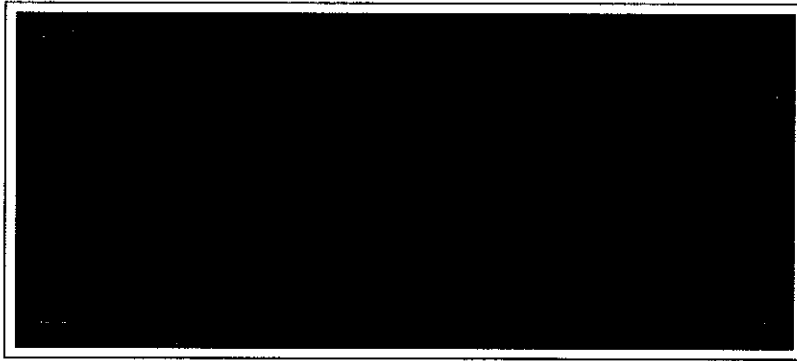


ENVIRONMENTAL
PROTECTION

95 SEP 29 PM 12:43



7-19-95

ENVIRONMENTAL
PROTECTION

95 SEP 29 PM 12:43

**SEMI-ANNUAL MONITORING REPORT
HYDROCARBON RECOVERY SYSTEM
UNION PACIFIC RAILROAD YARD
OAKLAND, CALIFORNIA
JANUARY TO JUNE, 1995**

**Prepared for
Union Pacific Railroad
by**

**USPCI, a Laidlaw Company
Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301
Project Number 96199
July 19, 1995**

ENVIRONMENTAL
PROTECTION

95 SEP 29 PM 12:43

CC: Ms. Jennifer Eberle ✓
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*Large box on right side of cube
ST 10 4020*

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UNION PACIFIC RAILROAD COMPANY
ENVIRONMENTAL
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95 SEP 29 PM 12:42



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File: Oakland, Ca.
Environmental

July 28, 1995

Mr. Safa Toma
East Bay Municipal Utility District
Source Control Division, Mail Slot 702
375 Eleventh Street
Post Office Box 24055
Oakland, Ca. 94623-1056

Dear Mr. Toma:

Semi-Annual Monitoring Report for Groundwater Discharge Permit account number 502-51231, for Union Pacific Railroad's Hydrocarbon Recovery System in Oakland, Ca.

Attached is the Semi-Annual (January to June 1995) Monitoring Report" for our Hydrocarbon Recovery System in Oakland.

If you have any questions on the report, please call me at (402) 271-4078.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Yours truly,

A handwritten signature in cursive script that reads "Harry P. Patterson".

Harry P. Patterson, P.E.
Manager Environmental Site Remediation

**SEMI-ANNUAL MONITORING REPORT
HYDROCARBON RECOVERY SYSTEM
UNION PACIFIC RAILROAD YARD
OAKLAND, CALIFORNIA
JANUARY TO JUNE, 1995**

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

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

Prepared by:
USPCI, a Laidlaw Company
Consulting Services
5665 Flatiron Parkway
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Charley Pinkerton
Environmental Assistant



Sam Marquis, R.G. 5110, P.G. 2477
Project Hydrogeologist

July 19, 1995

CONTENTS

1. INTRODUCTION	1
2. GROUNDWATER RECOVERY AND TREATMENT SYSTEM MONITORING	1
2.1 SYSTEM OPERATION	1
2.2 SYSTEM SAMPLING	2
2.3 ANALYTICAL RESULTS	2
2.3.1 INFLUENT WATER STREAM TO CARBON UNITS	2
2.3.2 EFFLUENT WATER STREAM FROM CARBON UNITS	2
2.3.3 WATER STREAM BETWEEN CARBON UNITS	3
2.4 GRANULAR ACTIVATED CARBON USAGE	3
3. GROUNDWATER MONITORING	4
4. CONCLUSIONS	5

FIGURES

- Figure 1 Site Map
- Figure 2 Potentiometric Surface Map, May 1995
- Figure 3 Diesel Thickness Measured in Monitoring Wells, May 1995
- Figure 4 Dissolved BTEX and TPH in Monitoring Wells, May 1995

TABLES

- Table 1 Analytical Results, Influent Water Stream to Carbon Units
- Table 2 Analytical Results, Effluent Water Stream from Carbon Units
- Table 3 Analytical Results, Water Stream Between Carbon Units
- Table 4 Granular Activate Carbon Usage
- Table 5 Water Level Data
- Table 6 Analytical Results, Groundwater Monitoring Wells

APPENDICES

- Appendix A
Field Logs, Groundwater Recovery and Treatment System

- Appendix B
Analytical Results

1. INTRODUCTION

This report was prepared by USPCI, a Laidlaw company (Laidlaw) in accordance with the East Bay Municipal Utility District (EBMUD) permit number 502-51231. The purpose of this report is to provide semi-annual monitoring information pertaining to the hydrocarbon recovery and treatment system, and the groundwater monitoring wells located at the fueling area of the Union Pacific Railroad (UPRR) Oakland Trailer on Flat Car (TOFC) rail yard at 1717 Middle Harbor Road in Oakland, California. This report also contains quarterly groundwater monitoring information requested in the Alameda County Department of Environmental Health letter dated September 21, 1994. The objective of the groundwater and system monitoring is to evaluate the migration potential of the contaminant and the effectiveness of the hydrocarbon recovery system.

The results from prior investigations and environmental engineering activities conducted by Laidlaw have been documented in previous reports and are not included in detail in this report. Background information about the site was presented in the report entitled "Hydrocarbon Investigation and Remedial Design" dated June 10, 1991. The results of the hydrocarbon investigation and a conceptual design of the hydrocarbon recovery and treatment system were also presented in the June 10, 1991 report. The system design was outlined in the, "Preliminary Design Report," dated September 5, 1991. As-built information for the groundwater recovery and treatment system has been presented in the "Hydrocarbon Recovery System, As-Built Construction Report," dated July 20, 1992. Any process changes in the hydrocarbon recovery and treatment system were presented in the letter from UPRR dated March 22, 1993, which represented the permit renewal document. The modeling efforts discussed in the September 24, 1994, letter were included in the "Third Quarter 1994 Monitoring Report," dated October 28, 1994.

2. GROUNDWATER RECOVERY AND TREATMENT SYSTEM MONITORING

The recovery of light non-aqueous phase liquid hydrocarbons (diesel) is accomplished by depressing the groundwater table with total fluids pumps and creating a cone of depression surrounding the recovery wells. The recovered groundwater is treated and discharged to the EBMUD sanitary sewer. The recovery and treatment system consists of three recovery wells, a diesel/water separator, a recovered diesel storage tank, and an activated carbon treatment system. The location of the three recovery wells and the water treatment facility are indicated on Figure 1.

2.1 SYSTEM OPERATION

During the operating period of January 1 to June 30, 1995, the groundwater recovery and treatment system treated approximately 420,000 gallons of groundwater. Since start-up on May 12, 1992, until June 30, 1995, the system has recovered approximately 7,060 gallons of diesel. Copies of the field logs for the Hydrocarbon Recovery System have been included as Appendix A.

2.2 SYSTEM SAMPLING

On January 25 and April 12, 1995, water samples were collected from sampling ports located before, between, and after the granular activated carbon vessels. All samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8020. The samples collected from the influent of the first carbon vessel and the effluent of the second carbon vessel were also analyzed for total petroleum hydrocarbons as diesel (TPH-D) using EPA method 8015 modified.

On January 5, May 29, and June 30, 1995, water samples were collected from the sampling ports located before and between the granular activated carbon vessels. The water samples collected from between the two granular activated carbon vessels were used to monitor the breakthrough of organics on the first of two vessels. The samples collected before the granular activated carbon vessels were analyzed for TPH-D. The samples collected between the carbon vessels were analyzed for BTEX. All analytical results are included as Appendix B.

2.3 ANALYTICAL RESULTS

Analytical results of BTEX and TPH-D from the influent to the activated carbon system are presented in Table 1. The EBMUD discharge limits for BTEX, as well as the analytical results from the sampling of the effluent from the water treatment system, are listed in Table 2. A summary of results from the samples collected between carbon vessels has been included as Table 3.

2.3.1 INFLUENT WATER STREAM TO CARBON UNITS

Sample results from the influent water stream to the carbon units reported BTEX concentrations below the method detection limits of 0.03 milligrams per liter (mg/L) for the January 25, 1995 sampling event. The April 12, 1995, sample results for the influent water stream reported a benzene concentration of 0.0015 mg/L and a xylene concentrations of 0.0023 mg/L. The toluene and ethylbenzene concentrations were both below the method detection limit of 0.0003 mg/L for the April sampling event. Influent TPH-D concentrations ranged from below the method detection limit of 0.02 mg/L on May 29, 1995, to 550 mg/L on January 25, 1995. It should be noted that an unknown hydrocarbon in the diesel range was detected at a concentration of 14 mg/L in the May 29, 1995, sample.

2.3.2 EFFLUENT WATER STREAM FROM CARBON UNITS

Analytical results indicate that all BTEX concentrations in the effluent samples were below the method detection limit of 0.03 mg/L for the January 1995 sampling events and 0.0003 mg/L for the April 1995 sampling event. Although the detection limits for the January 1995 sampling event were above the EBMUD discharge limits, the subsequent sampling event indicated concentrations below the

EBMUD discharge limits. The effluent TPH-D concentrations were 470 mg/L for the January 1995 sampling event and below the method detection limit of 0.050 mg/L for the April sampling event. The detection of TPH-D in the discharge on January 25, 1995, is most likely due to the routine backwashing procedures that were performed on the carbon canisters during the previous week. The presence of TPH-D in January 1995 may have interfered with the normal low detection limits for BTEX.

2.3.3 WATER STREAM BETWEEN CARBON UNITS

The benzene results from the midfluent samples ranged from 0.0013 to 0.0048 mg/L for this semi-annual period. Toluene concentrations for this period ranged from below the method detection limit of 0.0005 mg/L to 0.0035 mg/L. Ethylbenzene concentrations were reported below the method detection limit of 0.0005 to less than the detection limit of 0.03 mg/L for all samples. Xylene concentrations ranged from below the method detection limit of 0.0005 mg/L to 0.015 mg/L. The detection limits for BTEX in the January 25, 1995, samples, were 0.03 mg/L.

2.4 GRANULAR ACTIVATED CARBON USAGE

This section provides an estimate of carbon usage for the first or "lead" vessel. Two 2,000 pound granular activated carbon vessels are connected in series to remove organic compounds dissolved in the recovered groundwater. The second vessel prevents a release of water above the discharge limits once the first carbon vessel is loaded with organics or "breakthrough" occurs.

Table 4 presents the estimated amount of spent carbon (adsorption sites loaded with contaminants) and the expected life of the vessel. The estimate in Table 4 indicates that breakthrough should occur in August 1995. As discussed above, future sampling results will confirm the breakthrough of the lead vessel. The sample calculations that are presented in Table 4 were originally presented in the "Hydrocarbon Recovery System Quarterly Monitoring Report, Second Quarter, 1992".

3. GROUNDWATER MONITORING

On March 17 and 18, 1995, four piezometers (OP-1, OP-2, OP-3, and OP-4) were installed at the site adjacent to the existing recovery system. Fluid level data from these piezometers will provide additional information regarding the groundwater gradient in that area. The data will also allow for better evaluation of recovery system performance. A site map including all monitoring well and piezometer locations is presented in Figure 1.

Fluid level measurements were obtained from monitoring wells at the TOFC railyard on January 25 and May 9, 1995. Additional fluid level measurements were collected at all wells and new piezometers on May 17 and 18, 1995, during the semi-annual groundwater sampling event. Historical fluid levels are presented in Table 5.

Monitoring wells OMW-2, OMW-4, and OMW-5 showed increasing water levels in the first half of 1995. Fluid levels in the seven other monitoring wells decreased during this semi-annual period. The average change in fluid levels between January and May 1995 was a decrease of approximately one half of a foot. Fluid levels measured during the May 1995 sampling event were used to generate the potentiometric surface map presented in Figure 2. Fluid level measurements used in this map included those wells in which diesel was present. The groundwater elevations in these wells were corrected to account for the diesel overlying the water column in the well. This correction is performed by multiplying the specific gravity of the diesel by the diesel thickness and adding this value to the water elevation measurement from the well.

A groundwater depression created by the recovery wells is evident on the potentiometric surface map. The contours lines show a groundwater gradient towards the recovery system in the portion of the site containing diesel. Pumping rates for the three well recovery system averaged between one and two gallons per minute for the first half of 1995. Although the recovery wells do experience some downtime for required periodic maintenance, overall system production has remained relatively constant since start-up in May 1992. Groundwater flow downgradient of the recovery system is to the south towards the Oakland Estuary.

The presence of diesel was observed in monitoring wells OMW-4, OMW-7, and OMW-9 during all fluid level measuring events. This is consistent with previous fluid level measurements. Diesel was also observed in piezometers OP-1, OP-2, OP-3, and OP-4 during the May 1995 groundwater sampling event. Diesel thicknesses increased in monitoring wells OMW-4 and OMW-9 and decreased in OMW-7 during the first half of this year. Figure 3 illustrates the diesel thickness as measured in monitoring wells and piezometers during the May 1995 sampling event.

Semi-annual groundwater samples were collected on May 17 and 18, 1995. Monitoring wells OMW-1, OMW-2, OMW-3, OMW-5, OMW-6, and OMW-8 were sampled on these dates. Monitoring

wells OMW-4, OMW-7, OMW-9, and OMW-10 were not sampled due to the presence of diesel in the wells.

All groundwater samples were analyzed for TPH-D and BTEX. Sampling results from monitoring well OMW-3 reported a toluene concentration of 0.0013 mg/L. A xylenes concentration of 0.0017 mg/L was reported in monitoring well OMW-5. All other BTEX concentrations were below the method detection limit of 0.0005 mg/L. TPH was detected in monitoring wells OMW-2, OMW-3, OMW-5, OMW-6, and OMW-8. Monitoring well OMW-5 contained the highest TPH concentration (2.4 mg/L). The BTEX and TPH concentrations reported from this event are consistent with previous sampling events. BTEX and TPH concentrations for each well are presented on the site map in Figure 4 to illustrate the distribution of dissolved hydrocarbon compounds in groundwater. Historical groundwater sampling results are presented in Table 6. Laboratory analytical results from this sampling event are included in Appendix B.

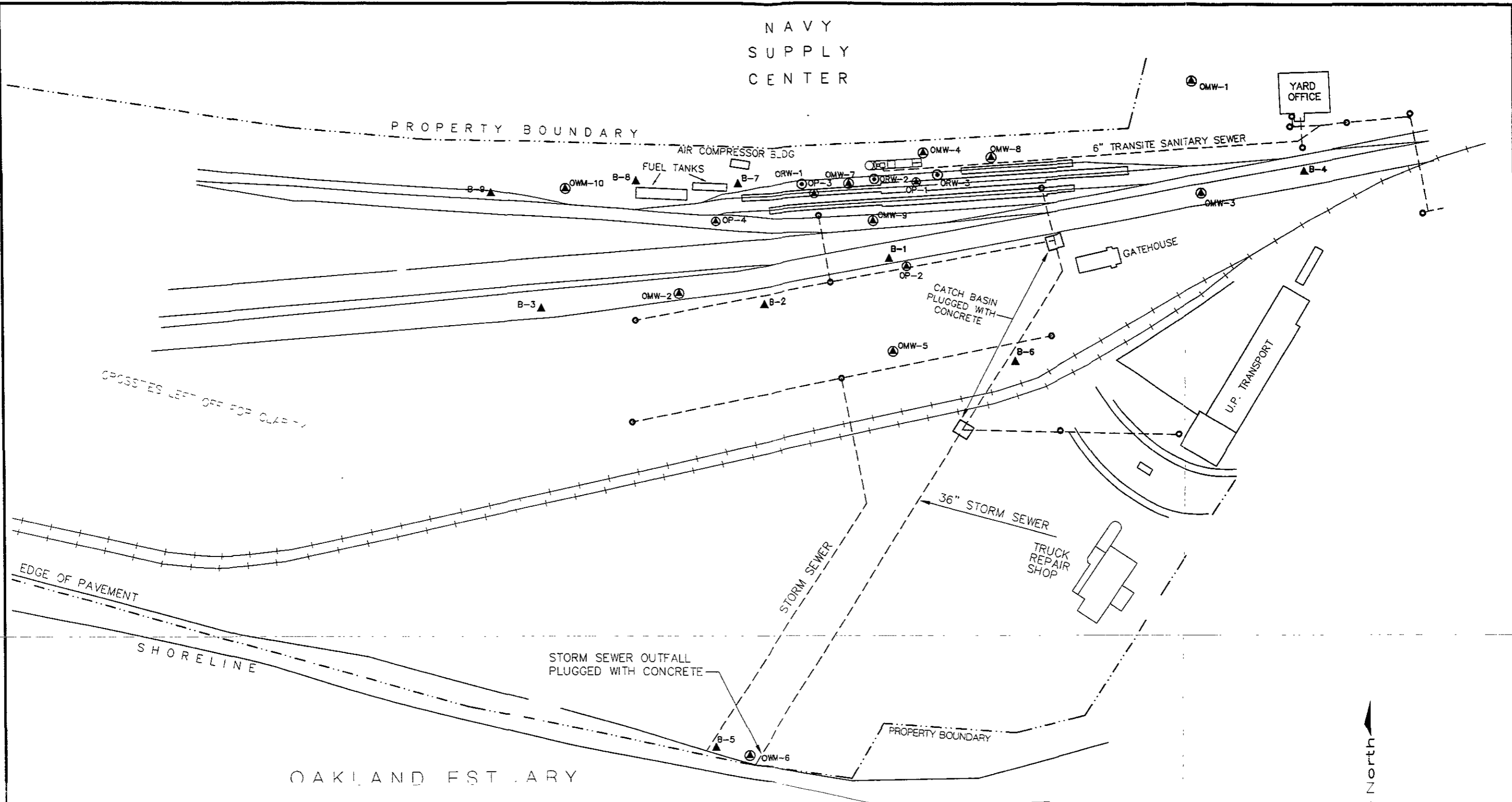
4. CONCLUSIONS

The following conclusions are drawn from the field data collected from January 1 to June 30, 1995:

- Water discharge from the Hydrocarbon Recovery System did not exceed the EBMUD discharge limits during the first semi-annual period of 1995.
- The monitoring well water level information for May 1995 indicates a site-wide groundwater gradient to the south, which is consistent with previous monitoring events.
- Fluid level measurements in the area of the recovery system indicate that drawdown is occurring in the vicinity of each operational recovery well.
- Fluid level measurements in groundwater monitoring wells do not suggest that the diesel plume has migrated.
- Dissolved concentrations of BTEX and TPH-D in the groundwater monitoring wells were consistent with previous monitoring events, indicating that the dissolved plume has not migrated downgradient.

FIGURES

NAVY
SUPPLY
CENTER



PROPERTY BOUNDARY

AIR COMPRESSOR BLDG

FUEL TANKS

6" TRANSITE SANITARY SEWER

YARD OFFICE

GATEHOUSE

CATCH BASIN
PLUGGED WITH
CONCRETE

U.P. TRANSPORT

TRUCK
REPAIR
SHOP

STORM SEWER

36" STORM SEWER

STORM SEWER OUTFALL
PLUGGED WITH CONCRETE

PROPERTY BOUNDARY

North

0 150
FEET

LEGEND

- ▲ MONITORING WELL (PUMPED WATER MONITORING AND TEST)
- ▲ BURIED LOCATION AND NUMBER
- CATCH BASIN AND OTHER POINTS
- ⊙ FUEL TANKS

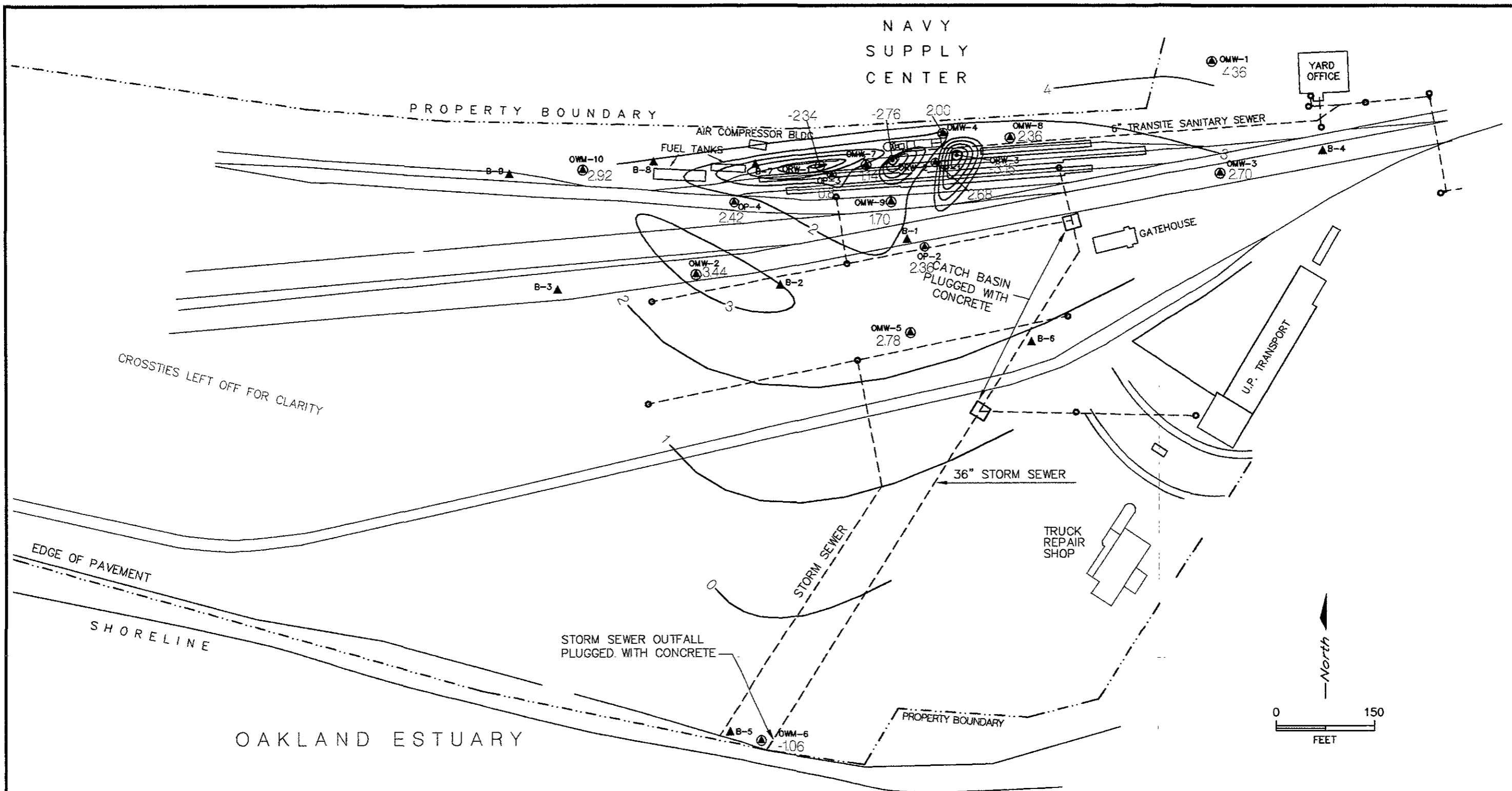
USPCI
A **LAUDER** COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 1
SITE MAP

1" = 150'

96'99-55



LEGEND

- ▲ MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- ▲ BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- GROUNDWATER ELEVATION IN FEET

BY	DATE
DRAWN: WRB	7/11/95
CHECKED:	
APPROVED:	
APPROVED:	
APPROVED:	

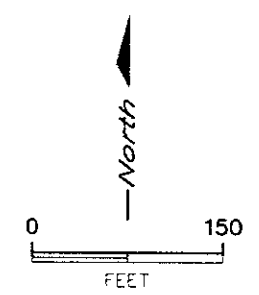
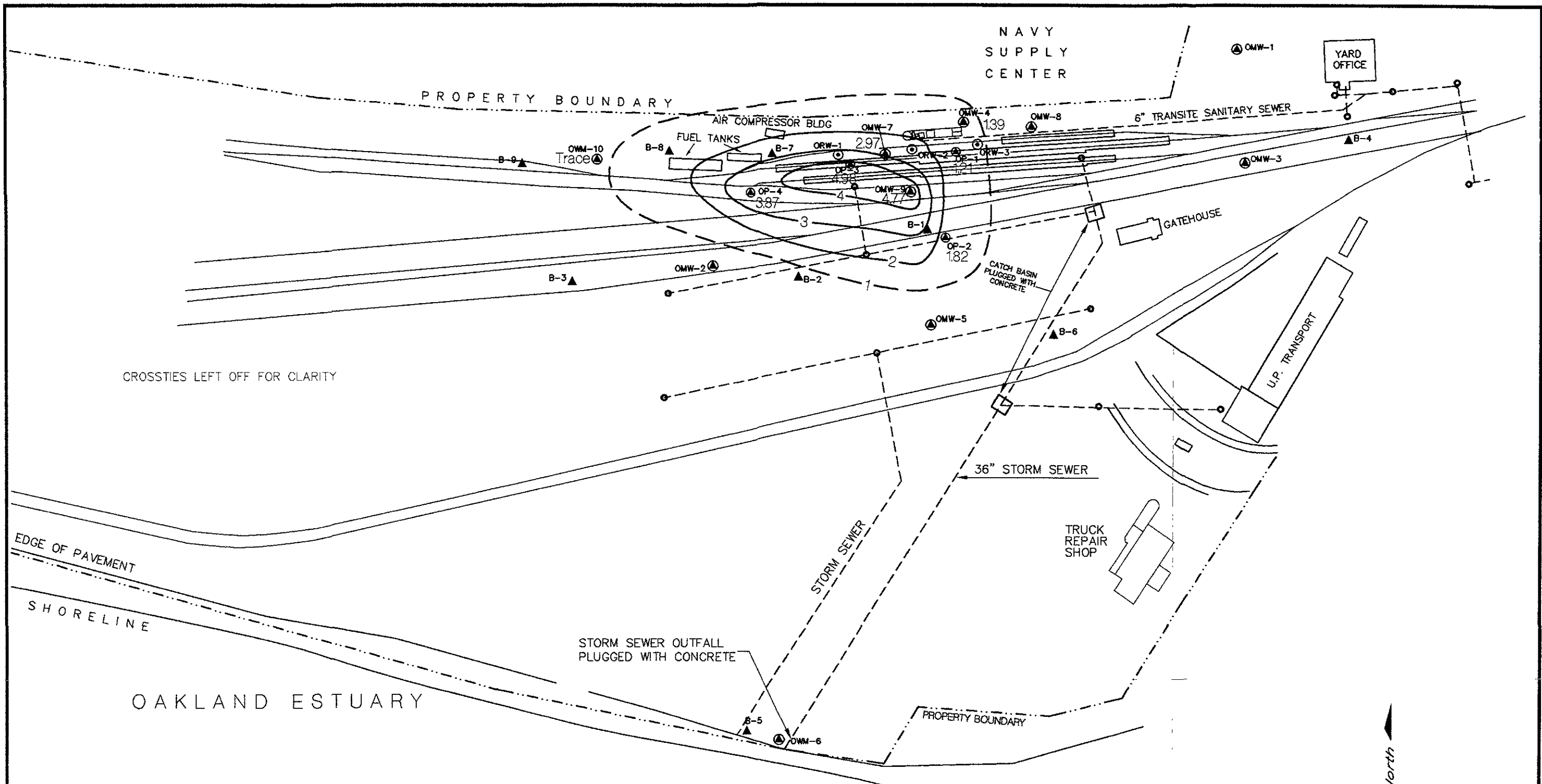


UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 2
WATER LEVELS MEASURED IN MONITORING WELLS
MAY 1995

SCALE: 1" = 150'

DWG NO: 96199-53

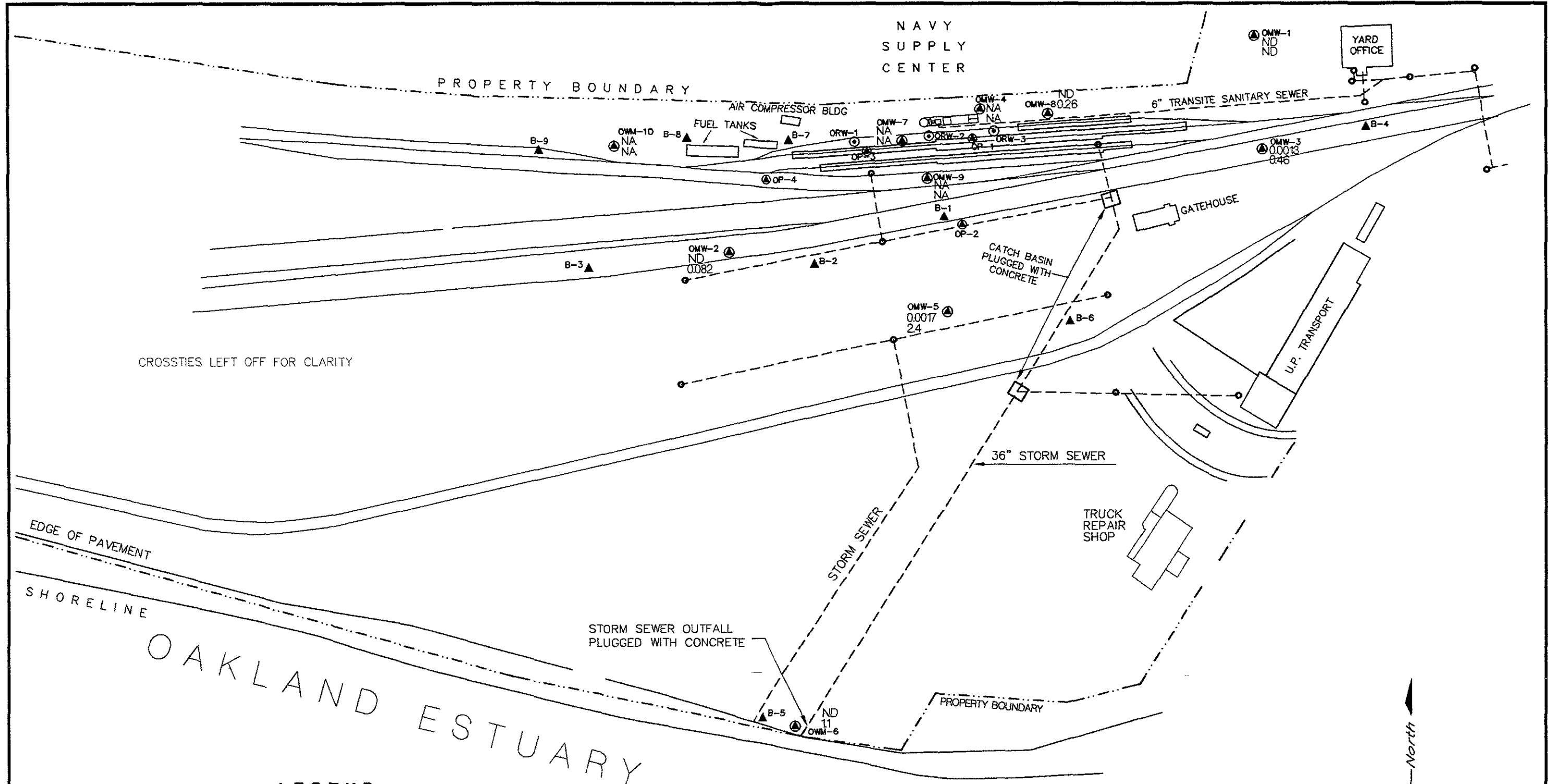


LEGEND	
⊕	MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
▲	BORING LOCATION AND NUMBER
○	CATCH-BASIN FOR STORM SEWER
⊙	RECOVERY WELLS
	PRODUCT THICKNESS 1. FT. (EXCLUDING ORWs)

BY	DATE
DRAWN WFB	7/12/95
CHECKED	
APPROVED	
APPROVED	
APPROVED	



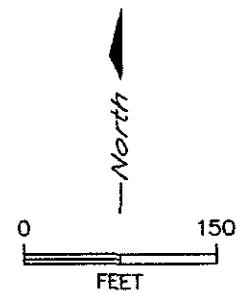
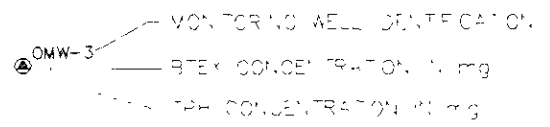
UPRR TOFC RAILYARD - OAKLAND CALIFORNIA	
FIGURE 3 DIESEL THICKNESS MEASURED IN MONITORING WELLS MAY 1995	
SCALE	DWG NO
1" = 150'	96199-52



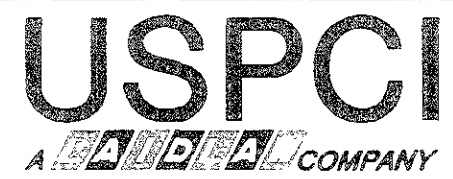
CROSSTIES LEFT OFF FOR CLARITY

LEGEND

- MONITORING WELL LOCATION AND NUMBER
- ▲ BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- ⊙ RECOVERY WELLS
- NON-DETECT (<0.005 mg/L) FOR BTEX
- NON-DETECT (<0.05 mg/L) FOR TPH
- NA NOT ANALYZED



BY	JAR
DRAWN	WFB 7/18/96
CHECKED	
APPROVED	
APPROVED	



UPRR TOFC RAILYARD - OAKLAND CALIFORNIA	
FIGURE 4 DISSOLVED BTEX AND TPH IN MONITORING WELLS MAY 1995	
SCALE	DWG NO
1" = 150'	96199-54

TABLES

TABLE 1
Analytical Results
Influent Water Stream to Carbon Units
Hydrocarbon Treatment System
Oakland TOFC

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
05/12/92	0.023	0.022	0.029	0.200	7
05/19/92	<0.002	0.007	0.003	0.064	59
05/27/92	<0.005	<0.005	0.006	0.059	61
06/02/92	<0.005	<0.005	<0.005	0.025	100
07/07/92	<0.005	<0.005	0.005	0.026	200
08/11/92	0.0091	<0.003	0.013	0.051	6.1
09/25/92	0.0085	<0.003	0.0055	0.024	17
11/16/92	<0.050	<0.050	<0.050	<0.050	100
12/04/92	0.0042	<0.001	<0.001	0.009	8.7
02/02/93	0.0083	<0.001	<0.001	0.0012	6.9
03/30/93	0.0095	0.0015	0.0087	0.030	44
04/30/93	0.0007	0.0012	0.001	0.0069	14
05/27/93	0.0054	0.019	0.0092	0.040	120
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009	1.2
07/28/93	0.014	0.0006	0.0054	0.025	2.2
08/31/93	0.012	0.0007	0.0041	0.023	3.2
09/30/93	0.011	0.0007	0.013	0.035	20
10/28/93	0.010	0.0006	0.0098	0.026	6.1
11/30/93	0.0092	<0.0005	0.0012	0.013	31
12/28/93	0.011	<0.0005	0.0041	0.016	10
01/31/94	<0.0005	<0.0005	<0.0005	<0.0005	3.3
02/25/94	0.013	0.0013	0.0077	0.021	9.3
03/30/94	0.012	<0.0005	0.0027	0.018	2.7
05/03/94	0.0044	0.0018	0.0097	0.028	67
06/01/94	0.0065	<0.0005	<0.0005	0.0094	3.5
07/29/94	0.0081	<0.0005	0.0043	0.017	1.4
08/31/94	NA	NA	NA	NA	2.1
09/27/94	NA	NA	NA	NA	5.9
10/27/94	0.011	0.0031	0.0095	0.018	5.5
11/16/94	NA	NA	NA	NA	39
01/05/95	NA	NA	NA	NA	140
01/25/95	<0.03	<0.03	<0.03	<0.03	550
04/12/95	0.0015	<0.0003	<0.0003	0.0023	3.7
05/29/95	NA	NA	NA	NA	<0.02*
06/30/95	NA	NA	NA	NA	25

NA -- Not Analyzed

*Unknown hydrocarbon in the Diesel range reported concentration of 14 mg/L

TABLE 2
Analytical Results
Effluent Water Stream from Carbon Units
Hydrocarbon Treatment System
Oakland TOFC

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
EDMUD Discharge Limit*	0.005	0.005	0.005	0.005	N/A
05/12/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/19/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/27/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
06/02/92	<0.0005	<0.0005	<0.0005	<0.0005	0.12
07/07/92	<0.0005	<0.0005	<0.0005	0.0011	18
08/11/92	<0.0005	<0.0005	<0.0005	<0.0005	1.3
09/25/92	<0.001	<0.001	<0.001	0.0014	9.7
11/16/92	<0.0005	<0.0005	<0.0005	<0.0005	0.53
12/04/92	<0.0005	<0.0005	<0.0005	<0.0005	0.24
02/02/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
03/30/93	<0.0005	<0.0005	<0.0005	<0.0005	0.074
04/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
05/27/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
07/28/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.100
08/31/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
09/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
10/28/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
11/30/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
12/28/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
01/31/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
02/25/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
03/30/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/03/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
06/01/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
07/29/94	<0.0005	<0.0005	<0.0005	0.0007	<0.050
10/27/94	<0.0005	<0.0005	<0.0005	0.0006	<0.050
01/25/95	<0.03	<0.03	<0.03	<0.03	470
04/12/95	<0.0003	<0.0003	<0.0003	<0.0003	<0.050

* - Discharge limits updated on May 4, 1994.
N/A - Not Applicable

TABLE 3
Analytical Results
Water Stream Between Carbon Units
Hydrocarbon Treatment System
Oakland TOFC

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
08/11/92	<0.0005	<0.0005	<0.0005	<0.0005
09/14/92	<0.003	<0.003	<0.003	<0.003
11/06/92	<0.0005	<0.001	<0.0005	<0.0005
12/04/92	<0.003	<0.003	<0.003	<0.003
12/18/92	<0.005	<0.005	<0.005	<0.005
01/20/93	0.0012	0.0005	<0.0005	0.0015
02/02/93	0.00077	<0.0005	<0.0005	<0.0005
02/16/93	0.0043	<0.0005	0.0012	0.0038
03/30/93	<0.0005	<0.0005	<0.0005	<0.0005
04/22/93	<0.0005	<0.0005	<0.0005	<0.0005
04/30/93	<0.0003	<0.0003	<0.0003	<0.0009
05/27/93	<0.003	<0.003	<0.003	<0.009
06/14/93	0.0004	0.0004	0.0004	0.0023
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009
07/13/93	0.0007	0.0004	<0.0003	<0.0009
07/28/93	<0.0003	<0.0003	<0.0003	<0.0009
08/31/93	<0.0003	<0.0003	<0.0003	<0.0009
09/30/93	<0.0003	<0.0003	<0.0003	<0.0009
10/28/93	<0.0003	<0.0003	<0.0003	<0.0009
11/30/93	0.0006	<0.0005	<0.0005	<0.0005
12/28/93	0.0017	<0.0005	<0.0005	0.0007
01/31/94	0.0001	<0.0005	<0.0005	0.0005
02/25/94	<0.0005	<0.0005	<0.0005	<0.0005
03/30/94	<0.0005	<0.0005	<0.0005	<0.0005
05/03/94	<0.0005	<0.0005	0.0013	0.0033
06/01/94	<0.0005	<0.0005	<0.0005	<0.0005
07/29/94	0.0008	<0.0005	<0.0005	0.0006
08/31/94	0.0017	<0.0005	<0.0005	<0.0005
09/27/94	0.0010	<0.0005	<0.0005	<0.0005
10/27/94	0.0012	0.00050	<0.0005	0.00090
11/16/94	<0.0005	<0.0005	<0.0005	<0.0005
01/05/95	0.0048	0.0035	<0.003	0.015
01/25/95	<0.03	<0.03	<0.03	<0.03
04/12/95	0.0013	<0.0003	<0.0003	<0.0003
05/29/95	0.0032	<0.0005	<0.0005	<0.0005
06/30/95	0.002	<0.0005	<0.0005	<0.002

TABLE 4
**Hydrocarbon Treatment System
 Granular Activated Carbon Usage
 Oakland TOFC**

Date	Time	Volume (gallons)	Periodic Flowrate (gpm)	Average Flowrate (gpm)	Influent Conc--TPH (mg/l)	Carbon Used (pounds)	Spent Carbon Estimate (pounds)	Remaining Pumpable (gallons)	Remaining Pumpable (days)	Projected Breakthru Date
05/07/92	11:35 PM	2020	1.74	1.74	45 *	8	8	531663	213	Dec-92
05/12/92	08:30 AM	12980	1.74	1.74	45	41	49	520703	208	Dec-92
05/19/92	01:30 PM	24990	1.16	1.55	59	50	98	387036	174	Nov-92
05/27/92	10:50 AM	45350	1.79	1.61	61	89	187	356823	154	Oct-92
06/02/92	03:00 PM	73150	3.13	1.91	100	144	331	200426	73	Aug-92
07/07/92	05:35 PM	166500	1.85	1.90	200	661	992	60539	22	Jul-92
08/11/92	11:56 AM	232370	1.32	1.32	6.1	0 +	0	1771651	935	Mar-95
09/25/92	09:55 AM	388390	2.41	1.86	17	333	333	529708	197	Apr-93
11/16/92	09:55 AM	484380	1.28	1.67	100	729	1062	50663	21	Dec-92
12/04/92	09:55 AM	518160	1.30	1.58	8.7	206	1268	454391	200	Jun-93
02/02/93	02:30 PM	673180	1.79	1.62	6.9	796	2064	-50298	-22	Jan-93
03/10/93	03:00 PM	741070	1.31	1.31	30 *	0 +	0	400262	212	Oct-93
03/30/93	09:00 AM	743950	0.10	1.61	44	18	18	270484	117	Jul-93
04/30/93	04:00 PM	755900	0.27	1.51	14	58	76	825055	379	May-94
05/27/93	01:40 PM	854610	2.55	1.58	120	855	931	53482	23	Jun-93
06/30/93	07:30 AM	1007200	3.14	1.68	1.2	1063	1994	27899	12	Jul-93
07/21/93	07:30 AM	1094630	2.89	2.89	2.2 *	0 +	0	2183247	524	Dec-94
07/28/93	08:30 AM	1125630	3.06	2.97	2.2	28	28	2152247	503	Dec-94
08/31/93	01:55 PM	1256910	2.66	2.87	3.2	138	167	1375740	333	Jul-94
09/30/93	04:00 PM	1333050	1.76	2.59	20	219	386	193850	52	Nov-93
10/28/93	05:50 PM	1411050	1.93	2.46	6.1	219	605	549390	155	Apr-94
11/30/93	08:00 PM	1475300	1.35	2.27	31	288	893	85757	26	Dec-93

TABLE 4
**Hydrocarbon Treatment System
 Granular Activated Carbon Usage
 Oakland TOFC**

Date	Time	Volume (gallons)	Periodic Flowrate (gpm)	Average Flowrate (gpm)	Influent Conc-TPH (mg/l)	Carbon Used (pounds)	Spent Carbon Estimate (pounds)	Remaining Pumpable (gallons)	Remaining Pumpable (days)	Projected Breakthru Date
12/28/93	12:00 PM	1526880	1.29	2.13	10	229	1122	210802	69	Mar-94
01/31/94	03:00 PM	1584340	1.17	2.01	3.3	233	1356	469026	162	Jul-94
02/07/94	12:00 PM	1595300	1.11	1.11	8.0 *	0 +	0	1500982	942	Sep-96
02/25/94	04:00 PM	1658010	2.40	1.75	9.3	90	90	1232840	489	Jun-95
03/30/94	11:00 AM	1785000	2.69	2.06	2.7	141	231	3932895	1323	Nov-97
05/03/94	05:00 PM	1841190	1.14	1.83	67	204	435	140249	53	Jun-94
06/01/94	04:00 PM	1909040	1.63	1.79	3.5	205	639	2333885	904	Nov-96
07/29/94	07:30 PM	2029010	1.43	1.73	1.4	306	946	4522185	1813	Jul-99
08/31/94	07:00 PM	2113920	1.79	1.74	2.1	190	1135	2471828	986	May-97
09/27/94	11:00 AM	2175320	1.60	1.72	5.9	128	1263	749848	302	Jul-95
10/28/94	12:00 PM	2254600	1.77	1.73	5.5	155	1418	635573	255	Jul-95
11/16/94	03:30 PM	2269370	0.54	1.61	39	36	1453	84163	36	Dec-94
11/23/94	11:00 AM	2276880	0.77	0.77	16 *	0 +	0	750491	681	Oct-96
01/25/95	01:30 PM	2468180	2.11	1.44	35 **	812	812	203706	99	May-95
04/12/95	10:50 AM	2549270	0.73	1.20	3.7	246	1059	1527342	883	Sep-97
05/29/95	03:30 PM	2732640	2.70	1.58	14 *	525	1583	178699	79	Aug-95

* - Concentration estimate

** - Concentration represents the average estimated value from January to the next sampling event.

+ - Changed carbon vessel on this date.

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-1	04/09/91	8.79		5.54	3.25		3.25
	06/19/91			6.89	1.90		1.90
	05/11/92			6.34	2.45		2.45
	06/09/92			6.91	1.88		1.88
	07/07/92			7.21	1.58		1.58
	08/11/92			7.55	1.24		1.24
	09/04/92			7.82	0.97		0.97
	10/13/92			7.96	0.83		0.83
	11/12/92			7.64	1.15		1.15
	12/17/92			6.64	2.15		2.15
	03/18/93			5.98	2.81		2.81
	05/14/93			6.39	2.40		2.40
	07/13/93			7.12	1.67		1.67
	09/30/93			7.84	0.95		0.95
	11/10/93			8.08	0.71		0.71
	01/24/94			7.54	1.25		1.25
	03/23/94			6.69	2.10		2.10
	05/02/94			6.61	2.18		2.18
	07/29/94			7.32	1.47		1.47
	09/26/94			7.67	1.12		1.12
11/15/94			3.67	5.12		5.12	
01/25/95			2.52	6.27		6.27	
05/09/95			5.55	3.24		3.24	
05/17/95			4.43	4.36		4.36	
OMW-2	04/09/91	5.88		2.10	3.78		3.78
	06/19/91			3.59	2.29		2.29
	05/11/92			3.22	2.66		2.66
	06/09/92			3.97	1.91		1.91
	07/07/92			4.21	1.67		1.67
	08/11/92			4.46	1.42		1.42
	09/04/92			4.77	1.11		1.11
	10/13/92			4.96	0.92		0.92
	11/12/92			4.08	1.80		1.80
	12/17/92			1.70	4.18		4.18
	03/18/93			1.94	3.94		3.94
	05/14/93			3.29	2.59		2.59
	07/13/93			4.28	1.60		1.60
	09/30/93			4.99	0.89		0.89
	11/10/93			5.23	0.65		0.65
	01/24/94			3.30	2.58		2.58
	03/23/94			3.55	2.33		2.33
	05/02/94			4.95	0.93		0.93
	07/29/94			4.49	1.39		1.39
	09/26/94			4.92	0.96		0.96
11/16/94			1.03	4.85		4.85	
01/25/95			3.35	2.53		2.53	
05/09/95			NOT GAUGED				
05/17/95				2.44	3.44		3.44

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)	
OMW-3	04/09/91	7.16		3.93	3.23		3.23	
	06/19/91			5.33	1.83		1.83	
	05/11/92			5.92	1.24		1.24	
	06/09/92			5.48	1.68		1.68	
	07/07/92			5.78	1.38		1.38	
	08/11/92			6.09	1.07		1.07	
	09/04/92			6.33	0.83		0.83	
	10/13/92			6.55	0.61		0.61	
	11/12/92			6.16	1.00		1.00	
	12/17/92			5.15	2.01		2.01	
	03/18/93			2.58	4.58		4.58	
	05/14/93			4.91	2.25		2.25	
	07/13/93			5.70	1.46		1.46	
	09/30/93			6.43	0.73		0.73	
	11/10/93			6.92	0.24		0.24	
	01/24/94			3.50	3.66		3.66	
	03/23/94			5.90	1.26		1.26	
	05/02/94			5.84	1.32		1.32	
	07/29/94			5.98	1.18		1.18	
	09/26/94			6.32	0.84		0.84	
	11/15/94			2.36	4.80		4.80	
	01/25/95	NOT GAUGED - WELL UNDER WATER						
05/09/95				4.37	2.79		2.79	
05/17/95				4.46	2.70		2.70	
OMW-4	04/09/91	7.41	3.79	6.23	1.18	2.44	3.23	
	06/19/91		4.44	8.68	-1.27	4.24	2.29	
	05/11/92	NOT GAUGED						
	06/09/92		5.88	9.81	-2.40	3.93	0.90	
	07/07/92		6.00	9.88	-2.47	3.88	0.79	
	08/11/92		6.13	8.23	-0.82	2.10	0.94	
	09/04/92		6.78	8.37	-0.96	1.59	0.38	
	10/13/92**			6.58	0.83		0.83	
	11/12/92		5.74	7.33	0.08	1.59	1.42	
	12/17/92		5.77	7.28	0.13	1.51	1.40	
	03/18/93		3.82	5.73	1.68	1.91	3.28	
	05/14/93		5.76	8.45	-1.04	2.69	1.22	
	07/13/93		5.94	7.78	-0.37	1.84	1.18	
	09/30/93		6.85	8.17	-0.76	1.32	0.35	
	11/10/93		7.03	7.59	-0.18	0.56	0.29	
	01/24/94		6.15	6.76	0.65	0.61	1.16	
	03/23/94		6.09	6.80	0.61	0.71	1.21	
	05/02/94		5.25	5.54	1.87	0.29	2.11	
	07/29/94		6.40	7.15	0.26	0.75	0.89	
	09/26/94		6.31	6.93	0.48	0.62	1.00	
	11/16/94		4.30	5.05	2.36	0.75	2.99	
	01/25/95		6.23	7.12	0.29	0.89	1.04	
05/09/95		4.99	6.38	1.03	1.39	2.20		
05/17/95		5.19	6.58	0.83	1.39	2.00		

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-5	04/09/91	7.62		4.64	2.98		2.98
	06/19/91			5.35	2.27		2.27
	05/11/92			5.18	2.44		2.44
	06/09/92			5.85	1.77		1.77
	07/07/92			6.02	1.60		1.60
	08/11/92			6.18	1.44		1.44
	09/04/92			6.59	1.03		1.03
	10/13/92			6.54	1.08		1.08
	11/12/92			6.23	1.39		1.39
	12/17/92			5.23	2.39		2.39
	03/18/93			3.33	4.29		4.29
	05/14/93			5.06	2.56		2.56
	07/13/93			5.96	1.66		1.66
	09/30/93			6.70	0.92		0.92
	11/10/93			5.92	1.70		1.70
	01/24/94			NOT GAUGED			
	03/23/94			5.74	1.88		1.88
	05/02/94			5.71	1.91		1.91
	07/29/94			6.27	1.35		1.35
	09/26/94			6.56	1.06		1.06
	11/16/94			5.31	2.31		2.31
	01/25/95			NOT GAUGED			
	05/09/95			NOT GAUGED			
05/18/94			4.84	2.78		2.78	
OMW-6	04/09/91	5.78		7.60	-1.82		-1.82
	06/19/91			6.98	-1.20		-1.20
	05/11/92			7.41	-1.63		-1.63
	06/09/92			7.18	-1.40		-1.40
	07/07/92			6.61	-0.83		-0.83
	08/11/92			7.14	-1.36		-1.36
	09/04/92			6.58	-0.80		-0.80
	10/13/92**			6.16	-0.38		-0.38
	11/12/92			6.91	-1.13		-1.13
	12/17/92			6.16	-0.38		-0.38
	03/18/93			7.31	-1.53		-1.53
	05/14/93			6.59	-0.81		-0.81
	07/13/93			6.58	-0.80		-0.80
	09/30/93			5.49	0.29		0.29
	11/10/93			5.08	0.70		0.70
	01/24/94			5.40	0.38		0.38
	03/23/94			6.90	-1.12		-1.12
	05/02/94			7.44	-1.66		-1.66
	07/29/94			5.65	0.13		0.13
	09/26/94			6.88	-1.10		-1.10
11/16/94			5.35	0.43		0.43	
01/25/95			6.91	-1.13		-1.13	
05/09/95			7.19	-1.41		-1.41	
05/17/95			6.84	-1.06		-1.06	

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-7	04/09/91	7.03	3.26	7.48	-0.45	4.22	3.09
	06/19/91		4.13	7.66	-0.63	3.53	2.34
	05/11/92		3.70	7.32	-0.29	3.62	2.75
	06/09/92		5.79	7.78	-0.75	1.99	0.92
	07/07/92		5.98	7.88	-0.85	1.90	0.75
	08/11/92		6.01	9.22	-2.19	3.21	0.51
	09/04/92		6.53	8.92	-1.89	2.39	0.12
	10/13/92		5.97	8.00	-0.97	2.03	0.74
	11/12/92		5.29	8.69	-1.66	3.40	1.20
	12/17/92		5.60	8.66	-1.63	3.06	0.94
	03/18/93		3.93	7.97	-0.94	4.04	2.45
	05/14/93		5.34	8.21	-1.18	2.87	1.23
	07/13/93		5.95	7.49	-0.46	1.54	0.83
	09/30/93		6.65	9.75	-2.72	3.10	-0.12
	11/10/93		6.75	9.12	-2.09	2.37	-0.10
	01/24/94		6.00	7.87	-0.84	1.87	0.73
	03/23/94		5.79	8.56	-1.53	2.77	0.80
	05/02/94		4.79	6.64	0.39	1.85	1.94
	07/29/94		6.15	8.46	-1.43	2.31	0.51
	09/26/94		6.14	7.11	-0.08	0.97	0.73
11/16/94		4.23	4.63	2.40	0.40	2.74	
01/25/95		3.31	9.53	-2.50	6.22	2.72	
05/09/95		5.22	9.25	-2.22	4.03	1.17	
05/17/95		5.41	8.38	-1.35	2.97	1.14	
OMW-8	04/09/91	7.52		4.25	3.27		3.27
	06/19/91			5.27	2.25		2.25
	05/11/92			5.05	2.47		2.47
	06/09/92			6.25	1.27		1.27
	07/07/92			6.33	1.19		1.19
	08/11/92			6.48	1.04		1.04
	09/04/92			7.00	0.52		0.52
	10/13/92			6.23	1.29		1.29
	11/12/92			6.34	1.18		1.18
	12/17/92			6.10	1.42		1.42
	03/18/93			4.51	3.01		3.01
	05/14/93			5.78	1.74		1.74
	07/13/93			6.26	1.26		1.26
	09/30/93			7.06	0.46		0.46
	11/10/93			7.12	0.40		0.40
	01/24/94			6.58	0.94		0.94
	03/23/94			6.15	1.37		1.37
	05/02/94			6.06	1.46		1.46
	07/29/94			6.47	1.05		1.05
	09/26/94			6.50	1.02		1.02
11/15/94			4.74	2.78		2.78	
01/25/95			TRACE	3.55	3.97		3.97
05/09/95				5.00	2.52		2.52
05/17/95				5.16	2.36		2.36

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-9	05/11/92	6.64	3.41	7.65	-1.01	4.24	2.55
	06/09/92		5.09	8.17	-1.53	3.08	1.06
	07/07/92		5.28	8.42	-1.78	3.14	0.86
	08/11/92		5.29	9.45	-2.81	4.16	0.68
	09/04/92		5.70	9.56	-2.92	3.86	0.32
	10/13/92		5.70	6.88	-0.24	1.18	0.75
	11/12/92		5.23	6.44	0.20	1.21	1.22
	12/17/92		5.08	6.40	0.24	1.32	1.35
	03/18/93		3.01	6.69	-0.05	3.68	3.04
	05/14/93		4.38	10.37	-3.73	5.99	1.30
	07/13/93		5.57	6.79	-0.15	1.22	0.87
	09/30/93		5.86	9.81	-3.17	3.95	0.15
	11/10/93		6.06	9.61	-2.97	3.55	0.01
	01/24/94		5.41	7.71	-1.07	2.30	0.86
	03/23/94		4.91	9.10	-2.46	4.19	1.06
	05/02/94		4.52	4.54	2.10	0.02	2.12
	07/29/94		5.46	8.40	-1.76	2.94	0.71
	09/26/94		5.74	6.39	0.25	0.65	0.80
	11/16/94		4.91	4.95	1.69	0.04	1.72
	01/25/95		3.83	6.25	0.39	2.42	2.42
05/09/95		4.94	9.02	-2.38	4.08	1.05	
05/17/95		4.18	8.95	-2.31	4.77	1.70	
OMW-10	05/11/92	7.56		4.76	2.80		2.80
	06/09/92			5.42	2.14		2.14
	07/07/92			5.58	1.98		1.98
	08/11/92			5.83	1.73		1.73
	09/04/92			6.18	1.38		1.38
	10/13/92**			5.30	2.26		2.26
	11/12/92			5.41	2.15		2.15
	12/17/92			4.20	3.36		3.36
	03/18/93		3.93	4.00	3.56	0.07	3.62
	05/14/93		4.83	4.92	2.64	0.09	2.72
	07/13/93		5.64	5.67	1.89	0.03	1.92
	09/30/93		6.36	6.38	1.18	0.02	1.20
	11/10/93			6.55	1.01		1.01
	01/24/94			5.55	2.01		2.01
	03/23/94			4.81	2.75		2.75
	05/02/94			5.06	2.50		2.50
	07/29/94			6.94	0.62		0.62
	09/26/94			6.36	1.20		1.20
	11/15/94			4.01	3.55		3.55
	01/25/95	NOT GAUGED - WELL COVERED					
05/09/94	NOT GAUGED - WELL COVERED						
05/17/94			TRACE	4.64	2.92		2.92

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
ORW-1	06/19/91	6.59	3.91	9.36	-2.77	5.45	1.81
	05/11/92		NOT GAUGED				
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			8.39	-1.80		-1.80
	09/04/92			8.35	-1.76		-1.76
	10/13/92		6.95	8.15	-1.56	1.20	-0.55
	11/12/92		NOT GAUGED				
	12/17/92		8.30	8.35	-1.76	0.05	-1.72
	03/18/93		3.60	7.39	-0.80	3.79	2.38
	05/14/93			8.63	-2.04		-2.04
	07/13/93			8.60	-2.01		-2.01
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				
	07/29/94		NOT GAUGED				
	09/26/94		NOT GAUGED				
	11/15/94		NOT GAUGED				
01/25/95		NOT GAUGED					
05/09/95		NOT GAUGED					
05/18/95			8.77	9.76	-3.17	0.99	-2.34
ORW-2	06/19/91	6.79	4.36	4.38	2.41	0.02	2.43
	05/11/92		3.55	6.34	0.45	2.79	2.79
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			9.30	-2.51		-2.51
	09/04/92			9.31	-2.52		-2.52
	10/13/92		8.20	9.20	-2.41	1.00	-1.57
	11/12/92		NOT GAUGED				
	12/17/92			9.45	-2.66		-2.66
	03/18/93		2.94	7.48	-0.69	4.54	3.12
	05/14/93			8.21	-1.42		-1.42
	07/13/93		9.30	9.41	-2.62	0.11	-2.53
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				
	07/29/94		NOT GAUGED				
	09/26/94		NOT GAUGED				
	11/15/94		NOT GAUGED				
01/25/95		NOT GAUGED					
05/09/95		NOT GAUGED					
05/18/95			9.55	9.56	-2.77	0.01	-2.76

TABLE 5
Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
ORW-3	06/19/91	6.30	4.07	4.10	2.20	0.03	2.23
	05/11/92		3.24	5.31	0.99	2.07	2.73
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			8.90	-2.60		-2.60
	09/04/92			8.75	-2.45		-2.45
	10/13/92			8.59	-2.29		-2.29
	11/12/92		NOT GAUGED				
	12/17/92			8.35	-2.05		-2.05
	03/18/93		2.90	5.71	0.59	2.81	2.95
	05/14/93			8.16	-1.86		-1.86
	07/13/93		9.08	9.46	-3.16	0.38	-2.84
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				
	07/29/94		NOT GAUGED				
	09/26/94		NOT GAUGED				
	11/15/94		NOT GAUGED				
01/25/95		NOT GAUGED					
05/09/95		NOT GAUGED					
05/18/95			9.45	9.48	-3.18	0.03	-3.15
OP-1	05/18/95	6.71	3.84	5.05	1.66	1.21	2.68
OP-2	05/18/95	7.80	5.15	6.97	0.83	1.82	2.36
OP-3	05/18/95	6.48	4.88	9.86	-3.38	4.98	0.80
OP-4	05/18/95	6.32	3.28	7.15	-0.83	3.87	2.42

* Corrected water level elevation assumes product density of 0.84 g/cm³

** Gauging data for these may have been switched.

M.S.L. = Mean Sea Level

TABLE 6
Analytical Results
Groundwater Monitoring Wells
Union Pacific Railroad
Oakland Fueling Area

Well Number	Date Sampled	Total Petroleum Hydrocarbons (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-1	05/11/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	0.060	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	0.067	<0.0005	0.00061*	<0.0005	<0.0005
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/15/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
OMW-2	05/11/92	4.5	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	2.7	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	3.4	<0.0005	0.00057*	0.0011	0.0033
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.082	<0.0005	<0.0005	<0.0005	<0.0005
OMW-3	05/11/92	2.3	.0003J	0.0013	.0003J	0.0034
	08/11/92	5.8	<0.0005	0.00071	<0.0005	.0017
	11/13/92	110	<0.0005	0.00089*	0.0015	.0084
	05/14/93	0.180	<0.0003	0.036	<0.0003	.0027
	11/10/93	1.80	<0.0003	0.0005	<0.0003	<0.0009
	05/02/94	1.80	<0.0005	0.0023	<0.0005	0.00089
	11/15/94	1.20	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.46	<0.0005	0.0013	<0.0005	<0.0005
OMW-5	05/11/92	2.1	<0.0005	.0004J	<0.0005	0.0003
	08/11/92	2.1	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	4.4	<0.0005	0.00078*	<0.0005	<0.0005
	05/14/93	11	<0.0003	0.0018	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	0.0006	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.52	<0.0005	0.0012	0.0014	0.0077
	05/18/95	2.4	<0.0005	<0.0005	<0.0005	0.0017

TABLE 6 (cont.)
Analytical Results
Groundwater Monitoring Wells
Union Pacific Railroad
Oakland Fueling Area

Well Number	Date Sampled	Total Petroleum Hydrocarbons (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	
OMW-6	05/11/92	0.52	<0.0005	<0.0005	<0.0005	0.0016	
	08/11/92	0.55	<0.0005	<0.0005	<0.0005	<0.0005	
	11/13/92	6.0	<0.0005	0.00077*	<0.0005	<0.0005	
	05/14/93	0.18	<0.0003	<0.0003	<0.0003	<0.0009	
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009	
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	11/16/94	0.46	<0.0005	<0.0005	<0.0005	<0.0005	
	05/17/95	1.1	<0.0005	<0.0005	<0.0005	<0.0005	
OMW-8	05/11/92	0.24	<0.0005	<0.0005	<0.0005	<0.0005	
	08/11/92	0.22	<0.0005	<0.0005	<0.0005	<0.0005	
	11/13/92	0.26	<0.0005	0.00058*	<0.0005	<0.0005	
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009	
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009	
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	11/15/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005	
	05/17/95	0.26	<0.0005	<0.0005	<0.0005	<0.0005	
OMW-10	05/11/92	2.1	0.033	<0.0005	<0.0005	0.0027	
	08/11/92	1.3	0.0096	<0.0005	<0.0005	.00062	
	11/13/92	2.8	0.0066	0.00084*	<0.0005	.00062	
	05/14/93	***** NOT SAMPLED - Well Contained Product*****					
	11/10/93	2.6	0.0043	0.0011	<0.0003	.00012	
	05/02/94	2.6	0.00052	<0.0005	<0.0005	<0.0005	
	11/16/94	***** NOT SAMPLED - Well Contained Product*****					
	05/17/95	***** NOT SAMPLED - Well Contained Product*****					

NOTES

J = Estimated value below reporting limit.

Due to the presence of product, recovery wells ORW-1, ORW-2, ORW-3, and monitoring wells OMW-4, OMW-7, and OMW-9 are not sampled.

* 0.00062 mg/L was detected in the Trip Blank.

APPENDIX A

**FIELD LOGS
GROUNDWATER RECOVERY
AND TREATMENT SYSTEM**

PROJECT # 96199

RES JOB # 4117

GROUNDWATER TREATMENT SYSTEM FIELD LOG

UNION PACIFIC RAILROAD - OAKLAND TOFC
1717 MIDDLE HARBOR ROAD

DATE	TIME	FLOW RATE	TOTALIZER SIGNET: NEPTUNE	PRODUCT LEVEL	FILTER PRESS.		COMMENTS MAINTENANCE, ADJUSTMENTS NOTES, OBSERVATIONS	CHLORINE FREE:TOTAL	pH	HARDNESS as CaCO ₃
					INLET	OUTLET				
[D-M-Y]	[24:00]	[GPM]	[GALLONS:GALLONS]	[INCHES]	[PSIG]	[PSIG]		[PPM]:[PPM]	[pH]	[PPM]
6/6/95	11:00AM		2764190 / 2784000	34	10	9	FLUSH, MAINTENANCE			
6/2/95	3:00pm	7.4	2751490 / 2769300	34	8	6	FLUSH, PUMP CHECK			
6/1/95	7:00AM	OFF	LED TO REM / 2762200	34"	OFF		CLEAR FUEL LINE, CI ADJUST			
5/31/95	10:30AM	OFF	274098 / 2757300	33	10	8	CI PUMP WORK			
5/29/95	3:30pm	OFF	273264 / 2748100	33	10	6	SAMPLE IN, MID, FLUSHED PRIMARY, CLEANED FUEL LINE ADJUST ORW 2 / FLUSH 1+2			
5/26/95	1:30pm	5.2	271765 / 2730900	33	11	9				
5/19/95	12:30PM	5.4	2691900 / 268534	33	11.5	8.5	FILTERS, FLUSH			
5/11/95	11:00AM	OFF	264555 / 2644400	33	9	7	ALERT 3, FLUSH, FILTERS			
5/10/95	9:40AM	OFF	264175 / 2638300	33	10.5	9.0	FLUSH			
5/9/95	1:00pm	16	263756 / 2633990	33	10	10.5	WATER LEVELS, FILTERS			
5/5/95	4:30pm	13.5	262207 / 2609900	33	10	8.5	CHECK NEW PUMP, SYSTEM			
5/4/95	11:00AM	14.2		33	8	9	INSTALL PUMP + CONTRA-CER ORW-1			
5/2/95	2:40pm	OFF	260976 / 2595600	33	11	8	CHLORINE, FILTERS, FLUSH			
4/27/95	2:00pm	OFF	259320 / 2576100	33	10.5	8.5				
4/26/95	1:50PM	5.2	258954 / 2572200	33	11	8	FILTERS - ALERT 3			
4/24/95	12:00pm	5.2	258339 / 2564500	33	11	8	QUICK CHECK WHILE PASSING SITE			

MAIL COPIES MONTHLY TO: USFCL 5665 FLATIRON PARKWAY: BOULDER, COLORADO 80301: ATTENTION MR. DENTON MAULDIN

PROJECT # 96199

RES JOB # 4117

GROUNDWATER TREATMENT SYSTEM FIELD LOG

UNION PACIFIC RAILROAD - OAKLAND TOFC
1717 MIDDLE HARBOR ROAD

DATE	TIME	FLOW RATE	TOTALIZER SIGNET: NEPTUNE	PRODUCT LEVEL	FILTER PRESS.		COMMENTS	CHLORINE FREE-TOTAL	pH	HARDNESS as CaCO ₃
					INLET	OUTLET				
[D-M-Y]	[24:00]	[GPM]	[GALLONS-GALLONS]	[INCHES]	[PSIG]	[PSIG]	MAINTENANCE, ADJUSTMENTS	[PPM]:[PPM]	[pH]	[PPM]
							NOTES, OBSERVATIONS			
4/21/95	8:15AM	6.0	257377 / 2552400	32.5-33	10	8	CHECK FLOW + OPERATION, FILTERS			
4/20/95	9:30AM	10.1	257005 / 2548000	33-32.5	12	8 9	R+R ORWS W/O RWI, FILTERS, CLEAN			
4/18/95	12:00PM	0.0	256257 / 2538900	22	12+	12+	BACKFLUSH, CHANGE, ORWS FILTERS			
4/17/95	1:00PM	0.0	255844 / 2534000	32	12+	12+	CHANGE FILTERS #3			
4/14/95	12:00PM	6.5	255807 / 2528700	32	10.0	7.0	SYSTEM MAINT			
4/13/95	9:00AM	6.9	255245 / 2524000	0	11	9.0	SYSTEM MAINT			
4/12/95	10:50AM	0.0	254927 / 2524000	0	10.5	6.5	SYSTEM MAINT			
4/11/95	9:15AM	8.0	254440 / 2514500	0	12+	12+	R+R ORWI, FILTERS, FLOSH, RR-ORWS			
4/10/95	11:30AM	1.2	253125 / 2511700	0	12+	12+	SCRAPE NEPTUNE, FILTERS ETC.			
3/28	1:00PM	0.0	253900 / 2485900	0	RT	12+	FILTERS, NEPTUNE CLEAN			
3/17/95	8:30AM	3.5	253547 / 2481600	24	11	8.5	PUMP OUT TANK			
3/15/95	9:45AM	0.0	253155 / 2476900	24	12+	12+	CHANGE FILTERS			
3/6/95	12:00PM	3.7	251045 / 2452300	24	12	12	CHANGE FILTERS/BACKFLUSH			
2/27/95	10:58AM	0.0	247961 / 2445300	24	12+	5.0	CHANGE FILTERS			
2/24/95	8:15AM	11.9	247522 / 2403300	24	5.0	8.0	ALERT "3"			
2/22/95	12:10PM	19.0	247382 / 2401700	6.5 24	7.0	7.0	CHECK ALERT "3"			

GROUNDWATER TREATMENT SYSTEM FIELD LOG

UNION PACIFIC RAILROAD - OAKLAND TOFC
1717 MIDDLE HARBOR ROAD

DATE	TIME	FLOW RATE	TOTALIZER SIGNET: NEPTUNE	PRODUCT LEVEL	FILTER PRESS.		COMMENTS MAINTENANCE, ADJUSTMENTS	CHLORINE FREE:TOTAL	pH	HARDNESS as CaCO ₃
					INLET	OUTLET				
[D-M-Y]	[24:00]	[GPM]	[GALLONS:GALLONS]	[INCHES]	[PSIG]	[PSIG]	NOTES, OBSERVATIONS	[PPM]:[PPM]	[pH]	[PPM]
2/21/95	9:00 AM	24.5	247252 / 2400300	24.0	6.0	7.0	FLUSH CARBONS, CHANGE FILTERS			
2/20/95	2:00 PM	20	2399800 / 2399800	24.0	5.5	6.0	TURNOFF SYSTEM, BACK ON, FLUSHED BTANK + FILTERS, CHANGED.	~ .6	OUTLET	
2/17/95	4:00 PM	19.5	247174 / 2399600	24.0	6.0	6.5	POOL SHOCK SYSTEM, RUN SMALL AMOUNT WATER TO CIRCULATE			
2/16/95	2:30 PM	—	246818 / 2398800	23.5	—	—	BACKFLUSH BOTH CARBONS, CLEAN SYS (W/FRESH H ₂ O)	—		
1/25/95	8:30 AM	3.5	246818 / 2396600	23.5	12	7.5	SYS CHECK, WELL LEVELS, SAMPLE FILTERS, BACKFLUSH.			
1/16/95	1:30 PM	5.8	244456 / 2370200	22	11	9	FILTERS, WELLS.			
1/12/95	11:25 AM	0	243423 / 2357700	22	13	5	CHANGE FILTERS, ADJ CHLORINE			
1/10/95	3:30 PM	OFF LINE	243348 / 2354300	22	10	10	CHANGE FILTERS ADJUST ORW2			
1/9/95	11:00 AM	0.0	242614 / 2346600	22	12	13	BACKFLUSH FILTERS, SECURE SITE FROM STORM DRAINAGE	—		
1/5/95	3:30 PM	6.0	241289 / 2324400	22	11.5	4.5	SAMPLE, CHANGE FILTERS	—		
1/3/95	9:30 AM	OFF LINE	240522 / 2316000	22	—	—	ALERT CON 3, BACKFLUSH FILTERS	—		
12/27/94	8:35 AM	8.4	237548 / 2275000	30.25	11	8.5	PUMP OUT DIESEL TANK 0.03N 490 GALLONS	—		
12/22/94	9:00 AM	10.9	235618 / 2251200	30.25	10	9.5	ALERT CON 3, CHECK SYSTEM UP ON ARRIVAL.	—		
12/20/94	11:50 AM	8.9	234821 / 2241800	30.25	10.5	8.5	CHANGED FILTERS	—		
12/15/94	3:00 PM	10.7	232131 / 2209165	30"	9	9	Changed manifold in ORV #2	—		
12/13/94	12:40 PM	10.6	230962 / 2195200	30"	10	9	CHANGE FILTERS, CHECK OVER SYSTEM	—		

GROUNDWATER TREATMENT SYSTEM FIELD LOG

UNION PACIFIC RAILROAD - OAKLAND TOFC
1717 MIDDLE HARBOR ROAD

DATE	TIME	FLOW RATE	TOTALIZER SIGNET: NEPTUNE	PRODUCT LEVEL	FILTER PRESS.		COMMENTS MAINTENANCE, ADJUSTMENTS	CHLORINE FREE/TOTAL	pH	HARDNESS as CaCO ₃
					INLET	OUTLET				
[D-M-Y]	[24:00]	[GPM]	[GALLONS:GALLONS]	[INCHES]	[PSIG]	[PSIG]	NOTES, OBSERVATIONS	[PPM]:[PPM]	[pH]	[PPM]
9-DEC-94	7:00 AM	OFF	228557 / 2166300	37.0	14.0	3.0	FILTERS CLOGGED FOR AIR STARTING - BAKING TANK FULL INSPECTION, CHECK ON PREVIOUS WORK	---	---	---
8-DEC-94	12:06 PM	21.1	228553 / 2162000	17.75	8.0	6.0		---	---	---
7-DEC-94	11:45 AM	3.8	228555 / 2156555	15	9	4.0	WELL WORK	No CHECK	---	---
6-DEC-94	8:00 AM	13.5	2279400 / 2153400	12	9.0	5.0	REPAIRED ORN-1 + REPAIRED LINE TO SYSTEM	No CHECK	---	---
5-DEC-94	2:35 PM	14.6	227688 2153800	<12	7.0	5.5	CHECKED SYSTEM + WELLS, SHOT OFF #2 + 3 FOR 1216 REPAIRS	No CHECK	---	---
23-NOV-94	11:15 AM	12.7	227281 2149300; 2149300	<12	10.5	9.5	CHANGED OUT CARBON, REPAIRED BAG FILTERS	NOT CHECK	---	---
18-NOV-94	10:55 AM	16.3	214436 227049; 2147168	<12	10.0	10.0	SYSTEM READINGS AFTER CHANGING BAG FILTERS	NOT CHECK	---	---
18-NOV-94	09:30	4.7	227035; 2147065	<12	11.0	6.0	SYSTEM READINGS PRIOR TO CHANGING BAG FILTERS	NOT CHECK	---	---
16-NOV-94	15:05	3.9	226937; 2145880	<12	11.5	6.0	COLLECTED "MONTHLY" WATER SAMPLES	NOT CHECK	---	---
14-NOV-94	16:42	7.7	226855; 2144927	<12	11.0	7.0	INSPECTED SOLAR SIPPER & G.W. TREATMENT SYSTEM	NOT CHECK	---	---
7-NOV-94	08:50	9.2	226497; 2140775	<12"	10.0	8.0	INSPECTED SOLAR SIPPER AND GROUNDWATER TREAT SYSTEM	<0.4: <0.4	---	---
28-OCT-94	09:56	5.5	225460; 2128994	0.0	11.0	6.0	COLLECTED "QUARTERLY" GROUNDWATER SAMPLES	7.3.0: >> 3.0	---	---
27-OCT-94	15:27	5.8	225355; 2127803	0.0	11.0	6.0		1.0: 1.5	---	---
10-OCT-94	18:43	13.6	221722; 2089975	0.0	10.0	8.0	RESPONDED TO CALL FROM OPER THAT SOLAR SIPPER WAS LEAKING TURNED SIPPER OFF AND CLEANED-UP	NOT CHECK	---	---
9-OCT-94	11:25	10.0	219889; 2065185	0.0	10.0	7.0	INSTALLED DRAWN OF CHLORINE AND TURNED-ON METERING PUMP	NOT CHECK	---	---
28-SEPT-94	12:04	8.5	217958; 2042520	0.0	10.0	6.0	FLUSHED PUMP DISCHARGE LINE, ADJUSTED PUMPS	<0.4: <0.4	---	---

APPENDIX B
ANALYTICAL RESULTS



U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy.
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UPRR TOFC Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 505-1237

Sampled: May 17, 1995
Received: May 18, 1995
Reported: Jun 2, 1995

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 505-1237 OMW-1	Sample I.D. 505-1238 OMW-3	Sample I.D. 505-1239 OMW-8	Sample I.D. 505-1240 OMW-18	Sample I.D. 505-1241 OMW-6	Sample I.D. 505-1242 OMW-2
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	1.3	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	5/20/95	5/20/95	5/20/95	5/20/95	5/20/95	5/20/95
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	89	85	88	89	90	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, #1271

Kevin Van Slambrook
Kevin Van Slambrook
Project Manager





U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy.
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UPRR TOFC Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 505-1243

Sampled: May 18, 1995
Received: May 18, 1995
Reported: Jun 2, 1995

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 505-1243 OMW-5	Sample I.D. 505-1244 Trip Blank
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.50	N.D.	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.
Total Xylenes	0.50	1.7	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	5/20/95	5/20/95
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	95	95

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

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Kevin Van Slambrook
Project Manager





U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy.
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UPRR TOFC Oakland
Sample Matrix: Water
Analysis Method: EPA 3510/8015
First Sample #: 505-1237

Sampled: May 17, 1995
Received: May 18, 1995
Reported: Jun 2, 1995

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 505-1237 OMW-1	Sample I.D. 505-1238 OMW-3	Sample I.D. 505-1239 OMW-8	Sample I.D. 505-1240 OMW-18	Sample I.D. 505-1241 OMW-6	Sample I.D. 505-1242 OMW-2
Extractable Hydrocarbons	50	N.D.	460	260	300	1,100	82
Chromatogram Pattern:		--	Unidentified Hydrocarbons > C20	Unidentified Hydrocarbons > C20	Unidentified Hydrocarbons > C20	Unidentified Hydrocarbons > C20	Unidentified Hydrocarbons > C20

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	5/22/95	5/22/95	5/22/95	5/22/95	5/22/95	5/22/95
Date Analyzed:	5/25/95	5/25/95	5/25/95	5/25/95	5/25/95	5/25/95
Instrument Identification:	HP-3A	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, #1271

Kevin Van Slambrook
Kevin Van Slambrook
Project Manager





U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy.
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UPRR TOFC Oakland
Sample Matrix: Water
Analysis Method: EPA 3510/8015
First Sample #: 505-1243

Sampled: May 18, 1995
Received: May 18, 1995
Reported: Jun 2, 1995

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 505-1243 OMW-5
Extractable Hydrocarbons	50	2400
Chromatogram Pattern:		Unidentified Hydrocarbons >C20

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	5/22/95
Date Analyzed:	5/25/95
Instrument Identification:	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, #1271

Kevin Van Slambrook
Kevin Van Slambrook
Project Manager





U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy.
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UPRR TOFC Oakland
Matrix: Liquid

QC Sample Group: 5051237-44

Reported: Jun 2, 1995

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 M
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Dinsay

MS/MSD Batch#:	5051244	5051244	5051244	5051244	BLK052295
Date Prepared:	5/20/95	5/20/95	5/20/95	5/20/95	5/22/95
Date Analyzed:	5/20/95	5/20/95	5/20/95	5/20/95	5/25/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	90	105	110	113	79
Matrix Spike Duplicate % Recovery:	90	105	110	113	87
Relative % Difference:	0.0	0.0	0.0	0.0	9.6

LCS Batch#:	2LCS052095	2LCS052095	2LCS052095	2LCS052095	BLK052295
Date Prepared:	5/20/95	5/20/95	5/20/95	5/20/95	5/22/95
Date Analyzed:	5/20/95	5/20/95	5/20/95	5/20/95	5/25/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
LCS % Recovery:	82	99	105	105	79

% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122
----------------------------	--------	--------	--------	--------	--------

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 matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Kevin Van Slambrook
Project Manager





SEQUOIA ANALYTICAL CHAIN OF CUSTODY

680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600 FAX (415) 364-9233
 819 West Striker Ave. • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
 1900 Bates Ave., Suite LM • Concord, CA 94520 • (510) 686-9600 FAX (510) 686-9689

Company Name: USPCI / LAIDLAW		Project Name: UPAR TOFC OAKLAND	
Address: 5665 FLATIRON PKWY		Billing Address (if different): SAME	
City: BOULDER State: CO Zip Code: 80301	_____→		
Telephone: (303) 938-5500 FAX #: (303) 938-5520	P.O. #:		
Report To: DENTON MAULDIN	Sampler: MARK MCCORMICK	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
 ~~GROUND WATER~~ Other

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	8020 BTEX MMS BOD5 TPH-DIBEL										Comments				
1. OMW-1	5/17/95 11:10	GW	1 TL 3 VDA	→	5051227 ADX	X	X													
2. DMW-3	12:11				5051228	X	X													
3. OMW-8	13:12				5051229	X	X													
4. OMW-18	13:22				5051240	X	X													
5. OMW-6	14:23				5051241	X	X													
6. DMW-2	15:35				5051242	X	X													
7.																				
8.																				
9. DMW-5	5/18/95 14:05	GW	1 3	1L AMBER VDA	5051243	X	X													
10. TRIP BLANK			2	VOA	5051244	X	X													

Relinquished By: <i>[Signature]</i>	Date: 5/18/95	Time: 17:14	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <i>[Signature]</i>	Date: 5/18/95	Time: 17:14

Pink - Client
Yellow - Sequoia
White - Sequoia

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Chris Merritt
Riedel Environmental Services, Inc.
4138 Lakeside Drive
Richmond, CA 94806

Date Received: 01/05/95
Date Extracted: 01/06/95
Date Analyzed: 01/06/95
Date Reported: 01/10/95
Job #: 76554

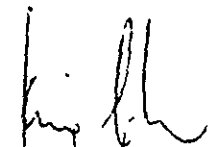
Project: #4117/UPRR TOFC
Matrix: Water

Total Petroleum Hydrocarbon Analysis
DHS Extraction Method (LUFT)
mg/L

<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Diesel Range</u>	<u>MDL</u>
76554-1	INFLUENT	140	10

QA/QC: Matrix Spike Recovery for Diesel: 99%
Matrix Spike Duplicate Recovery for Diesel: 96%

MDL: Method Detection Limit. Compound below this level would not be detected.



Jaime Chow
Laboratory Director

JC/dwc

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Chris Merritt
 Riedel Environmental Services, Inc.
 4138 Lakeside Drive
 Richmond, CA 94806

Date Received: 01/05/95
 Date Analyzed: 01/05/95
 Date Reported: 01/10/95
 Job #: 76554

Project: #4117/UPRR TOFC
 Matrix: Water

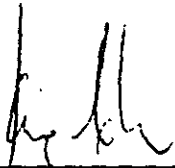
Aromatic Volatile Hydrocarbon Analysis
 EPA Matrix 602
 µg/L

<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Benzene</u>	<u>MDL</u>	<u>Toluene</u>	<u>MDL</u>
76554-2	MIDFLUENT	4.8	3.0	3.5	3.0
<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Ethyl- benzene</u>	<u>MDL</u>	<u>Xylenes</u>	<u>MDL</u>
76554-2	MIDFLUENT	ND<3.0	3.0	15	3.0

QA/QC: Matrix Spike Recovery for Benzene: 99%
 Matrix Spike Recovery for Toluene: 109%
 Matrix Spike Recovery for Chlorobenzene: 113%

Matrix Spike Duplicate Recovery for Benzene: 107%
 Matrix Spike Duplicate Recovery for Toluene: 119%
 Matrix Spike Duplicate Recovery for Chlorobenzene: 122%

MDL: Method Detection Limit. Compound below this level would not be detected.


 Jaime Chow
 Laboratory Director

JC/dwc



RIEDEL ENVIRONMENTAL SERVICES, INC

4130 Lakeside Drive, Richmond, California 94806
Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: PRECISION Date: 1/5/93
Contact: JAIME Page: 1
Phone: 222-3002 Of: 1

PROJECT INFORMATION

Project Manager: JOHN LIECHTI Project Name: UP RR
Analysis Results to: _____ At: _____
Project: TOSC
Sample ID: _____ At: _____
Project #: 4117
Field Report to: CHRIS MERRITT P.O. #: 31993
Sample Team (print): CHRIS MERRITT
(signature): CHRIS MERRITT
Turn Around Time: 10 Day 5 Day 48 Hr. 24 Hr. Other _____

ANALYSES

CONTAINERS

Sample ID	Lab ID	Date	Time	Matrix	Preserv.	TPH - Gasoline (EPA 5030, 8015)	TPH - Diesel (EPA 3510/3550, 8015)	TEPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015)	Purgeable Aromatics BTEX (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240, 524.2)	SemiVolatile Organics (EPA 625/627, 8270, 525)	Total Oil & Grease (EPA 5520, B+F, E+F)	Total Recoverable Petroleum Hydrocarbons (EPA 418.1)	Metals: Cd, Cr, Pb, Zn, Ni Total or Soluble	CAM Metals (17) Total or Soluble	Lead (Pb) Total, Soluble, or Organic	Extraction TCLP or STLC (Wet)	Number of Containers
INFLUENT		1/5	4:20pm	H ₂ O			X												1
EFFLUENT		1/5	4:20pm	H ₂ O	HCL				X										3

SPECIAL INSTRUCTIONS:	SAMPLE RECEIPT Total No. Containers _____ Head Space Y N Rec'd Good Cond/Cold Y N Conforms to Record Y N	RELINQUISHED BY (Sampler): <u>CHRIS MERRITT</u> 5:30 (Signature) (Time) <u>CHRIS MERRITT</u> 1/5/93 (Printed Name) (Date) <u>RES</u> (Company)	RELINQUISHED BY: _____ (Signature) (Time) _____ (Printed Name) (Date) _____ (Company)	RELINQUISHED BY: _____ (Signature) (Time) _____ (Printed Name) (Date) _____ (Company)
		RECEIVED BY: <u>Jaime</u> (Signature) (Time) <u>Precision</u> 1/5/93 (Printed Name) (Date) _____ (Company)	RECEIVED BY: _____ (Signature) (Time) _____ (Printed Name) (Date) _____ (Company)	RECEIVED BY (Laboratory): _____ (Signature) (Time) _____ (Printed Name) (Date) _____ (Company)

REMARKS:

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (510) 222-3002

FAX (510) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Chris Merritt
Riedel Environmental Services, Inc.
4138 Lakeside Drive
Richmond, CA 94806

Date Received: 01/25/95
Date Extracted: 02/02/95
Date Analyzed: 02/02/95
Date Reported: 02/06/95
Job #: 76612

Project: #4117
Matrix: Water

Total Petroleum Hydrocarbon Analysis
DHS Extraction Method (LUFT)
mg/L

<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Diesel</u>	<u>MDL</u>
76612-1	INFLUENT	550	10
76612-3	EFFLUENT	470	10

QA/QC: Method Spike Recovery for Diesel: 90%
Method Spike Duplicate Recovery for Diesel: 87%

MDL: Method Detection Limit. Compound below this level would not be detected.

Suminder Sidhu (For)
Jaime Chow
Laboratory Director

JC/dwc

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (510) 222-3002

FAX (510) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Chris Merritt
Riedel Environmental Services, Inc.
4138 Lakeside Drive
Richmond, CA 94806

Date Received: 01/25/95
Date Analyzed: 01/31/95
Date Reported: 02/06/95
Job #: 76612

Project: #4117
Matrix: Water

Aromatic Volatile Hydrocarbon Analysis
EPA Matrix 602
µg/L

<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Benzene</u>	<u>MDL</u>	<u>Toluene</u>	<u>MDL</u>
76612-1	INFLUENT	ND<30	30	ND<30	30
76612-2	MIDFLUENT	ND<30	30	ND<30	30
76612-3	EFFLUENT	ND<30	30	ND<30	30

<u>Lab I.D.</u>	<u>Client I.D.</u>	<u>Ethyl- benzene</u>	<u>MDL</u>	<u>Xylenes</u>	<u>MDL</u>
76612-1	INFLUENT	ND<30	30	ND<30	30
76612-2	MIDFLUENT	ND<30	30	ND<30	30
76612-3	EFFLUENT	ND<30	30	ND<30	30

QA/QC: Matrix Spike Recovery for Benzene: 97%
Matrix Spike Recovery for Toluene: 102%
Matrix Spike Recovery for Chlorobenzene: 108%

Matrix Spike Duplicate Recovery for Benzene: 101%
Matrix Spike Duplicate Recovery for Toluene: 109%
Matrix Spike Duplicate Recovery for Chlorobenzene: 115%

MDL: Method Detection Limit. Compound below this level would not be detected.

Sueinder Sidhu (For)

Jaime Chow
Laboratory Director

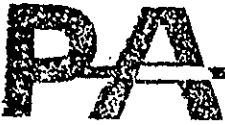
JC/dwc

CHAIN OF CUSTODY

PROJECT #: 4117		PO#: 136313		SAMPLERS (Signature): CHRIS MERRITT																
PROJECT ADDRESS:				ANALYSIS REQUESTED										REMARKS						
(COMPANY) RIEDEL ENVIRONMENTAL																				
(ADDRESS, CITY, ST., ZIP)																				
ATTN: CHRIS MERRITT PH: (610) 222-7810 FAX: ()																				
CROSS REFERENCE #	DATE	TIME	MATRIX		STATION LOCATION	TPH-GAS (5030)	TPH-DIESEL (LUFT)	BTX (602/8020)	TTL (CAN-17) METALS	STL METALS	TCLP METALS	OIL & GREASE (5520 B/D/E)	TOTAL HYDROCARBON (5520 F)	RCI	VOLATILES (8240)	SEMI-VOLATILES (8270)	PCB/PESTICIDES (8080)	HALOGENATED (601/8010)		
			S	W																
INFLUENT	1/25/95			X			X	X												3
MIDFLUENT	↓			X			X	X												2
EFFLUENT	↓			X			X	X												3
RELINQUISHED BY: (Signature) CHRIS MERRITT				DATE/TIME 1/25/95 5:07pm				RECEIVED BY: (Signature) Kurt J. Blauger				DATE/TIME 1/25/95 5:07								
RELINQUISHED BY: (Signature)				DATE/TIME				RECEIVED BY: (Signature)				DATE/TIME								
RELINQUISHED BY: (Signature)				DATE/TIME				RECEIVED BY: (Signature)				DATE/TIME								

TURN AROUND TIME: * 24 HRS ___ * 48 HRS ___ * 72 HRS ___ **5 DAYS X** * (SURCHARGE APPLIES)

SPECIAL NOTATIONS: _____



CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Chris Merritt
Riedel Environmental Services, Inc.
2900 Main Street, Bldg. 140
Alameda, CA 94501

Date Received: 04/12/95
Date Extracted: 04/18/95
Date Analyzed: 04/18/95
Date Reported: 04/21/95
Job #: 76812

Project: #4117/4117 - UPRR TOFC
Matrix: Water

Total Petroleum Hydrocarbon Analysis
DHS Extraction Method (LUFT)
mg/L

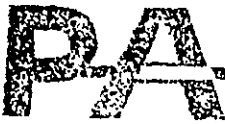
Table with 4 columns: Lab I.D., Client I.D., Diesel Range, MDL. Rows include 76812-1 INFLUENT (3.7), 76812-3 EFFLUENT (ND<0.05), and MDL values (0.05).

QA/QC: Method Spike Recovery for Diesel: 123%
Method Spike Duplicate Recovery for Diesel: 128%

MDL: Method Detection Limit. Compound below this level would not be detected.

Handwritten signature of Jaime Chow
Jaime Chow
Laboratory Director

JC/dwc



Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (510) 222-3002

FAX (510) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 1150

Attn: Chris Merritt
 Riedel Environmental Services, Inc.
 2900 Main Street, Bldg. 140
 Alameda, CA 94501

Date Received: 04/12/95
 Date Analyzed: 04/17/95
 Date Reported: 04/21/95
 Job #: 76812

Project: #4117/4117 - UPRR TOFC
 Matrix: Water

Aromatic Volatile Hydrocarbon Analysis
 EPA Method 602
 µg/L

Lab I.D.	Client I.D.	Benzene	MDL	Toluene	MDL
76812-1	INFLUENT	1.5	0.3	ND<0.3	0.3
76812-2	MIDFLUENT	1.3	0.3	ND<0.3	0.3
76812-3	EFFLUENT	ND<0.3	0.3	ND<0.3	0.3

Lab I.D.	Client I.D.	Ethyl-benzene	MDL	Xylenes	MDL
76812-1	INFLUENT	ND<0.3	0.3	2.3	0.3
76812-2	MIDFLUENT	ND<0.3	0.3	ND<0.3	0.3
76812-3	EFFLUENT	ND<0.3	0.3	ND<0.3	0.3

QA/QC: Matrix Spike Recovery for Benzene: 92%
 Matrix Spike Recovery for Toluene: 96%
 Matrix Spike Recovery for Chlorobenzene: 113%

Matrix Spike Duplicate Recovery for Benzene: 91%
 Matrix Spike Duplicate Recovery for Toluene: 94%
 Matrix Spike Duplicate Recovery for Chlorobenzene: 112%

MDL: Method Detection Limit. Compound below this level would not be detected.

Jaime Chow
 Laboratory Director

JC/dwc



RIEDEL ENVIRONMENTAL SERVICES, INC
 4138 Lakeside Drive, Richmond, California 94806
 Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: PRECISION Date: 4/12/95
 Contact: JAI AE Page: 1
 Phone: 222-3002 Of: 1

PROJECT INFORMATION

Project Manager: JOHN LICHTI Project Name: 4117-
 Fax Results to: CHRIS MERRITT: 748-3812 UPRETOFC
 Also to: _____ At: _____ Project # 4117
 Send Report to: CHRIS MERRITT P.O.# _____
 Sample Team (print): CHRIS MERRITT
 (signature): CHRIS MERRITT
 Turn Around Time: 10 Day 5 Day 48 Hr. 24 Hr. Other _____

ANALYSES

CONTAINERS

Sample ID	Lab ID	Date	Time	Matrix	Preserv.	TPH - Gasoline (EPA 5030, 8015)	TPH - Diesel (EPA 3510/3550, 8015)	TEPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015)	Purgeable Aromatics BTEX (EPA 802, 8020)	Purgeable Halocarbons (EPA 801, 8010)	Volatile Organics (EPA 824, 8240, 524.2)	Semi-Volatile Organics (EPA 625/627, 8270, 525)	Total Oil & Grease (EPA 5520, B+F, E+F)	Total Recoverable Petroleum Hydrocarbons (EPA 418.1)	Metals: Cd, Cr, Pb, Zn, Ni Total or Soluble	CMM Metals (17) Total or Soluble	Lead (Pb) Total, Soluble, or Organic	Extraction TCLP or STLC (Wet)	Number of Containers		
INFLUENT		4/12		H ₂ O	HCl	X			X											3	
MIDFLUENT				↓	↓				X											2	
EFFLUENT				↓	↓				X											3	

SPECIAL INSTRUCTIONS:	SAMPLE RECEIPT	RELINQUISHED BY (Sampler): <u>CHRIS MERRITT</u> 12:35 (Signature) (Time) <u>CHRIS MERRITT</u> 4/12 (Printed Name) (Date) <u>RES/SMITH</u> (Company)	RELINQUISHED BY: _____ (Signature) (Time) _____ (Printed Name) (Date) _____ (Company)	RELINQUISHED BY: _____ (Signature) (Time) _____ (Printed Name) (Date) _____ (Company)
	Total No. Containers _____	Head Space Y N	Rec'd Good Cond/Cold Y N	Conforms to Record Y N
COMMENTS:				

CHROMALAB, INC.

Environmental Services (SDB)

June 8, 1995

Submission #: 9505386

RIEDEL/SMITH ENVIRONMENTAL TEC

Atten: Chris Merritt

Project: UPRR-TOFC
Received: May 30, 1995

Project#: 4117

re: 1 sample for Diesel analysis.

Sampled: May 29, 1995
Method: EPA 3510/8015M
Matrix: WATER
Run#: 6954
Extracted: June 2, 1995
Analyzed: June 6, 1995

Spl #	CLIENT	SMPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
90463	INFLUENT		N.D.	20	N.D.	64

Note: Unknown hydrocarbons in the Diesel range, conc. = 14000ug/L.
Note: Reporting limit increases 20X due to dilution.

Sirirat Chullakorn

Sirirat (Sindy) Chullakorn
Chemist

Ali Kharrazi
Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

June 7, 1995

Submission #: 9505386

RIEDEL/SMITH ENVIRONMENTAL TEC

Atten: Chris Merritt

Project: UPRR-TOFC

Project#: 4117

Received: May 30, 1995

re: 1 sample for BTEX analysis.

Sampled: May 29, 1995
Method: EPA 602/8020

Matrix: WATER
Run#: 7020

Analyzed: June 6, 1995

Spl # CLIENT SMPL ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
90464 MIDFLUENT	3.2	N.D.	N.D.	N.D.
Reporting Limits	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	100	96	--	--



Oleg Nemtsov
Chemist



Ali Kharrazi
Organic Manager



RIEDEL ENVIRONMENTAL SERVICES, INC
 4138 Lakeside Drive, Richmond, California 94806
 Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: ChromALAB Date: 5/29/95
 Contact: ERIC TAM Page: 1
 Phone: 431-1788 Of: 1

PROJECT INFORMATION

Project Manager: CHRIS MERRITT Project Name: UPPER-TOSA
 Fax Results to: SAME At: 749-3802
 Also to: _____ At: _____
 Send Report to: CHRIS MERRITT Project # 4117
 Sample Team (print): CHRIS MERRITT P.O.# 32013
 (signature): CHRIS MERRITT
 Turn Around Time: 10 Day 5 Day 48 Hr. 24 Hr. Other _____

ANALYSES

CONTAINERS

Sample ID	Lab ID	Date	Time	Matrix	Preserv.	TPH - Gasoline (EPA 5030, 8015)	TPH - Diesel (EPA 3510/3550, 8015)	TEPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015)	Purgeable Aromatics BTEX (EPA 802, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240, 524.2)	SemiVolatile Organics (EPA 625/627, 8270, 525)	Total Oil & Grease (EPA 5520, B+F, E+F)	Total Recoverable Petroleum Hydrocarbons (EPA 418.1)	Metals: Cd, Cr, Pb, Zn, Ni Total or Soluble	CAM Metals (17) Total or Soluble	Lead (Pb) Total, Soluble, or Organic	Extraction TCLP or STLC (Wet)	Number of Containers
INFLUENT		5/21/95		WATER			X												1
MIDFLUENT					HCL				X										3

SPECIAL INSTRUCTIONS:	SAMPLE RECEIPT Total No. Containers _____ Head Space Y N Rec'd Good Cond/Cold Y N Conforms to Record Y N	RELINQUISHED BY (Sampler): <u>CHRIS MERRITT</u> 8:05 (Time) <u>CHRIS MERRITT</u> (Signature) <u>RES</u> (Printed Name) (Company)	RELINQUISHED BY: <u>Christopher B. White</u> 12:57 (Time) <u>CHRISTOPHER B. WHITE</u> (Signature) <u>RES/SMITH</u> (Printed Name) (Company)	RELINQUISHED BY: _____ (Signature) _____ (Time) _____ (Printed Name) _____ (Date) _____ (Company)
		RECEIVED BY: <u>Christopher B. White</u> 8:05 (Time) <u>CHRISTOPHER B. WHITE</u> (Signature) <u>RES/SMITH</u> (Printed Name) (Company)	RECEIVED BY: <u>Eric Tam</u> 12:57 (Time) <u>ERIC TAM</u> (Signature) <u>ChromALAB</u> (Printed Name) (Company)	RECEIVED BY (Laboratory): _____ (Signature) _____ (Time) _____ (Printed Name) _____ (Date) _____ (Company)

COMMENTS:

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: INFLUENT
AEN LAB NO: 9506434-01
AEN WORK ORDER: 9506434
CLIENT PROJ. ID: 4117

DATE SAMPLED: 06/30/95
DATE RECEIVED: 06/30/95
REPORT DATE: 07/11/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/07/95
TPH as Diesel	GC-FID	25 *	0.05	mg/L	07/10/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: MIDFLUENT
AEN LAB NO: 9506134-02
AEN WORK ORDER: 9506434
CLIENT PROJ. ID: 4117

DATE SAMPLED: 06/30/95
DATE RECEIVED: 06/30/95
REPORT DATE: 07/11/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8020 for BTEX	EPA 8020				
Benzene	71-43-2	2 *	0.5	ug/L	07/07/95
Toluene	108-88-3	ND	0.5	ug/L	07/07/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	07/07/95
Xylenes, total	1330-20-7	ND	2	ug/L	07/07/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

