108

PHONE: OKLA. CITY - (405) 528-8371  
TULSA - (918) 448-2788

AD TICKET

PERMIT NUMBERS  
OCC: MC-27491 & DSD  
OSDH: SD 47002, 2-...-004  
EPA ID: OKT 410018  
OKT 4100104ud  
ICC: MC 153414

No. 58395

**CUSTOMER** Union Pacific Railroad

**SHIP FROM**  
ADDRESS: 1416 Dodge 1750 FERRO ST.  
CITY AND STATE: OAKLAND, CA.

**BILL TO**  
ADDRESS: 1416 Dodge St.  
CITY AND STATE: OMAHA NE 68179

Same As Above

**ATTENTION** SPECIAL SERVICES % 731-M N. MARKET SACRAMENTO, CA. 95834

**MANIFEST NO.** 89869606

**DISPOSAL SITE** GRASSY MTN. UT

**UNIT NO.** 180-714

**USPCI DRIVER** Jim Brooks

AMOUNT	Yd <sup>3</sup>	Gals.	Lbs.	TIME-START	FINISH	TOTAL TIME	DEMURRAGE TIME
21	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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  
OMI # 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. Lumbach  
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER - NOT AN INVOICE

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-852-7550

**UNIFORM HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. **CAL000029500** Manifest Document No. **6916016**

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**

A. State Manifest Document Number  
**89869606**

4. Generator's Phone ( **402 271-4054** )

B. State Generator's ID  
**CAL0101010295010**

5. Transporter 1 Company Name  
**U S Pollution Control, Inc.**

C. State Transporter's ID  
**021716**

6. US EPA ID Number  
**UTD980635890**

D. Transporter's Phone  
**(405) (801) 252-2000**

7. Transporter 2 Company Name  
**Southern Pacific Railroad**

E. State Transporter's ID  
**021716**

8. US EPA ID Number  
**CAD00691132016**

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**

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.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.	
				State	EPA/Other
a. <b>California Regulated Waste Only (fiberglass fuel tanks, soil &amp; fuel island debris)</b>	<b>01</b>	<b>C/M 00021</b>	<b>Y</b>	<b>611</b>	
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above  
**A. GM# 89-1972-89**

K. Handling Codes for Wastes Listed Above

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: **13 15 91**

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name: **Jim Brooks** Signature: *Jim Brooks* Month Day Year: **10 30 91**

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: \_\_\_\_\_

**UNIFORM HAZARDOUS WASTE MANIFEST**  
(Continuation Sheet)

21. Generator's US EPA ID No.

Manifest Document No.

22. Page

Information in the shaded areas is not required by Federal law.

2 of 2

CAL0000295006966

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

24. Transporter Company Name

**U S Pollution Control, Inc.**

25. US EPA ID Number

UTD980635890

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)

29. Containers  
No Type

30. Total  
Quantity

31. Unit  
Wt/Vol

Waste No.

	HM		No	Type	Quantity	Unit Wt/Vol	Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

5. 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

35. Discrepancy Indication Space

GENERATOR

TRANSPORTER FACILITY



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 & D... 67  
OSDH: SD 47002, 2... 2004  
EPA ID: OKT 410016  
OKT 410010...  
ICC: MC 153414

No. 58396

AD TICKET

DATE  
**3-5-90**

OFFICE USE ONLY

DISPOSAL PLAN NO.

CUSTOMER NO.

CUSTOMER  
**Union Pacific Railroad**

P.O. NO.

CHARGES

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 1/2**

MANIFEST NO.

DISPOSAL SITE  
**89869607 GRASSY MTN. U.T.**

UNIT NO.  
**180-714**

USPCI DRIVER  
**Jim Brooks**

AMOUNT  
**21**

Yd<sup>3</sup>  
 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**  
**\* 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 *Eric J. Newbach*  
CUSTOMER REPRESENTATIVE



Please print or type (Form designed for use on elite or dot-matrix typewriter).

**UNIFORM HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. **QA400002951010** Manifest Document No. **891607**

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**

A. State Manifest Document Number  
**89869607**

4. Generator's Phone (402) 271-4054

B. State Generator's ID  
**CA 101010121951010**

5. Transporter 1 Company Name  
**U S Pollution Control, Inc.**

6. US EPA ID Number  
**UTD980635890**

C. State Transporter's ID  
**000839**

7. Transporter 2 Company Name  
**Southern Pacific Railroad**

8. US EPA ID Number  
**QA D 0 0 6 9 1 3 2 0 6**

D. Transporter's Phone (801) 252-2000  
 E. State Transporter's ID  
**00839**

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**

F. Transporter's Phone (415) 534-1495  
 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 15. Waste No.

a. California Regulated Waste Only  
 (fiberglass fuel tank, soil & fuel island debris)

State **611**  
 EPA/Other

b.

State  
 EPA/Other

c.

State  
 EPA/Other

d.

State  
 EPA/Other

Cont. # 6067 / 458396

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 **13 15 1990**

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name **Jim Brooks** Signature **Jim Brooks** Month Day Year **03 25 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

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8602; WITHIN CALIFORNIA CALL 1-800-852-7550

GENERATOR

TRANSPORTER

FACILITY

**UNIFORM HAZARDOUS WASTE MANIFEST**  
(Continuation Sheet)

21. Generator's US EPA ID No.

Manifest Document No.

22. Page  
2 of  
2

Information in the shaded areas is not required by Federal law.

C A L 0 . 0 . 0 . 0 . 2 . 9 . 5 . 0 . 0 | 6 9 . 6 . 0 . 7

23. Generator's Name  
**Union Pacific Railroad**  
1416 Dodge Street  
Omaha, NE. 68719  
(402) 271-4054

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

24. Transporter 3 Company Name

25. US EPA ID Number

U T D 9 . 8 . 0 . 6 . 3 . 5 . 8 . 9 . 0

**U S Pollution Control, Inc.**

27. US EPA ID Number

26. Transporter \_\_\_\_\_ Company Name

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)  
HM

29. Containers  
No Type

30. Total  
Quantity

31. Unit  
Wt/Vol

32. Waste No.

a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

T. Handling Codes for Wastes Listed Above

S. Additional Descriptions for Materials 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

35. Discrepancy Indication Space

GENERAL ORDER # 1



# USPCI

A Subsidiary of  
Union Pacific Corporation

Remedial Services

COPY

M E M O R A N D U M

DATE: March 15, 1991  
TO: Geri Harwig  
FROM: Joe Nicholson *JN*  
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.

*Standard 1990 Rates for YAI per Cust Bill.*

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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:

4U Aa H1--SESSION1 R 6 C 18 D 13:05 4/03/91

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				
QCHEM	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  
 EXT REQUEST: CODE:

4BU Aa H1--SESSION1 R 6 C 18 D 13:05 4/03/91

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:

CODE	DESCRIPTION	PRICE	UM	FROM	TO	UM	MARK UP %
				-----RANGE-----		RN	
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  
NEXT REQUEST:

PF10=NEW PAGE  
CODE:

PF11=CHANGE NEXT QUOTE

BÜ Aa H1--SESSION1 R 6 C 18 D 13:06 4/03/91

SPOLS 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:		PRICE		UM		-----RANGE-----		RN	MARK
CODE	DESCRIPTION			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:

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*Standard 1990 Rates for YH; 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				
DMPTRL	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				

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NEXT REQUEST: CODE:

PF11=CHANGE NEXT QUOTE

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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				
QCHEM	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  
NEXT REQUEST: CODE:

PF11=CHANGE NEXT QUOTE

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# LING INFORMATION SHEET #1

SERVICE FROM: January 15 TO March 5 ~~xxx~~ 1990

GENERATOR: Union Pacific Rail Road INVOICING: Union Pacific Rail Road

ADDRESS: 1750 Ferro Street ADDRESS: 1416 Dodge Street  
Oakland, CA 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:**

~~TRPRKC~~ / <sup>USPC</sup> 2 Gondola Boxes transported from Oakland to Grassy Mtn. 680 miles \$ 4,964.00

~~TRSET~~ / <sup>USPC</sup> 2 Gondola Boxes - drop off ~~xxxx~~ charges 732.00

~~BLKESP~~ / Disposal of 2-15 yd. boxes **DISPOS AT GRASSY MTN.** 2,400.00

~~PRJMR~~ / 1 PROJECT Manager 12 hrs. **PRJMR x 56.01 Hr** 672.12

~~PRJSRP~~ / 1 Project Supervisor 140 hrs. **PRJSRP x 48.39 Hr** 6,774.60

**TOTALS** 6,774.60

**DISPOSAL:**

~~TCHIII~~ / 2 Technician III's 168 hrs. **x 30.91 Hr** \$ 5,192.88

~~EQOPII~~ / 1 Equipment Operator 44 hrs. **x 46 PD** **EQOPII** <sup>20 59 20</sup> 2,027.50

~~KOM220~~ / 1 USPCI Trck Hoe 11 days <sup>170.00/DAY</sup> 1,870.00

~~BCKHOE~~ / 1 Back Hoe rented for 7 days **BCKHOE 431.00/DAY** 3,017.34

**TOTALS** \_\_\_\_\_

**PERSONNEL:**

~~EQUIP~~ / 1 Sheepsfoot Roller 2 days **34.49/DAY** \$ 1,069.68

~~PUBTRK~~ / 1 Utility Truck 15 days **CALIFORNIA REGION** **87.09/DAY** 1,319.85

~~MTRGT2~~ / 1 Gas Tech 1 day **MTRGT2** 65.00

~~XX SUPP~~ / Dry Ice 1020 lbs. **69¢ LB.** **SUPP** 703.80

~~CMSMPL~~ / 4 Soil Samples & 1 Water Sample TPH & BTEX **517.60 ea** ~~XXXXXX~~ 2,588.00

**XXXXXXXXXXXXXXXXXX**

~~DISPOS~~ / Disposal of 3 Truck Leads of Concrete **DISPOS** \$ 862.50

~~BATRAN~~ / Haul concrete for disposal 9.5 hrs. **65.22 Hr** 619.58

~~BKFILL~~ / 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

~~PDIEM~~ / Per Diem for Joe Nicholson 2 days **28.76/DAY** 57.52

**XXXXXXXXXXXXXXXXXX**

~~LOCG~~ / Lodging for L. Horton 3 days **57.51/DAY** \$ 172.53

~~PDIEM~~ / Per Diem for L. Horton 3 days **28.76/DAY** 86.28

~~BRTKAN~~ / Transportation for Track Hoe to and from yard ~~XXXXXX~~ 1,478.33

**OTHER:**

~~XXXXXX~~ / Nylon slings 2 ea. \$ 155.42

~~MISC-EX~~ / Samples flown Airborne to NAL 53.74

~~TOOLS~~ / Hand tools 11 days **7.07/DAY** 77.77

APPROVED BY: Alfred Brule' 3/11/91

**XXXXXX**  
PROJECT TOTAL \$39,641.89

# BILLING INFORMATION SHEET 1

SERVICE FROM January 15 TO March 5 ~~1990~~ 1990

GENERATOR: Union Pacific Rail Road INVOICING: Union Pacific Rail Road

ADDRESS: 1750 Ferro Street ADDRESS: 1416 Dodge Street  
Oakland, CA 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	\$ <u>4,964.00</u>
TRSET / 2 Gondola Boxes - drop off <del>EXCESS</del> charges	<u>732.00</u>
BLKDSP / Disposal of 2-15 yd. boxes	<u>2,400.00</u>
PRJMGR / 1 PROJECT Manager 12 hrs.	<u>672.12</u>
PRJSRP / 1 Project Supervisor 140 hrs.	<del>XXXXXX</del> <u>6,774.60</u>

~~DISPOSAL:~~

CHIII / 2 Technician III's 168 hrs.	\$ <u>5,192.88</u>
DOPII / 1 Equipment Operator 44 hrs.	<u>2,027.52</u>
OM220 / 1 USPCI Trck Hoe 11 days	<u>1,870.00</u>
ODE / 1 Back Hoe rented for 7 days & Hydra Hammer 3 days	<u>3,017.34</u>

~~PERSONNEL:~~

QUIP / 1 Sheepsfoot Roller 2 days	\$ <u>1,064.67</u>
UPTRK / 1 Utility Truck 15 days	<u>1,319.85</u>
TRG12 / 1 Gas Tech 1 day	<u>65.00</u>
IPP / Dry Ice 1020 lbs.	<u>703.80</u>
MSMPL / 4 Soil Samples & 1 Water Sample TPH & BTEX	<del>XXXXXX</del> <u>2,588.00</u>

~~EQUIPMENT SUPPLIES:~~

ISPOS / Disposal of 3 Truck Loads of Concrete	\$ <u>862.50</u>
ATRAN / Haul concrete for disposal 9.5 hrs.	<u>619.56</u>
KFILL / Back Fill & Transport 222.09 tons	<u>2,427.44</u>
EES / One fire permit	<u>138.00</u>
JCCG / Lodging for Joe Nicholson 2 days	<u>115.02</u>
DIEM / Per Diem for Joe Nicholson 2 days	<del>XXXXXX</del> <u>57.52</u>

~~LAB ANALYSIS:~~

JCCG / Lodging for L. Horton 3 days	\$ <u>172.53</u>
DIEM / Per Diem for L. Horton 3 days	<u>86.28</u>
BTRAN / Transportation for Track Hoe to and from yard	<del>XXXXXX</del> <u>1,478.33</u>

~~OTHER:~~

JPP / Nylon slings 2 ea.	\$ <u>155.42</u>
ISC.EX / Samples flown Airborne to NAL	<u>53.74</u>
TOOLS / Hand tools 11 days	<u>77.77</u>

~~TOTALS:~~

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 <i>USPS Firm</i> SDC - 1360 miles @ \$3.65/mile	4,964.00	
<del>TRSET</del> Drop Charges - 2 Gondolas	732.00	
<b>TOTAL</b>		<b>5,696.00</b>

**DISPOSAL:**

LOCATION: Grassy Mountain DATE 03/05/90  
 MANIFEST #(S): 898606-898607

DESCRIPTION	QUANTITY	PRICE	\$
<del>BLKSP</del> CLASS II DISPOSAL	30 cu. yd.	\$80.00/cu.yd.	2,400.00
<b>TOTAL</b>			<b>2,400.00</b>

LOCATION: \_\_\_\_\_ DATE \_\_\_\_\_  
 MANIFEST #(S): \_\_\_\_\_

DESCRIPTION	QUANTITY	PRICE	\$
<b>TOTAL</b>			

**SPECIAL SERVICES:**

SACRAMENTO REMEDIAL SERVICES 916120-03 576.27

	\$	
	31,545.89	
<b>TOTAL</b>		<b>31,545.89</b>

**HAZARDOUS WASTE TAX**

576.27  
**TOTAL** ~~31,545.89~~ **31,672.27**  
 PROJECT TOTAL **39,641.89**

Arthur Davis alman





**U.S. POLLUTION CONTROL, INC.**

SUITE 400 SOUTH  
2000 CLASSEN CENTER  
OKLAHOMA CITY, OKLA. 73108

PHONE: OKLA. CITY - (405) 528-8371  
TULSA - (918) 446-2786

PERMIT NUMBERS  
OCC: MC-27491 & DSD 167  
OSDH: SD 47002. 2004  
EPA ID: OKT 41001C  
OKT 410010a  
ICC: MC 153414

No. 58395

**LOAD TICKET**

DATE <b>3-5-90</b>		<b>OFFICE USE ONLY</b>	
CUSTOMER <b>Union Pacific Railroad</b>		CUSTOMER NO.	
ADDRESS <b>1416 Dodge 1750 FERRO ST.</b>		P.O. NO.	
SHIP FROM	CITY AND STATE <b>OAKLAND, CA.</b>	CHARGES	
ADDRESS <b>1416 Dodge St.</b>			
BILL TO	CITY AND STATE <b>Omaha Ne 68179</b>		
<input type="checkbox"/> Same As Above	ATTENTION <b>SPECIAL SERVICES 1/2 731-M N. MARKET Sacramento, CA. 95834</b>		
MANIFEST NO. <b>89869606</b>	DISPOSAL SITE <b>GRASSY MTN. ULT</b>	UNIT NO. <b>180-714</b>	USPCI DRIVER <b>Jim Brooks</b>
AMOUNT <b>21</b>	<input checked="" type="checkbox"/> Yd <sup>3</sup> <input type="checkbox"/> Gals. <input type="checkbox"/> Bbls. <input type="checkbox"/> Lbs.	TIME START <b>1:30</b>	FINISH <b>2:00</b>
DESCRIPTION Waste Code No. <b>CALIFORNIA REGULATED WASTE ONLY</b>		TOTAL TIME <b>1/2 Hrs.</b>	DEMURRAGE TIME <b>0 Hrs.</b>
Waste Code No. <b>FIBERGLASS FUEL TANKS, SOIL FUEL ISLAND DEBRIS</b>		DISBURSEMENT	
<b>Cont. # 6031 To Go By RAIL</b>			
<b>SM # 89-1972-89</b>		<b>JOB # 94608</b>	

**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. Lembach*  
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 & DSD-187  
OSDH: SD 47002, 2-147  
EPA ID: OKT 410010474  
OKT 410010466  
ICC: MC 153414

**No. 58417**

**LOAD TICKET**

CUSTOMER

*Medical Services*

DATE  
*2-22-90*

**OFFICE USE ONLY**

DISPOSAL PLAN NO

CUSTOMER NO

SHIP FROM

ADDRESS  
*731 W Main Market St.*  
CITY AND STATE  
*Tulahoma Co.*

ZIP CODE  
*95834*

P.O. NO

CHARGES

BILL TO

ADDRESS  
CITY AND STATE  
ZIP CODE

Same As Above

ATTENTION  
*Joe Neri*

MANIFEST NO

DISPOSAL SITE

UNIT NO  
*183-716*

USPCI DRIVER  
*Larry Wilson*

AMOUNT

Yd<sup>3</sup>

Gals

Bbls

Lbs

TIME START  
*12:45*

FINISH  
*1:15*

TOTAL TIME  
*72*

Hrs

DEMURRAGE TIME  
*0*

Hrs

DESCRIPTION

Waste Code No.

Waste Code No.

*Spill mt. Containment 6031 at U.P. PIC  
Chickland Co.*

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 Halloran*

CUSTOMER REPRESENTATIVE



**U.S. POLLUTION CONTROL, INC.**

SUITE 400 SOUTH  
2000 CLASSEN CENTER  
OKLAHOMA CITY, OKLA. 73106

PHONE: OKLA. CITY - (405) 526-8371  
TULSA - (918) 446-2786

PERMIT NUMBERS  
OCC. MC-27491 & DS 17  
OSDH: SD 47002, 2-1-2004  
EPA ID: OKT 410010  
OKT 41001046  
ICC: MC 153414

No. 58395

AD TICKET

CUSTOMER NO. 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 % 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 <input checked="" type="checkbox"/> Yd <sup>3</sup> <input type="checkbox"/> Bbls <input type="checkbox"/> Gals <input type="checkbox"/> Lbs	1:30	2:00	12 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  
M. # 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 Eric J. Lumbach  
CUSTOMER REPRESENTATIVE

**OFFICE USE ONLY**

CUSTOMER NO.

P.O. NO.

CHARGES

DISBURSEMENT

USPCI-100-B

CUSTOMER -- NOT AN INVOICE

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA CALL 1-800-852-7550

**UNIFORM HAZARDOUS WASTE MANIFEST**

Generator's US EPA ID No. **CIAIL01010101219151010** Manifest Document No. **619161016**

2. Page 1 of 2 Information in the shaded area 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**

5. Transporter 1 Company Name  
**U S Pollution Control, Inc.**

6. US EPA ID Number  
**UTID918016315181910**

7. Transporter 2 Company Name  
**Southern Pacific Railroad**

8. US EPA ID Number  
**CIAID01016191113121016**

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  
**UTID191911131011171418**

A. State Manifest Document Number  
**89869606**

B. State Generator's ID  
**CIAIL01010101219151010**

C. State Transporter's ID  
**001716**

D. Transporter's Phone  
**(801) 252-2000**

E. State Transporter's ID  
**001716**

F. Transporter's Phone  
**(415) 534-1495**

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		13. Total Quantity	14. Unit Wt/Vol	L Waste No.						
	No.	Type									
a. <b>California Regulated Waste Only</b> <b>(fiberglass fuel tanks, soil &amp; fuel island debris)</b>	0	1	C	M	0	0	0	2	1	Y	State <b>611</b>
b.											EPA/Other
c.											State
d.											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 **13 15 1980**

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name **Jim Brooks** Signature *Jim Brooks* Month Day Year **10 30 1980**

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 \_\_\_\_\_



**UNIFORM HAZARDOUS WASTE MANIFEST**  
(Continuation Sheet)

Generator's US EPA ID No.

Manifest Document No.

Page

Information in the shaded areas is not required by Federal law.

2 of 2

CAL0000295006960

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

N. State Transporter's ID

001716

O. Transporter's Phone (801) 252-2000

24. Transporter Company Name  
**U S Pollution Control; Inc.**

25. US EPA ID Number

UTD980535890

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 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

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

35. Discrepancy Indication Space

GENERATOR

TRANSPORTER FACILITY



**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 NUMBER  
OCC: MC-27491 & DE 7  
OSDH. SD 47002. 2-1 '004  
EPA ID: OKT 4100104.  
OKT 410010466  
ICC MC 153414

No. 58396

**LOAD TICKET**

CUSTOMER <i>Union Pacific Railroad</i>		DATE <i>3-5-90</i>	<b>OFFICE USE ONLY</b>	
SHIP FROM ADDRESS <i>1750 FERRO ST.</i> CITY AND STATE <i>OAKLAND, CA</i>		DISPOSAL PLAN NO.	CUSTOMER NO.	
BILL TO ADDRESS <i>731-M N. MARKET ST.</i> CITY AND STATE <i>SACRAMENTO, CA</i>		ZIP CODE <i>94706</i>	P.O. NO.	
<input type="checkbox"/> Same As Above ATTENTION <i>SPECIAL SERVICES 1/2</i>		ZIP CODE <i>95834</i>	CHARGES	
MANIFEST NO. <i>89869607</i>	DISPOSAL SITE <i>GRASSY MTN. U.T.</i>	UNIT NO. <i>180-714</i>	USPCI DRIVER <i>Jim Brooks</i>	
AMOUNT <i>21</i>	<input checked="" type="checkbox"/> Yds <sup>3</sup> <input type="checkbox"/> Gals <input type="checkbox"/> Sbs <input type="checkbox"/> Lbs	TIME-START <i>2:00</i>	FINISH <i>2:30</i>	TOTAL TIME <i>1/2</i> Hrs.
DESCRIPTION Waste Code No. <i>California Regulated Waste only</i>		DEMURRAGE TIME <i>0</i> Hrs.		
Waste Code No. <i>FIBERGLASS FUEL TANKS, SOIL FUEL ISLAND DEBRIS</i>		DISBURSEMENT		
NT # <i>To Go By RAIL</i>				
M # <i>89-1972-89</i>		JOB # <i>94608</i>		

**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

*Eric J. Aumbach*  
CUSTOMER REPRESENTATIVE

USPCI-109-B

CUSTOMER - NOT AN INVOICE

Please print or type: (Form designed for use on elite, dot matrix typewriter).

**UNIFORM HAZARDOUS WASTE MANIFEST**

Generator's US EPA ID No. **QA U Q Q Q Q 2 95 10 10** Manifest Document No. **891807**

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**

A. State Manifest Document Number  
**89869607**

4. Generator's Phone (402) 271-4054

B. State Generator's ID  
**C I A T 10 10 10 10 12 10 15 10 10 1**

5. Transporter 1 Company Name  
**U S Pollution Control, Inc.**

6. US EPA ID Number  
**U T D 9 8 0 6 3 9 8 9 0**

C. State Transporter's ID  
**00839**

7. Transporter 2 Company Name  
**Southern Pacific Railroad**

8. US EPA ID Number  
**I C A D Q Q 6 9 1 3 2 0 6**

D. Transporter's Phone (801) 252-2000  
 E. State Transporter's ID **00839**

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**

F. Transporter's Phone (415) 534-1495  
 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 15. Waste No.

a. California Regulated Waste Only  
 (fiberglass fuel tank, soil & fuel island debris)

Q Q 1 C M 0 10 10 12 11 Y

b.

c.

d.

J. Additional Descriptions for Materials Listed Above

A. GM-89-1972-89

K. Handling Codes for Wastes Listed Above

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  
**13 15 1990**

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name  
**Jim Brooks**

Signature  
*Jim Brooks*

Month Day Year  
**03 25 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

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-9802; WITHIN CALIFORNIA CALL 1-800-852-7550

GENERATOR

TRANSPORTER

FACILITY

# UNIFORM HAZARDOUS WASTE MANIFEST

(Continuation Sheet)

21. Generator's US EPA ID No.

Manifest Document No.

22. Page  
2 of 2

Information in the shaded areas is not required by Federal law.

C A L 0 . 0 . 0 . 0 . 2 . 9 . 5 . 0 . 0 | 6 9 . 6 . 0 . 7

23. Generator's Name  
Union Pacific Railroad  
1416 Dodge Street  
Omaha, NE. 68719  
(402) 271-4054

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

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

P. State Transporter's ID

Q. Transporter's Phone

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

29. Containers No	Type	30. Total Quantity	31. Unit Wt/Val	R. Waste No.
a.				
b.				
c.				
d.				
e.				
f.				
g.				
h.				
i.				

GENERATOR

5. 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

35. Discrepancy Indication Space

KZWA-001-101-101



**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 '74  
EPA ID: OKT 41001047,  
OKT 410010466  
ICC. MC 153414

**No. 58414**

**LOAD TICKET**

CUSTOMER

*Removal Services*

SHIP FROM

ADDRESS  
*231 W. NORTH MARKET*  
CITY AND STATE  
*Tulsa OK*

DISPOSAL PLAN NO.  
DATE  
*7/1/74*  
ZIP CODE  
*74103*

BILL TO

ADDRESS  
CITY AND STATE

ZIP CODE

Same As Above

ATTENTION

MANIFEST NO.

DISPOSAL SITE

UNIT NO.

USPCI DRIVER

AMOUNT

Yrs  Bbls  Gals  Lbs

TIME START

FINISH

TOTAL TIME

DEMURRAGE TIME

Hrs.

Hrs.

DESCRIPTION

Waste Code No.

Waste Code No.

*2000 Classen Center, 6067, in 3rd floor, Tulsa, OK  
Removal of asbestos*

**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

*[Signature]*

CUSTOMER REPRESENTATIVE

**WASTE MANAFEST FOR SOIL CUTTINGS, DECON AND PURGE WATER  
FROM THE PSA AND PH II S.A.**



**UNIFORM HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. **CA001211321417634116V** Manifest Document No. **1** of **1**  
 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 Nebraska 68179**  
 4. Generator's Phone No. **402 271-4278**  
**Union Pacific Railroad**  
**1750 Ferris St.**  
**Oakland, CA.**

A. State Hazardous Waste Number  
**00834561**

B. Transporter 1 Company Name **U.S. Pollution Control, Inc.** C. US EPA ID Number **TKW9KRD5H494**

7. Transporter 2 Company Name \_\_\_\_\_ 8. US EPA ID Number \_\_\_\_\_

9. Designated Facility Name and Site Address **Solvent Service, Inc.**  
**1021 Berryessa Road**  
**San Jose, CA. 95133** 10. US EPA ID Number **CA00594943V0**

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. UNIT Wt/Vol	15. Manifest Codes for Manifest, Labels, Signs
	No.	Type			
<b>Non-RCRA Hazardous Waste Liquid (Drill Cuttings)</b>			<b>0120M03380</b>	<b>P</b>	
<b>Non-RCRA Hazardous Waste Liquid (Solvent)</b>					

16. Special Handling instructions and Additional Information  
**Please wear proper protective clothing (gloves, boots, suits, etc.) when handling this material.**  
**DOT ERG #31**

18. GENERATOR'S CERTIFICATION: I hereby declare that the contents of the 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: **Timothy F. Peterson** Signature: *[Signature]* Month Day Year: **EPV K 73**

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name: **Malcolm T. Fili** Signature: *[Signature]* Month Day Year: **07/16/93**

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: \_\_\_\_\_

IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA CALL 1-800-802-7850