

UNION PACIFIC RAILROAD COMPANY

K. R. (KEN) WELCH
Assistant Vice President
Environmental Management

Mailing Address
Room 930
1416 Dodge Street
Omaha, Nebraska 68179
Fax No (402) 271-4461



G (GLENN) THOMAS
Director-Environmental Operations-
Central
S. W. (STEVE) BERKI
Director-Environmental Operations-
Western
L A (LANNY) SCHMID
Director-Environmental Operations-
Southern
R. L. (RICK) EADES
Director-Environmental Site Remediation

File: Oakland, Ca.
Environmental

December 20, 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 (July to November 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

CC: Ms. Jennifer Eberle
Alameda County Dept of Environmental Health
1131 Harbor Bay Parkway, Room 250
Oakland, California 94502-6577

Mr. John Amdur
Port of Oakland
530 Water Street
Oakland, Ca. 94607

Jeff Asay - Law - Los Angeles
Steve Berki - Room 930
Denton Mauldin - USPCI

ENVIRONMENTAL
PROTECTION
95 DEC 27 PM 12:19

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

Prepared for
Union Pacific Railroad
by

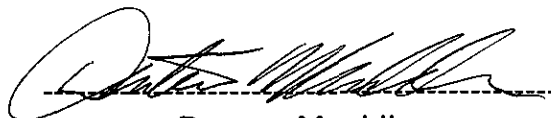
USPCI, a Laidlaw Company
Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301
Project Number 96199
December 19, 1995

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

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

for submittal to:
Ms. Jennifer Eberle
Alameda County
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502-6577

Prepared by:
USPCI, a Laidlaw Company
Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301



Denton Mauldin
Project Engineer



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

December 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 | 2 |
| 2.4 GRANULAR ACTIVATED CARBON USAGE | 3 |
| 3. GROUNDWATER MONITORING | 3 |
| 3.1 FLUID LEVEL MEASUREMENTS | 3 |
| 3.2 GROUNDWATER SAMPLING | 4 |
| 4. CONCLUSIONS | 5 |

FIGURES

- FIGURE 1 SITE LOCATION MAP
- FIGURE 2 POTENTIOMETRIC SURFACE MAP, NOVEMBER 1995
- FIGURE 3 DIESEL THICKNESS MEASURED IN MONITORING WELLS, NOVEMBER 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 HYDROCARBON TREATMENT SYSTEM, GRANULAR ACTIVATE CARBON USAGE
- TABLE 5 FLUID LEVEL MEASUREMENTS
- TABLE 6 ANALYTICAL RESULTS, GROUNDWATER MONITORING WELLS
- TABLE 7 DIESEL RECOVERY

APPENDICES

- APPENDIX A FIELD LOGS, GROUNDWATER RECOVERY AND TREATMENT SYSTEM
- APPENDIX B ANALYTICAL RESULTS

1. INTRODUCTION

This report was prepared by USPCI Consulting Services, 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 groundwater treatment system, and the groundwater monitoring wells located at the fueling area of the Union Pacific Railroad (UPRR) Oakland Trailer on Flat Car (TOFC) railyard 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 (ACDEH) letter dated September 21, 1994. The objective of the monitoring program is to evaluate the migration potential of the contaminants and the effectiveness of the hydrocarbon recovery system.

The results from prior Laidlaw investigations and environmental engineering activities have been documented in previous reports and are not included 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 groundwater 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 groundwater 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 (diesel and water recovery) 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 July 1 to November 30, 1995, the groundwater recovery and treatment system treated approximately 530,000 gallons of groundwater. Since start-up on May 12, 1992, until June 30, 1995, the system has recovered approximately 7,500 gallons of diesel. Copies of the field logs for the Hydrocarbon Recovery System are included as Appendix A.

2.2 SYSTEM SAMPLING

On July 19 and October 13, 1995, water samples were collected from sampling ports located before and after the granular activated carbon vessels. All samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8020 and total petroleum hydrocarbons as diesel (TPH-D) using EPA method 8015 modified. On August 8, September 8, and November 22, 1995, water samples were collected from the sampling ports located before and between the granular activated carbon vessels. The samples collected before the two vessels were analyzed for TPH-D and used for estimating the loading of contaminants on the first vessel. The water samples collected from between the two granular activated carbon vessels were analyzed for BTEX and used to monitor the breakthrough of organics on the first of two vessels. 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. The results from the samples collected between the carbon vessels are presented in Table 3.

2.3.1 INFLUENT WATER STREAM TO CARBON UNITS

Sample results from the influent water stream to the carbon units reported benzene concentrations that ranged from 0.009 to 0.011 milligrams per liter (mg/l) for the two sampling events. Sample results for the influent water stream reported toluene concentrations of 0.0006 mg/l for both sampling events. Ethylbenzene and xylenes ranged from 0.005 to 0.010 mg/l and 0.015 to 0.020 mg/l, respectively. Influent TPH-D concentrations ranged from 11 to 66 mg/l.

2.3.2 EFFLUENT WATER STREAM FROM CARBON UNITS

Analytical results indicated that all BTEX concentrations in the effluent samples were below the method detection limits (MDLs) of 0.0005 mg/L for BTE and 0.002 mg/l for xylenes during the July 19, 1995, and October 13, 1995 sampling events. The effluent TPH-D concentrations were 1.5 mg/l for the July 1995 sampling event and below the MDL of 0.050 mg/L for the October sampling event. The detection of TPH-D in the discharge on July 19, 1995, is most likely due to the routine backwashing procedures that were performed on the carbon canisters during the previous two days.

2.3.3 WATER STREAM BETWEEN CARBON UNITS

The benzene results from the midfluent samples ranged from below the MDL 0.0005 mg/l to 0.002 mg/l on July 19, 1995, during the semi-annual period. Toluene concentrations for this period ranged from below the MDL of 0.0005 mg/L to 0.0008 mg/L. Ethylbenzene and xylenes were reported

below the MDLs 0.0005 and 0.002 mg/l, respectively.

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 December 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

At the fueling area, fluid level measurements in the groundwater monitoring wells are collected bi-monthly and groundwater samples are collected on a semi-annual basis. During the semi-annual period, fluid level measurements were obtained from monitoring wells at the fueling area on July 31, September 7, and November 30, 1995. Monitoring information and an evaluation of changes in the potentiometric surfaces for the July and September, 1995 monitoring event were included in the "Third Quarter 1995 Monitoring Report," and submitted to ACDEH on October 30, 1995. The following sections present information about the collection of fluid level measurements and groundwater samples on November 30, 1995.

Historical fluid levels are presented in Table 5. A site map including all monitoring well and piezometer locations is presented as Figure 1.

3.1 FLUID LEVEL MEASUREMENTS

Corrected groundwater elevations decreased an average amount of approximately 0.7 feet in all the groundwater monitoring wells and piezometers from September to November 1995. Fluid levels measured during the November 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.

In Figure 2, the groundwater elevations of wells (OMW-1, OMW-5, OMW-6, and OMW-10) outside

the influence of the recovery wells indicate a groundwater flow to the southeast towards the Oakland Estuary. Groundwater elevations indicate a groundwater gradient towards the recovery system in the portion of the site containing diesel, which indicates that the recovery wells are providing adequate capture of the diesel plume. Pumping rates for the three well recovery system averaged between two and over three gallons per minute for the semi annual period. Although the recovery wells do experience some down-time for required periodic maintenance, overall system production has remained relatively constant since start-up in May 1992.

The presence of diesel was observed in monitoring wells OMW-4, OMW-7, OMW-9, and OMW-10 during the November 30, 1995 fluid level measuring event. This is consistent with previous fluid level measurements. Diesel was also observed in piezometers OP-1, OP-2, OP-3, and OP-4 on November 30, 1995 sampling event. Although the observed diesel thickness in piezometer OP-1 increased by approximately 3 feet, the observed diesel thicknesses in all groundwater monitoring wells and piezometers decreased an average of over one foot. Figure 3 illustrates the diesel thickness as measured in monitoring wells and piezometers during the November 30, 1995 event.

3.2 GROUNDWATER SAMPLING

Semi-annual groundwater samples were collected on November 30, 1995. Monitoring wells OMW-1, OMW-2, OMW-3, OMW-5, OMW-6, and OMW-8 were sampled on these dates and analyzed for TPH-D and BTEX. Monitoring wells OMW-4, OMW-7, OMW-9, and OMW-10 were not sampled due to the presence of diesel in the wells. Analytical results have not been received yet and will be included in the first quarter 1996 monitoring report. Historical groundwater sampling results are presented in Table 6.

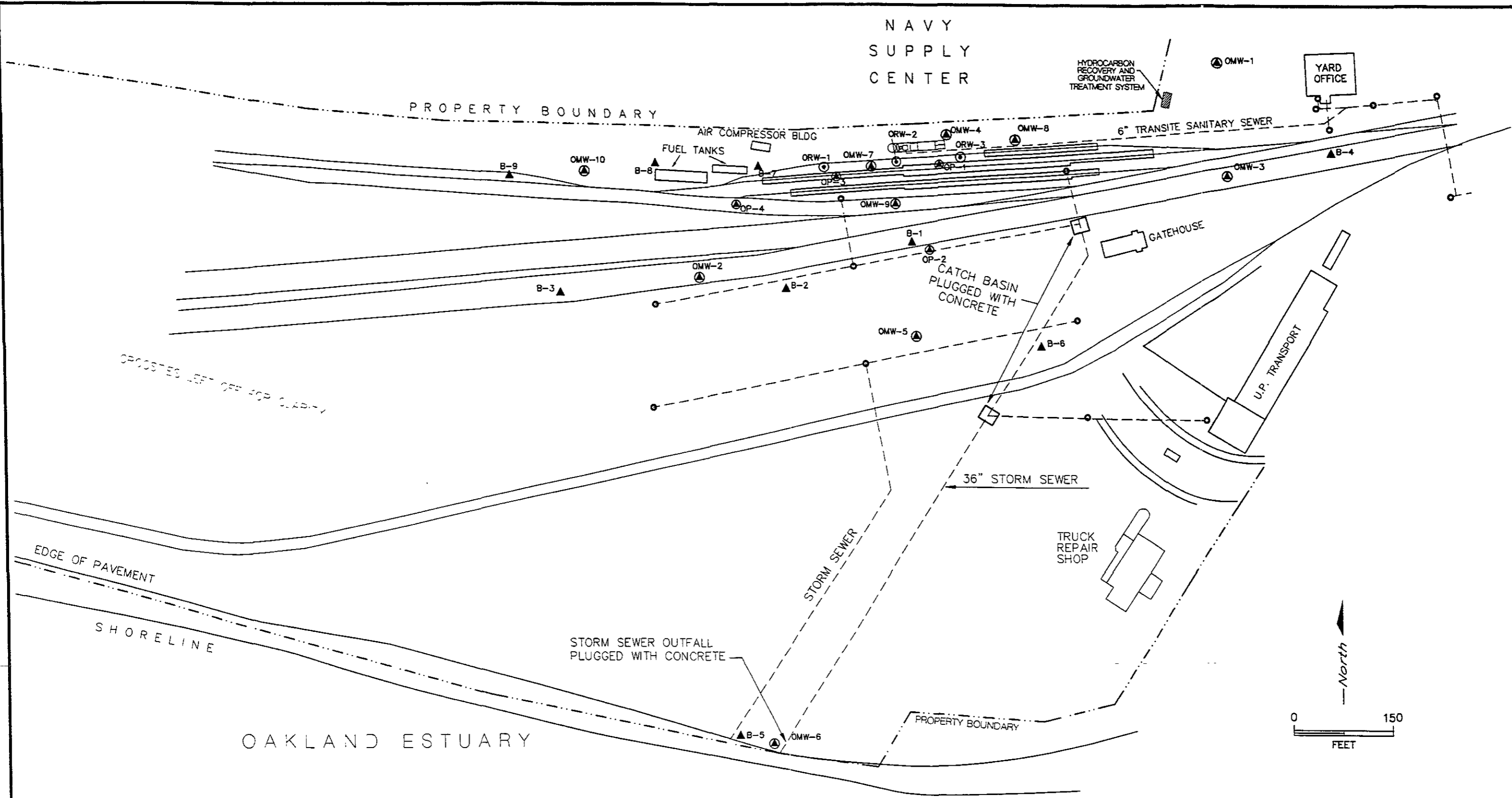
4. CONCLUSIONS

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

- Water discharge from the Hydrocarbon Recovery System did not exceed the EBMUD discharge limits during the monitoring period. *what about 1.5 ppm TPHd in 7-95?*
- The groundwater monitoring well water level information for November 1995 indicates a site-wide groundwater gradient to the southeast, 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 operating recovery well.
- Fluid level measurements in groundwater monitoring wells do not suggest that the diesel plume has migrated.
- With the exception of piezometer OP-1, an average diesel thickness decrease of over one foot was observed in all groundwater monitoring wells and piezometers.

FIGURES

NAVY
SUPPLY
CENTER



PROPERTY BOUNDARY

HYDROCARBON
RECOVERY AND
GROUNDWATER
TREATMENT SYSTEM

YARD
OFFICE

AIR COMPRESSOR BLDG

FUEL TANKS

GATEHOUSE

U.P. TRANSPORT

TRUCK
REPAIR
SHOP

PROPERTY BOUNDARY

OAKLAND ESTUARY



LEGEND

- ▲ MONITORING WELL (DEPT. 100 FEET DEEP)
- ▲ MONITORING WELL (DEPT. 100 FEET DEEP)
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELL

| | |
|----------|----------|
| DATE | 11/28/95 |
| BY | |
| CHECKED | |
| APPROVED | |

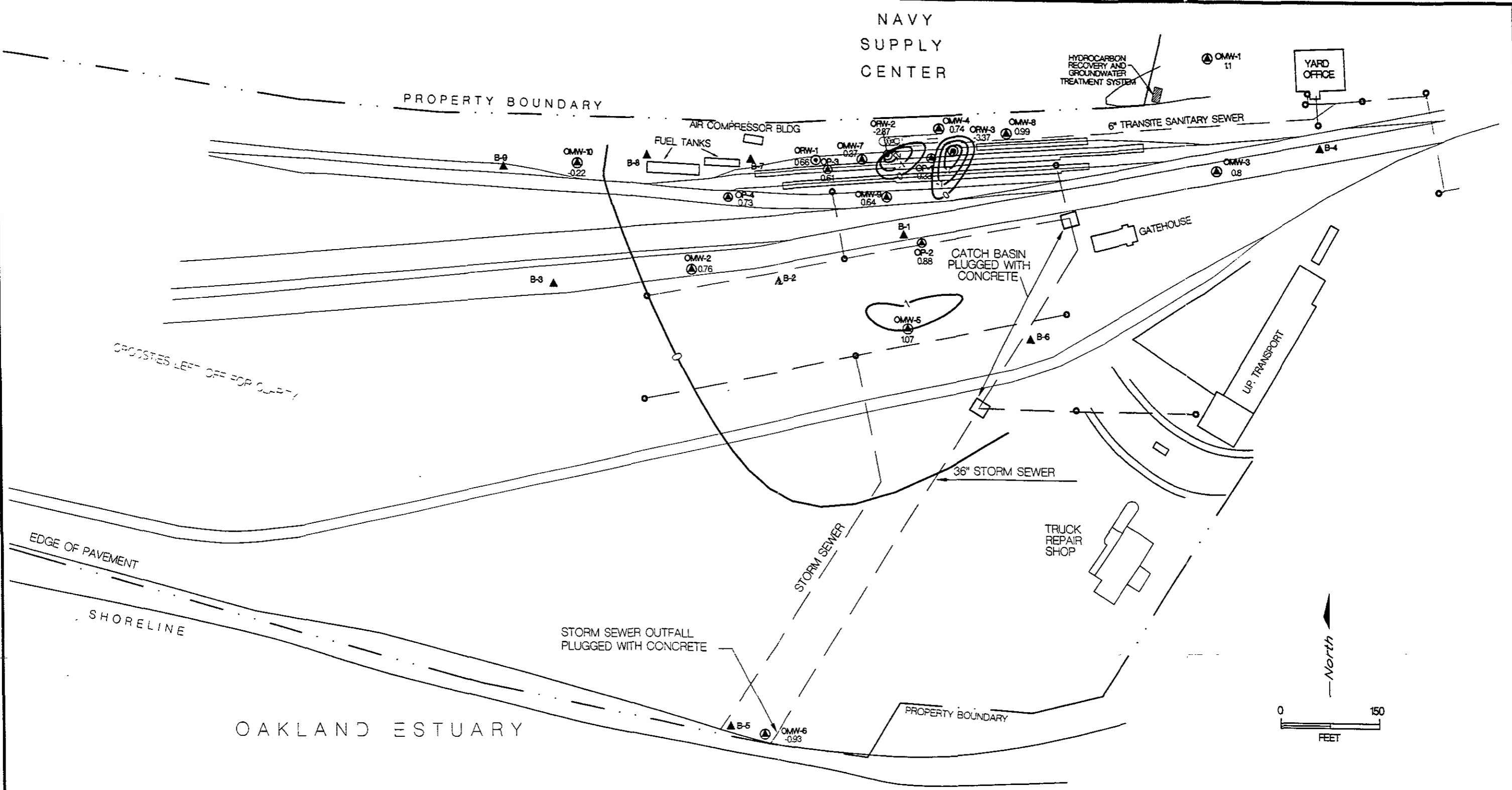
USPCI
A **UNIDEL** COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

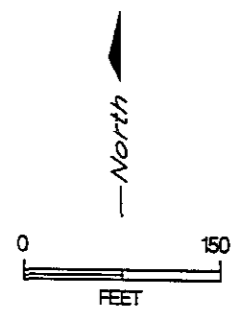
FIGURE 1
SITE LOCATION MAP

SCALE 1" = 150' DWG NO. 96199-55

NAVY
SUPPLY
CENTER



CROOSTES LEFT OFF FOR CLERT!



LEGEND

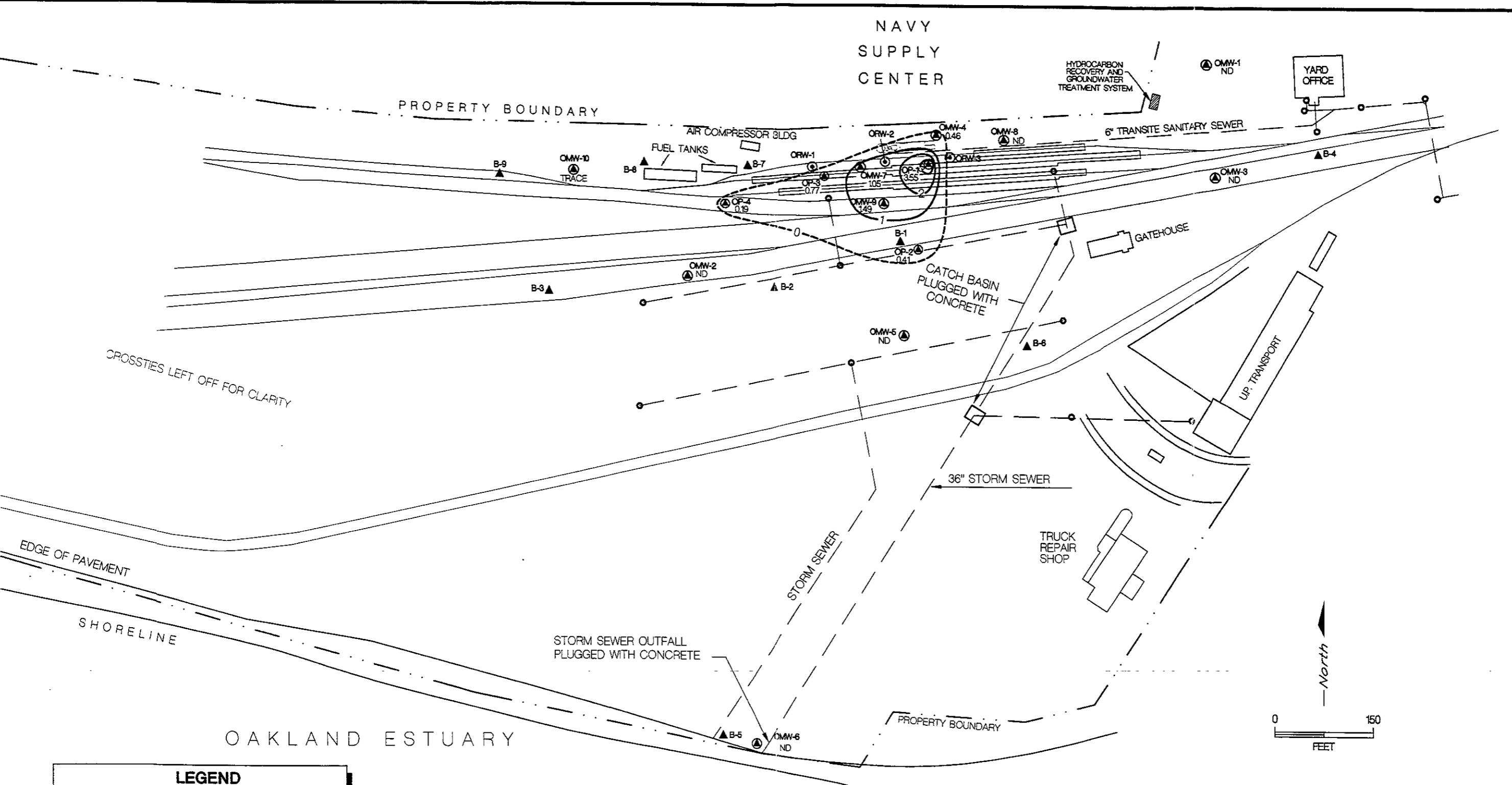
- ▲ MONITORING WELL OR RECUPERATOR LOCATION AND NUMBER
- ▲ BOPNG LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- GROUNDWATER ELEVATION CONTROL NUMBER INTERVAL

| | |
|-------|--------|
| DATE | 2/2/95 |
| BY | |
| APP'D | |
| REV | |

USPCI
A **LANDPLAN** COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA
 FIGURE 2
 WATER LEVELS MEASURED IN MONITORING WELLS
 NOVEMBER, 1995
 SCALE 1" = 150'
 DWG NO 96199-63

NAVY
SUPPLY
CENTER



| LEGEND | |
|--------|---|
| ▲ | MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER |
| ▲ | BOUNDARY LOCATION AND NUMBER |
| ○ | CATCH BASIN FOR STORM SEWER |
| ○ | RECOVERY WELLS |
| — | DIESEL THICKNESS CONTOUR |
| — | INTERFERING CLOUDS OR WELLS |
| ○ | NOT DETECTED |

| | |
|---------|---------|
| DATE | 12/3/95 |
| BY | |
| APP'D | |
| CHECKED | |
| DATE | |



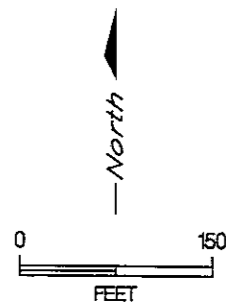
UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 3
DIESEL THICKNESS MEASURED IN MONITORING WELLS
NOVEMBER, 1995

SCALE 1" = 150'

DATE NOV 95

96199-64



TABLES

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

| 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 | 0.0091 | <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 |
| 07/19/95 | 0.011 | 0.0006 | 0.005 | 0.015 | 13 |
| 08/08/95 | NA | NA | NA | NA | 11 |
| 09/08/95 | NA | NA | NA | NA | 11 |
| 10/13/95 | 0.009 | 0.0006 | 0.010 | 0.020 | 66 |
| 11/22/95 | NA | NA | NA | NA | 38 |

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 Fueling Area

| 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 |
| 07/19/95 | <0.0005 | <0.0005 | <0.0005 | <0.002 | 1.5 |
| 10/13/95 | <0.0005 | <0.0005 | <0.0005 | <0.002 | <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 Fueling Area

| 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 |
| 07/19/95 | 0.002 | <0.0005 | <0.0005 | <0.002 |
| 08/08/95 | <0.0005 | <0.0005 | <0.0005 | <0.002 |
| 09/08/95 | <0.0005 | 0.0008 | <0.0005 | <0.002 |
| 11/22/95 | <0.0005 | <0.0005 | <0.0005 | <0.002 |

TABLE 4
Hydrocarbon Treatment System
Granular Activated Carbon Usage
Oakland Fueling Area

| Date | Time | Volume (gallons) | Periodic Flowrate (gpm) | Average Flowrate (gpm) | Influent Conc TPHd (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 |
| 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 | 0 | 418 | 1476 | 1527342 | 673 | Apr-97 |
| 06/30/95 | 02:00 PM | 2830380 | 2.13 | 1.69 | 25 | 259 | 1736 | 63424 | 26 | Jul-95 |
| 07/19/95 | 02:30 PM | 2882550 | 1.90 | 1.72 | 13 | 134 | 1870 | 59968 | 24 | Aug-95 |
| 07/21/95 | 11:00 AM | 2890500 | 2.98 | 2.98 | 12 * | 0 + | 0 | 1000655 | 233 | Mar-96 |
| 08/08/95 | 04:00 PM | 2986700 | 3.67 | 3.32 | 11 | 184 | 184 | 991051 | 207 | Mar-96 |
| 09/08/95 | 02:00 PM | 3108110 | 2.73 | 3.12 | 11 | 229 | 413 | 865962 | 192 | Mar-96 |
| 10/13/95 | 10:30 AM | 3206500 | 1.96 | 2.83 | 66 | 410 | 823 | 107058 | 26 | Nov-95 |
| 11/22/95 | 03:30 PM | 3318600 | 1.94 | 2.65 | 38 | 515 | 1338 | 104523 | 27 | Dec-95 |

* - Concentration estimate

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

+ - Changed carbon vessel on this date.

TABLE 5
Fluid Level Measurements
Union Pacific Railroad
Okland 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 | |
| 07/31/95 | | | 6.43 | 2.36 | | 2.36 | |
| 09/07/95 | | | 6.86 | 1.93 | | 1.93 | |
| 11/30/95 | | | 7.69 | 1.10 | | 1.10 | |
| 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 |
| 07/31/95 | | | NOT GAUGED | | | | |
| 09/07/95 | | | 4.35 | 1.53 | | 1.53 | |
| 11/30/95 | | | 5.12 | 0.76 | | 0.76 | |
| 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 |

TABLE 5 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland 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 | 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 | |
| | 07/31/95 | | | 5.22 | 1.94 | | 1.94 | |
| 09/07/95 | | | 5.64 | 1.52 | | 1.52 | | |
| 11/30/95 | | | 6.36 | 0.80 | | 0.80 | | |
| 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 | | |
| 07/31/95 | | 5.78 | 6.99 | 0.42 | 1.21 | 1.44 | | |
| 09/07/95 | | 6.01 | 6.92 | 0.49 | 0.91 | 1.25 | | |
| 11/30/95 | | 6.60 | 7.06 | 0.35 | 0.46 | 0.74 | | |
| 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 | |

**TABLE 5 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland 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 | 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 | | | | | |
| | 05/18/95 | | | 4.84 | 2.78 | | 2.78 | |
| | 07/31/95 | | NOT GAUGED | | | | | |
| | 09/07/95 | | | | 5.85 | 1.77 | | 1.77 |
| | 11/30/95 | | | | 6.55 | 1.07 | | 1.07 |
| 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 | | |
| 07/31/95 | | | 5.65 | 0.13 | | 0.13 | | |
| 09/07/95 | | | 5.51 | 0.27 | | 0.27 | | |
| 11/30/95 | | | 6.71 | -0.93 | | -0.93 | | |
| 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 | | |

**TABLE 5 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland 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 | 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 |
| | 07/31/95 | | 5.61 | 8.83 | -1.80 | 3.22 | 0.90 |
| | 09/07/95 | | 5.80 | 7.97 | -0.94 | 2.17 | 0.88 |
| | 11/30/95 | | 6.49 | 7.54 | -0.51 | 1.05 | 0.37 |
| 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 |
| 07/31/95 | | | 5.70 | 1.82 | | 1.82 | |
| 09/07/95 | | | 5.99 | 1.53 | | 1.53 | |
| 11/30/95 | | | 6.53 | 0.99 | | 0.99 | |
| 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 | |
| 07/31/95 | | 6.07 | 8.46 | -1.82 | 2.39 | 0.19 | |
| 09/07/95 | | 5.23 | 6.89 | -0.25 | 1.66 | 1.14 | |
| 11/30/95 | | 5.76 | 7.25 | -0.61 | 1.49 | 0.64 | |
| 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 |

TABLE 5 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland 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-10 | 08/11/92 | | | 5.83 | 1.73 | | 1.73 | |
| | 09/04/92 | | | 6.18 | 1.98 | | 1.98 | |
| | 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 | | | | | | |
| | 05/09/95 | NOT GAUGED - WELL COVERED | | | | | | |
| | 05/17/95 | | TRACE | 4.64 | 2.92 | | 2.92 | |
| | 07/31/95 | NOT GAUGED - WELL COVERED | | | | | | |
| | 09/07/95 | | | 6.02 | 1.54 | | 1.54 | |
| 11/30/95 | | TRACE | 7.78 | -0.22 | | -0.22 | | |
| ORW-1 | 06/19/91 | 6.59 | 3.91 | 9.36 | -2.77 | 5.45 | 1.81 | |
| ORW-1 | 05/11/92 | | | | | | | |
| | 06/09/92 | | | | | | | |
| | 07/07/92 | | | | | | | |
| | 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 | | | | | | | |
| | 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 | | | | | | | |
| | 11/10/93 | | | | | | | |
| | 01/24/94 | | | | | | | |
| | 03/23/94 | | | | | | | |
| | 05/02/94 | | | | | | | |
| | 07/29/94 | | | | | | | |
| | 09/26/94 | | | | | | | |
| | 11/15/94 | | | | | | | |
| | 01/25/95 | | | | | | | |
| | 05/09/95 | | | | | | | |
| 05/18/95 | | | 8.77 | 9.76 | -3.17 | 0.99 | -2.34 | |
| 07/31/95 | | | 8.35 | 10.55 | -3.96 | 2.20 | -2.11 | |
| 09/07/95 | | | 8.55 | 11.03 | -4.44 | 2.48 | -2.36 | |
| 11/30/95 | | | 5.92 | 5.98 | 0.61 | 0.06 | 0.66 | |
| ORW-2 | 06/19/91 | 6.79 | 4.36 | 4.38 | 2.41 | 0.02 | 2.43 | |
| ORW-2 | 05/11/92 | | 3.55 | 6.34 | 0.45 | 2.79 | 2.79 | |
| | 06/09/92 | | | | | | | |
| | 07/07/92 | | | | | | | |
| | 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 | | | | | | | |
| | 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 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

TABLE 5 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland 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-2 | 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 |
| | 07/31/95 | | 9.30 | 9.45 | -2.66 | 0.15 | -2.53 |
| 09/07/95 | | 9.45 | 9.50 | -2.71 | 0.05 | -2.67 | |
| 11/30/95 | | 9.66 | 9.68 | -2.89 | 0.02 | -2.87 | |
| 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 |
| | 07/31/95 | | TRACE | 9.68 | -3.38 | | -3.38 |
| | 09/07/95 | | 9.57 | 9.60 | -3.30 | 0.03 | -3.27 |
| | 11/30/95 | | TRACE | 9.67 | -3.37 | | -3.37 |
| OP-1 | 05/18/95 | 6.71 | 3.84 | 5.05 | 1.66 | 1.21 | 2.68 |
| | 07/31/95 | | 5.23 | 5.35 | 1.36 | 0.12 | 1.46 |
| | 09/07/95 | | 5.55 | 6.13 | 0.58 | 0.58 | 1.07 |
| | 11/30/95 | | 5.81 | 9.36 | -2.65 | 3.55 | 0.33 |
| OP-2 | 05/18/95 | 7.80 | 5.15 | 6.97 | 0.83 | 1.82 | 2.36 |
| | 07/31/95 | | NOT GAUGED | | | | |
| | 09/07/95 | | 6.04 | 7.85 | -0.05 | 1.81 | 1.47 |
| | 11/30/95 | | 6.85 | 7.26 | 0.54 | 0.41 | 0.88 |
| OP-3 | 05/18/95 | 6.48 | 4.88 | 9.86 | -3.38 | 4.98 | 0.80 |
| | 07/31/95 | | 5.32 | 8.46 | -1.98 | 3.14 | 0.66 |
| | 09/07/95 | | 5.16 | 8.22 | -1.74 | 3.06 | 0.83 |
| | 11/30/95 | | 5.75 | 6.52 | -0.04 | 0.77 | 0.61 |
| OP-4 | 05/18/95 | 6.32 | 3.28 | 7.15 | -0.83 | 3.87 | 2.42 |
| | 07/31/95 | | NOT GAUGED | | | | |
| | 09/07/95 | | 4.64 | 6.17 | 0.15 | 1.53 | 1.44 |
| | 11/30/95 | | 5.56 | 5.75 | 0.57 | 0.19 | 0.73 |

* 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 |
| | 11/30/95 | Analysis Pending | | | | |
| 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 |
| | 11/30/95 | Analysis Pending | | | | |
| 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 |
| | 11/30/95 | Analysis Pending | | | | |
| 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 |
| | 11/30/95 | Analysis Pending | | | | |
| 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 |
| | 11/30/95 | Analysis Pending | | | | |

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--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 | |
| | 11/30/95 | Analysis Pending | | | | | |
| 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***** | | | | | |
| | 11/30/95 | ***** 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.

TABLE 7
Diesel Recovery
Union Pacific Railroad
Oakland Fueling Area

| DATE | TOTAL VOLUME RECOVERED (gallons) | RECOVERY RATE (gal/day) | NOTES |
|----------|----------------------------------|-------------------------|-----------------------------|
| 03/02/93 | 1500 | -- | VOLUME ESTIMATED FROM GAUGE |
| 05/11/93 | 1700 | 2.9 | TANK EMPTIED |
| 06/10/93 | 1900 | 6.7 | VOLUME ESTIMATED FROM GAUGE |
| 09/03/93 | 2700 | 9.4 | TANK EMPTIED |
| 11/30/93 | 3400 | 8.0 | VOLUME ESTIMATED FROM GAUGE |
| 02/25/94 | 4200 | 9.2 | VOLUME ESTIMATED FROM GAUGE |
| 06/01/94 | 4800 | 6.3 | VOLUME ESTIMATED FROM GAUGE |
| 06/27/94 | 4900 | 3.8 | TANK EMPTIED |
| 09/23/94 | 5500 | 6.8 | TANK EMPTIED |
| 12/27/94 | 6000 | 5.3 | TANK EMPTIED |
| 03/17/95 | 6300 | 3.8 | TANK EMPTIED |
| 07/14/95 | 6900 | 5.0 | TANK EMPTIED |
| 10/18/95 | 7500 | 6 | TANK EMPTIED |

APPENDIX A

**FIELD LOGS
GROUNDWATER RECOVERY
AND TREATMENT SYSTEM**

PROJECT # 96199

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] |
| | | | | | | | | | | |
| 10/21/95 | 1:30p | 18.2 | 170050/3280300 | <12" | 7.5 | 7 | Adjusted ORW-1 | | | |
| 10/23/95 | 1:00p | 16.0 | 149770/3258000 | <12" | 9 | 8 | Fixed cl pump, Δ filters | | | |
| 10/13/95 | 10:00 | 20.5 | 116610/3219400 | 32.5 | 7 | 7 | quantity samples | | | |
| 10/10/95 | 12:30p | 18.2 | 107410/3209100 | 32 | 8 | 8.5 | cleaned ORW-3 valve | | | |
| 10/5/95 | 4:30 | 18.7 | 90290/3189600 | 31.5 | 7.5 | 7.0 | Backflushed Carbon | | | |
| 10/2/95 | 1:45p | 16.8 | 81020/3179100 | 30 | 9 | 9 | Cosmetic cleaning/changed ext | | | |
| 10/1/95 | 5:30 | 16.3 | 78840/3176400 | 30 | 8 | 8.75 | changed filters | | | |
| 9/29/95 | 12:15pm | 16.3 | 72000/3169300 | 29 | 9 | 7 | ORW-1 WORK/EXAMINATION | | | |
| 9/28/95 | 12:00pm | 20.0 | 68490/3164200 | 29 | 7.5 | 7 | SKIM RW-1 | | | |
| 9/26/95 | 10:30am | 18.4 | 63870/3158900 | 28.5 | 7 | 7 | ORW-1 LUBE | | | |
| 9/25/95 | 12:00pm | 4.7 | 60480/3155200 | 28 | 9 | 5 | SNAKE LINE | | | |
| 9/22/95 | 2:30pm | 14.2 | 54230/3147100 | 27.5 | 8 | 6 | CI PUMP RTR | | | |
| 9/20/95 | 10:45am | 16.5 | 48050/3140400 | 27.5 | 8 | 7 | BAIL, CLEAN, STRIP | | | |

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 |
|---------|----------|--------------|-------------------------------------|------------------|---------------|--------|---|------------------------|-------|----------|
| | | | | | INLET | OUTLET | | | | |
| | | | | | [PSIG] | [PSIG] | | | | |
| [D-M-Y] | [24:00] | [GPM] | [GALLONS:GALLONS] | [INCHES] | [PSIG] | [PSIG] | [PPM]:[PPM] | [pH] | [PPM] | |
| 9/19/95 | 4:00 AM | 17.0 | 46290 / 3138300 | 27.0 | 7 | 7 | ORW-1 WORK | | | |
| 9/18/95 | 11:00 AM | 12 | 41950 / 3133100 | 26.5 | 10 | 7.5 | FLUSH, CI | | | |
| 9/12/95 | 4:00 PM | 14.0 | 29010 29010 / 3115400 | 26.0 | 8 | 6 | ORW-1, 3 PARTS | | | |
| 9/11/95 | 3:30 PM | 17.4 | 26070 / 3112200 | 26.0 | 7.5 | 6.0 | CI, AIR LEAKS | | | |
| 9/8/95 | 2:00 PM | 16.6 | 14220 / 3104000 | 25.0 | 7.0 | 8.0 | SNAKE, BEFLUSH | | | |
| 9/7/95 | 10:00 AM | 12.0 | 15050 / 3099900 | 24.0 | 9.0 | 7.0 | WELL LEVELS-BAIL | | | |
| 9/6/95 | 4:00 PM | 13.7 | 12410 / 3096900 | 23.0 | 8.0 | 6.5 | QUICK CHECK | | | |
| 9/1/95 | 10:20 AM | OFF | 308989 / 3082600 | 22.5 | OFF | OFF | RR PUMP, CLEAR LINES, FLUSH FILTERS | | | |
| 8/29/95 | 5:00 PM | 13 | # / 3074400 | 22.5 | 9.0 | 7.0 | BACKY ORW-1 PUMP | | | |
| 8/25/95 | 1:30 PM | 15.5 | 2943350 / 3059600 | 22.5 | 7.0 | 8.0 | REPAIR ORW-3 REGULATOR | | | |
| 8/24/95 | 11:00 AM | OFF | NV / 3053400 | 22.0 | 6.5 | 9.5 | ORW3 REG BUSTED | | | |
| 8/18/95 | 12:00 PM | 6.7 | 2168600 / 3031000 | 19.0 | 11.0 | 11.0 | FLUSH, FILTERS. | | | |
| 8/14/95 | 5:00 PM | 5.7 | 2953730 / 3015200 | 18.0 | 10.5 | 7.0 | QUICK CHECK | | | |
| 8/10/95 | 4:00 PM | 14.5 | 2937050 / 2986700 | 16.5 | 7.5 | 7.0 | MONTHLY SAMPLES | | | |
| 8/7/95 | 12:30 PM | 13 | NV / 2990700 | 16.5 | 9.0 | 7.0 | H ₂ O LEVELS, BAIL | | | |
| 8/1/95 | 2:30 PM | 14.2 | 290950 / 2952300 | NA | 8.5 | 6.0 | REMOVED EMPTY CI LINES, FILTERS | | | |

MAIL COPIES MONTHLY TO: USPCI, 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 | | | |
| 7/31 | 4:30pm | OFF | 2937950 | 16 | 8 | 7 | WELLS | | | |
| 7/29 | 6:15pm | OFF | 289189/2937600 | 15.5 | 7 | 6 | COPY LOGS | | | |
| 7/27 | 12:15pm | 0.0 | ————— | 14" | 12+ | 7 | ADJUST WELLS, FLUSH NEW PRIMARY | | | |
| 7/25/95 | 3:00pm | 0 | NR 12917700 | 13" | 0 | 0 | SNAKED LINE CLEAR | | | |
| 7/21/95 | 4:00am | ————— | ————— | ————— | ————— | ————— | CARBON CHANGE OUT/WELL WORK | | | |
| 7/19/95 | 1:00pm | 15.0 | 2882550/2916800 | 13" | 6 | 7 | QUARTERLY, FLUSH, FILTERS, WELLS | | | |
| 7/18/95 | 1:00pm | 15.5 | 2877650/2912100 | 12" | 9 | 6 | ADJUST WELLS, FLUSH PRIME | | | |
| 7/17/95 | 3:30pm | OFF | 2874550/2909400 | 12" | 7 | 9 | FILTERS, FLUSH, CLEANUP | | | |
| 7/14/95 | 1:20pm | OFF | 2866540/2900400 | 40% ^{0"} | 5.5 | 10.5 | | | | |
| 7/10/95 | 12:20pm | 2.3 | 2854740/2897300 | 39.0 | 12 | 9 | SWITCHED CI, BACKFLUSHED, FILTERS | | | |
| 6/30/95 | 4:00pm | OFF | LED TO OPEN/2857000 | 36.5 | 7.5 | 7.5 | IM SAMPLE, FILTERS, PUMP ADJ | | | |
| 6/27/95 | 3:30 | OFF | 2824280/2852500 | 36 | 7 | 7.5 | CHANGE FILTERS ADJUST CI | | | |
| 6/22 | | | | | | | SAMPLED MOTOR FREIGHT | | | |
| 6/21/95 | 4:00pm | OFF | 2816890/2844000 | 34.5 | 8 | 6 | SOLAR STAPPER REPAIR ATTEMPT | | | |
| 6/12/95 | 12:00pm | 4.4 | 2786890/2810100 | 34 | 12 | 6 | FLUSH, FILTERS, BAIL OIL | | | |
| 6/7/95 | 2:00pm | OFF | 2770380/2790500 | 34 | — | — | CHECK WELLS, BAIL | | | |

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

APPENDIX B

ANALYTICAL RESULTS

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: INFLUENT
 AEN LAB NO: 9507219-01
 AEN WORK ORDER: 9507219
 CLIENT PROJ. ID: 4117

DATE SAMPLED: 07/19/95
 DATE RECEIVED: 07/19/95
 REPORT DATE: 07/26/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|-------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | 11 * | 0.5 ug/L | | 07/22/95 |
| Toluene | 108-88-3 | 0.6 * | 0.5 ug/L | | 07/22/95 |
| Ethylbenzene | 100-41-4 | 5 * | 0.5 ug/L | | 07/22/95 |
| Xylenes, total | 1330-20-7 | 15 * | 2 ug/L | | 07/22/95 |
| #Extraction for TPH | EPA 3510 | - | Extrin Date | | 07/25/95 |
| TPH as Diesel | GC-FID | 13 * | 0.05 mg/L | | 07/26/95 |

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

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: MIDFLUENT
 AEN LAB NO: 9507219-02
 AEN WORK ORDER: 9507219
 CLIENT PROJ. ID: 4117

DATE SAMPLED: 07/19/95
 DATE RECEIVED: 07/19/95
 REPORT DATE: 07/26/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|-------------------|-----------------|--------|--------------------|-------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | 2 * | 0.5 ug/L | | 07/21/95 |
| Toluene | 108-88-3 | ND | 0.5 ug/L | | 07/21/95 |
| Ethylbenzene | 100-41-4 | ND | 0.5 ug/L | | 07/21/95 |
| Xylenes, total | 1330-20-7 | ND | 2 ug/L | | 07/21/95 |

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

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: EFFLUENT
 AEN LAB NO: 9507219-03
 AEN WORK ORDER: 9507219
 CLIENT PROJ. ID: 4117

DATE SAMPLED: 07/19/95
 DATE RECEIVED: 07/19/95
 REPORT DATE: 07/26/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|------------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | ND | 0.5 ug/L | | 07/21/95 |
| Toluene | 108-88-3 | ND | 0.5 ug/L | | 07/21/95 |
| Ethylbenzene | 100-41-4 | ND | 0.5 ug/L | | 07/21/95 |
| Xylenes, total | 1330-20-7 | ND | 2 ug/L | | 07/21/95 |
| #Extraction for TPH | EPA 3510 | - | | Extrn Date | 07/25/95 |
| TPH as Diesel | GC-FID | 1.5 * | 0.05 mg/L | | 07/26/95 |

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

R-5.5-A
AEN # 9507219



RIEDEL ENVIRONMENTAL SERVICES, INC
1138 Lakeside Drive, Richmond, California 94806
Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: AEN Date: 7/19/95
Contact: DEAN Page: _____
Phone: 930 9090 Of: _____

PROJECT INFORMATION

Project Manager: CHRIS MERRITT Project Name: UPPER TOLC
Fan Results to: SAME At: _____
Also to: _____ At: _____
Send Report to: CHRIS MERRITT Project # 4117
Sample Team (print): CHRIS MERRITT P.O.# ACE 112422
(signature): CHRIS MERRITT 7/20/95
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+P) | Total Recoverable Petroleum Hydrocarbons (EPA 418.1) | Metals: Co, 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 | 01A-C | 7/19/95 | 2:50PM | H ₂ O | HCL | X | X | X | X | | | | | | | | | | 3 |
| MIDFLUENT | 02AB | | | | | X | X | X | X | | | | | | | | | | 2 |
| EFFLUENT | 03A-C | | | | | | | | | | | | | | | | | | 3 |

SPECIAL INSTRUCTIONS:

SAMPLE RECEIPT
Total No. Containers 8
Head Space Y N
Rec'd Good Cond/Cold Y N
Conforms to Record Y N
ASB

REINQUISHED BY (Sampler):
CHRIS MERRITT 2:52 PM
CHRIS MERRITT 7/19/95
RES
(Signature) (Time)
(Printed Name) (Date)
(Company)

REINQUISHED BY:
Dean Peters 5:35 PM
DEAN T. PETERS 7/19/95
AEN
(Signature) (Time)
(Printed Name) (Date)
(Company)

REINQUISHED BY:

(Signature) (Time)

(Printed Name) (Date)

(Company)

COMMENTS:

RECEIVED BY:
Dean T. Peters 2:52 PM
DEAN T. PETERS 7/19/95
AEN
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY:

(Signature) (Time)

(Printed Name) (Date)

(Company)

RECEIVED BY (Laboratory):
Devin Harrington
D. HARRINGTON 7/19/95
(Signature) (Time)
(Printed Name) (Date)
AEN
(Company) 7/19/95

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

RIEDEL/SMITH ENVIRONMENTAL
2900 MAIN STREET, BLDG. 140
ALAMEDA, CA 94501

REPORT DATE: 08/22/95

DATE(S) SAMPLED: 08/08/95

DATE RECEIVED: 08/08/95

ATTN: CHRIS MERRITT
CLIENT PROJ. ID: 4117

AEN WORK ORDER: 9508097


PROJECT SUMMARY:

On August 8, 1995, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: INFLUENT
AEN LAB NO: 9508097-01
AEN WORK ORDER: 9508097
CLIENT PROJ. ID: 4117

DATE SAMPLED: 08/08/95
DATE RECEIVED: 08/08/95
REPORT DATE: 08/22/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|------------|------------------|
| #Extraction for TPH | EPA 3510 | - | | Extrn Date | 08/13/95 |
| TPH as Diesel | GC-FID | 11 * | 0.05 | mg/L | 08/14/95 |

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

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: MIDFLUENT
AEN LAB NO: 9508097-02
AEN WORK ORDER: 9508097
CLIENT PROJ. ID: 4117

DATE SAMPLED: 08/08/95
DATE RECEIVED: 08/08/95
REPORT DATE: 08/22/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|-------------------|-----------------|--------|--------------------|-------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | ND | 0.5 | ug/L | 08/11/95 |
| Toluene | 108-88-3 | ND | 0.5 | ug/L | 08/11/95 |
| Ethylbenzene | 100-41-4 | ND | 0.5 | ug/L | 08/11/95 |
| Xylenes, total | 1330-20-7 | ND | 2 | ug/L | 08/11/95 |

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9508097

CLIENT PROJECT ID: 4117

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9508097
 DATE EXTRACTED: 08/13/95
 INSTRUMENT: C
 MATRIX: WATER

Surrogate Standard Recovery Summary

| Date Analyzed | Client Id. | Lab Id. | Percent Recovery n-Pentacosane |
|---------------|------------|---------|-----------------------------------|
| 08/14/95 | INFLUENT | 01 | 100 |
| QC Limits: | | | 59-118 |

DATE EXTRACTED: 08/13/95
 DATE ANALYZED: 08/13/95
 SAMPLE SPIKED: DI WATER
 INSTRUMENT: C

Method Spike Recovery Summary

| Analyte | Spike Added (mg/L) | Average Percent Recovery | RPD | QC Limits | |
|---------|-----------------------|--------------------------------|-----|---------------------|-----|
| | | | | Percent Recovery | RPD |
| Diesel | 1.82 | 96 | 6 | 65-103 | 12 |

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020

AEN JOB NO: 9508097
 INSTRUMENT: H
 MATRIX: WATER

Surrogate Standard Recovery Summary

| Date Analyzed | Client Id. | Lab Id. | Percent Recovery Fluorobenzene |
|---------------|------------|---------|-----------------------------------|
| 08/11/95 | MIDFLUENT | 02 | 100 |
| QC Limits: | | | 92-109 |

DATE ANALYZED: 08/10/95
 SAMPLE SPIKED: 9508035-03
 INSTRUMENT: H

Matrix Spike Recovery Summary

| Analyte | Spike Added (ug/L) | Average Percent Recovery | RPD | QC Limits | |
|---------|-----------------------|--------------------------------|-----|---------------------|-----|
| | | | | Percent Recovery | RPD |
| Benzene | 36.1 | 92 | 3 | 85-109 | 17 |
| Toluene | 99.3 | 98 | 12 | 87-111 | 16 |

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

11
(23,3-4)

9509097



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: AEN Date: 8/8/95
Contact: DEAN Page: 1
Phone: 930 9090 Of: 1

PROJECT INFORMATION

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

| ANALYSES | | | | | | CONTAINERS | | | | | | | |
|---------------------------------|------------------------------------|---|--|---------------------------------------|---|---|---|--|---|----------------------------------|--------------------------------------|-------------------------------|----------------------|
| TPH - Gasoline (EPA 5030, 8015) | TPH - Diesel (EPA 3510/3550, 8015) | TPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015) | Purgeable Aromatics BTEX (EPA 602, 8020) | Purgeable Halocarbons (EPA 601, 8010) | Volatiles Organics (EPA 624, 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 | CAM Metals (17) Total or Soluble | Lead (Pb) Total, Soluble, or Organic | Extraction TCLP or STLC (Wet) | Number of Containers |
| | X | | X | | | | | | | | | | 2 |
| | | | | | | | | | | | | | 3 |

| Sample ID | Lab ID | Date | Time | Matrix | Preserv. |
|-----------|--------|--------|------|------------------|----------|
| INFLUENT | 01AB | 8/8/95 | | H ₂ O | |
| MIDFLUENT | 02AC | ↓ | | ↓ | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

SPECIAL INSTRUCTIONS:

SAMPLE RECEIPT

Total No. Containers 3
 Head Space Y N
 Rec'd Good Cond/Cold Y N
 Conforms to Record Y N

RELINQUISHED BY (Sampler):
CHRIS MERRITT 4:01pm (Signature) (Time)
CHRIS MERRITT (Printed Name) (Date)
AEN (Company)

RELINQUISHED BY:
Dean Peters 4:45pm (Signature) (Time)
Dean Peters 8/8/95 (Printed Name) (Date)
AEN (Company)

RELINQUISHED BY:
 _____ (Signature) (Time)
 _____ (Printed Name) (Date)
 _____ (Company)

COMMENTS:

RECEIVED BY:
Dean Peters 4:04pm (Signature) (Time)
DEAN PETERS 8/8/95 (Printed Name) (Date)
AEN (Company)

RECEIVED BY:
 _____ (Signature) (Time)
 _____ (Printed Name) (Date)
 _____ (Company)

RECEIVED BY (Laboratory):
Chris Merritt 1645 (Signature) (Time)
CHRIS MERRITT 8/8/95 (Printed Name) (Date)
AEN (Company)

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

RIEDEL/SMITH ENVIRONMENTAL
2900 MAIN STREET, BLDG. 140
ALAMEDA, CA 94501

REPORT DATE: 09/25/95

DATE(S) SAMPLED: 09/08/95

DATE RECEIVED: 09/11/95

ATTN: CHRIS MERRITT
CLIENT PROJ. ID: 4117
CLIENT PROJ. NAME: UPRR-TOFC

AEN WORK ORDER: 9509128


PROJECT SUMMARY:

On September 11, 1995, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: INFLUENT
 AEN LAB NO: 9509128-01
 AEN WORK ORDER: 9509128
 CLIENT PROJ. ID: 4117

DATE SAMPLED: 09/08/95
 DATE RECEIVED: 09/11/95
 REPORT DATE: 09/25/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|------------|------------------|
| #Extraction for TPH | EPA 3510 | - | | Extrn Date | 09/16/95 |
| TPH as Diesel | GC-FID | 11 * | 0.05 | mg/L | 09/17/95 |

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

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: MIDFLUENT
AEN LAB NO: 9509128-02
AEN WORK ORDER: 9509128
CLIENT PROJ. ID: 4117

DATE SAMPLED: 09/08/95
DATE RECEIVED: 09/11/95
REPORT DATE: 09/25/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|-------------------|-----------------|--------|--------------------|-------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | ND | 0.5 | ug/L | 09/18/95 |
| Toluene | 108-88-3 | 0.8 * | 0.5 | ug/L | 09/18/95 |
| Ethylbenzene | 100-41-4 | ND | 0.5 | ug/L | 09/18/95 |
| Xylenes, Total | 1330-20-7 | ND | 2 | ug/L | 09/18/95 |

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9509128

CLIENT PROJECT ID: 4117

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9509128
 DATE EXTRACTED: 09/16/95
 INSTRUMENT: A
 MATRIX: WATER

Surrogate Standard Recovery Summary

| Date Analyzed | Client Id. | Lab Id. | Percent Recovery n-Pentacosane |
|---------------|------------|---------|-----------------------------------|
| 09/17/95 | INFLUENT | 01 | 99 |
| QC Limits: | | | 59-118 |

DATE EXTRACTED: 09/16/95
 DATE ANALYZED: 09/18/95
 SAMPLE SPIKED: DI WATER
 INSTRUMENT: C

Method Spike Recovery Summary

| Analyte | Spike Added (mg/L) | Average Percent Recovery | RPD | QC Limits | |
|---------|-----------------------|--------------------------------|-----|---------------------|-----|
| | | | | Percent Recovery | RPD |
| Diesel | 2.07 | 88 | 2 | 65-103 | 12 |

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020

AEN JOB NO: 9509128
 INSTRUMENT: F
 MATRIX: WATER

Surrogate Standard Recovery Summary

| Date Analyzed | Client Id. | Lab Id. | Percent Recovery Fluorobenzene |
|---------------|------------|---------|--------------------------------|
| 09/18/95 | MIDFLUENT | 02 | 94 |
| QC Limits: | | | 92-109 |

DATE ANALYZED: 09/18/95
 SAMPLE SPIKED: 9509102-01
 INSTRUMENT: F

Matrix Spike Recovery Summary

| Analyte | Spike Added (ug/L) | Average Percent Recovery | RPD | QC Limits | |
|---------|--------------------|--------------------------|-----|------------------|-----|
| | | | | Percent Recovery | RPD |
| Benzene | 20.3 | 99 | 2 | 85-109 | 17 |
| Toluene | 60.2 | 104 | <1 | 66-117 | 19 |

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

R-3, S-1



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: AEN 9509120 Date: 9/8/95
 Contact: LOKI Page: 1
 Phone: 430-9090 Of: 1

PROJECT INFORMATION

Project Manager: CHRIS MERRETT Project Name: UPRR-TOFF
 Fax Results to: SAME At: 748-3812
 Also to: _____ At: _____
 Send Report to: CHRIS MERRETT Project # 4117
 Sample Team (print): CHRIS MERRETT P.O.# _____
 (signatures): CHRIS MERRETT
 Turn Around Time: 10 Day 5 Day 48 Hr. 24 Hr. Other _____

| PROJECT INFORMATION | | | | | | ANALYSES | | | | | | | | | | | | CONTAINERS | |
|---------------------|--------|--------|------|--------|----------|---------------------------------|------------------------------------|---|--|---------------------------------------|--|--|---|--|---|----------------------------------|--------------------------------------|-------------------------------|----------------------|
| Sample ID | Lab ID | Date | Time | Matrix | Preserv. | TPH - Gasoline (EPA 5030, 8015) | TPH - Diesel (EPA 3510/3550, 8015) | TPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015) | Purgeable Aromatics BTEX (EPA 602, 8020) | Purgeable Halocarbons (EPA 601, 8010) | Volatile Organics (EPA 824, 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 | QAB | 9/8/95 | | WATER | — | | X | | | | | | | | | | | | 2 |
| MIDFLUENT | Q2A-C | ↓ | | ↓ | 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):
CHRIS MERRETT 5/4/95
 (Signature) (Time)
CHRIS MERRETT 9/11/95
 (Printed Name) (Date)
KES/SMITH
 (Company)

RELINQUISHED BY:

 (Signature) (Time)

 (Printed Name) (Date)

 (Company)

RELINQUISHED BY:

 (Signature) (Time)

 (Printed Name) (Date)

 (Company)

COMMENTS:
 If NOT completed in 5 days -
 Client aware Diesel on 7 day lat

RECEIVED BY:

 (Signature) (Time)

 (Printed Name) (Date)

 (Company)

RECEIVED BY:

 (Signature) (Time)

 (Printed Name) (Date)

 (Company)

RECEIVED BY (Laboratory):
Jen Smith 1/20
 (Signature) (Time)
LOKI 9/11/95
 (Printed Name) (Date)
AEN
 (Company)

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

RIEDEL/SMITH ENVIRONMENTAL
2900 MAIN STREET, BLDG. 140
ALAMEDA, CA 94501

REPORT DATE: 11/03/95

DATE(S) SAMPLED: 10/13/95

DATE RECEIVED: 10/13/95

ATTN: CHRIS MERRITT
CLIENT PROJ. ID: 4117

AEN WORK ORDER: 9510183

P.O. NUMBER: 35328


PROJECT SUMMARY:

On October 13, 1995, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: INFLUENT
 AEN LAB NO: 9510183-01
 AEN WORK ORDER: 9510183
 CLIENT PROJ. ID: 4117

DATE SAMPLED: 10/13/95
 DATE RECEIVED: 10/13/95
 REPORT DATE: 11/03/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|------------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | 9 * | 0.5 ug/L | | 10/19/95 |
| Toluene | 108-88-3 | 0.6 * | 0.5 ug/L | | 10/19/95 |
| Ethylbenzene | 100-41-4 | 10 * | 0.5 ug/L | | 10/19/95 |
| Xylenes, Total | 1330-20-7 | 20 * | 2 ug/L | | 10/19/95 |
| #Extraction for TPH | EPA 3510 | - | | Extrn Date | 10/17/95 |
| TPH as Diesel | GC-FID | 66 * | 0.05 mg/L | | 10/18/95 |

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: EFFLUENT
 AEN LAB NO: 9510183-02
 AEN WORK ORDER: 9510183
 CLIENT PROJ. ID: 4117

DATE SAMPLED: 10/13/95
 DATE RECEIVED: 10/13/95
 REPORT DATE: 11/03/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|------------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | ND | 0.5 ug/L | | 10/18/95 |
| Toluene | 108-88-3 | ND | 0.5 ug/L | | 10/18/95 |
| Ethylbenzene | 100-41-4 | ND | 0.5 ug/L | | 10/18/95 |
| Xylenes, Total | 1330-20-7 | ND | 2 ug/L | | 10/18/95 |
| #Extraction for TPH | EPA 3510 | - | | Extrn Date | 10/17/95 |
| TPH as Diesel | GC-FID | ND | 0.05 mg/L | | 10/18/95 |

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9510183

CLIENT PROJECT ID: 4117

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9510183
 DATE EXTRACTED: 10/17/95
 INSTRUMENT: A
 MATRIX: WATER

Surrogate Standard Recovery Summary

| Date Analyzed | Client Id. | Lab Id. | Percent Recovery n-Pentacosane |
|---------------|------------|---------|-----------------------------------|
| 10/18/95 | INFLUENT | 01 | 88 |
| 10/18/95 | EFFLUENT | 02 | 87 |
| QC Limits: | | | 59-118 |

DATE EXTRACTED: 10/16/95
 DATE ANALYZED: 10/18/95
 SAMPLE SPIKED: DI WATER
 INSTRUMENT: A

Method Spike Recovery Summary

| Analyte | Spike Added (mg/L) | Average Percent Recovery | RPD | QC Limits | |
|---------|-----------------------|-----------------------------|-----|------------------|-----|
| | | | | Percent Recovery | RPD |
| Diesel | 2.07 | 87 | 4 | 58-107 | 15 |

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9510183
 INSTRUMENT: H
 MATRIX: WATER

Surrogate Standard Recovery Summary

| Date Analyzed | Client Id. | Lab Id. | Percent Recovery | |
|---------------|------------|---------|------------------|--|
| | | | Fluorobenzene | |
| 10/19/95 | INFLUENT | 01 | 98 | |
| 10/18/95 | EFFLUENT | 02 | 102 | |
| QC Limits: | | | 92-109 | |

DATE ANALYZED: 10/18/95
 SAMPLE SPIKED: 9510214-01
 INSTRUMENT: H

Matrix Spike Recovery Summary

| Analyte | Spike Added (ug/L) | Average Percent Recovery | RPD | QC Limits | |
|---------|--------------------|--------------------------|-----|------------------|-----|
| | | | | Percent Recovery | RPD |
| Benzene | 19.4 | 100 | 6 | 85-109 | 17 |
| Toluene | 60.2 | 100 | <1 | 87-111 | 16 |

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

12-315-1
R-415-10
9510183



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: AEN Date: 10/13/95
Contact: ROXY Page: 1
Phone: 930 9090 Of: 1

PROJECT INFORMATION

Project Manager: CHRIS MERRITT Project Name: _____
 Fax Results to: SAME At: 748 3812
 Also to: _____ At: _____
 Send Report to: CHRIS MERRITT Project # 4117
 Sample Team (print): CHRIS MERRITT P.O. # 35328
 (signatures): CHRIS MERRITT per Chris Merritt
 JFS 10/20/95

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, 8242) | Semi-Volatile Organics (EPA 625/627, 8270, 825) | 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 | 01A-E | 10/13/95 | 14:00 | H ₂ O | HCL | | X | | X | | | | | | | | | | 5 |
| EFFLUENT | 02A-E | 10/13/95 | 14:00 | H ₂ O | HCL | | X | | X | | | | | | | | | | 5 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

| | | | |
|-------------------------------------|--|---|--|
| <p>SPECIAL INSTRUCTIONS:</p> | <p>SAMPLE RECEIPT</p> <p>Total No. Containers _____</p> <p>Head Space Y N</p> <p>Rec'd Good Cond/Cold Y N</p> <p>Conforms to Record Y N</p> | <p>RELINQUISHED BY (Sampler):</p> <p><u>CHRIS MERRITT</u> (Signature) _____ (Time) _____ <u>CHRIS MERRITT</u> (Printed Name) _____ (Date) _____ <u>SMITH</u> (Company) _____</p> <p>RECEIVED BY:</p> <p><u>Annabelle</u> (Signature) _____ (Time) _____ <u>Annabelle</u> (Printed Name) _____ (Date) _____ <u>AEN</u> (Company) _____</p> | <p>RELINQUISHED BY:</p> <p>_____ (Signature) _____ (Time) _____ _____ (Printed Name) _____ (Date) _____ _____ (Company) _____</p> <p>RECEIVED BY (Laboratory):</p> <p>_____ (Signature) _____ (Time) _____ _____ (Printed Name) _____ (Date) _____ _____ (Company) _____</p> |
| <p>COMMENTS:</p> | | | |

DEC 05 95 TUE 16:52

AEN CALIFORNIA

FAX NO. 5109300256

P. 03/05

PAGE 2

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: INFLUENT
AEN LAB NO: 9511390-01
AEN WORK ORDER: 9511390
CLIENT PROJ. ID: 4117

DATE SAMPLED: 11/22/95
DATE RECEIVED: 11/22/95
REPORT DATE: 12/05/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|---------------------|-----------------|--------|--------------------|------------|------------------|
| #Extraction for TPH | EPA 3510 | - | | Extrn Date | 11/29/95 |
| TPH as Diesel | GC-FID | 38 * | 0.3 mg/L | | 12/01/95 |

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

RIEDEL/SMITH ENVIRONMENTAL

SAMPLE ID: MIDFLUENT
AEN LAB NO: 9511390-02
AEN WORK ORDER: 9511390
CLIENT PROJ. ID: 4117

DATE SAMPLED: 11/22/95
DATE RECEIVED: 11/22/95
REPORT DATE: 12/05/95

| ANALYTE | METHOD/ CAS# | RESULT | REPORTING LIMIT | UNITS | DATE ANALYZED |
|-------------------|-----------------|--------|--------------------|-------|------------------|
| EPA 8020 for BTEX | EPA 8020 | | | | |
| Benzene | 71-43-2 | ND | 0.5 | ug/L | 12/03/95 |
| Toluene | 108-88-3 | ND | 0.5 | ug/L | 12/03/95 |
| Ethylbenzene | 100-41-4 | ND | 0.5 | ug/L | 12/03/95 |
| Xylenes, Total | 1330-20-7 | ND | 2 | ug/L | 12/03/95 |

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

R-I,S-F

951139D



2900 Main Street, Bldg. 140
Alameda, CA 94501
Phone: (510) 748-3800
Fax: (510) 748-3812

CHAIN OF CUSTODY REQUEST FOR ANALYSIS

Laboratory: AEN Date: 11/22/95
Contact: ROBIN Page: _____
Phone: 930 9090 of: _____

PROJECT INFORMATION

Project Manager: CHRIS MERRITT Project Name: 4117
Fax Results to: SAME (748-3812) UPRR-TOFC
Samplers: CHRIS MERRITT Project # 4117
P.O. # _____
Turn Around Time: 10 Day 5 Day 48 Hr. 24 Hr. Other: _____

ANALYSES

CONTAINERS

| Sample ID | Lab ID | Date | Time | Matrix | Preserv. | TPH Diesel (EPA 35102550/0151) | TPH Gasoline / BTEX (EPA 80080151/200501) | TPM Petroleum/Leak/Spill Oil (EPA 35102550/0151) | Purgeable Aromatics / BTEX (EPA 8020/20) | Purgeable Halocarbons (EPA 201/2010) | Volatile Organics (EPA 240/240) | Semi-volatile Organics (EPA 520/270/270/520) | TOG (SM 6520) (EPA 418.1) | TRPH (EPA 418.1) | Soluble Extraction TCUP or STC (MWT) | Title 22 Metals Total or Soluble | Number of Containers | |
|-----------|--------|----------|------|--------|----------|-----------------------------------|--|---|---|---|------------------------------------|---|------------------------------|---------------------|---|-------------------------------------|----------------------|---|
| INFLUENT | 01AB | 11/22/95 | | WATER | | X | | | | | | | | | | | | 2 |
| MEDFLUENT | 02A-C | 11/21/95 | | WATER | HCL | | | X | | | | | | | | | | 3 |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

SPECIAL INSTRUCTIONS / COMMENTS

Requested by (Sampler): CHRIS MERRITT 6:11 pm
 (Signature) _____ (Time)
 (Printed Name) CHRIS MERRITT 11/22/95
 (Date)
 Company: SMITH
 Received by: _____
 (Signature) _____ (Time)
 (Printed Name) _____ (Date)
 Company: _____

Requested by: _____
 (Signature) _____ (Time)
 (Printed Name) _____ (Date)
 Company: _____
 Received by: _____
 (Signature) _____ (Time)
 (Printed Name) _____ (Date)
 Company: _____

Requested by: _____
 (Signature) _____ (Time)
 (Printed Name) _____ (Date)
 Company: _____
 Received by (Laboratory): Lori L. Spitt 12:11
 (Signature) _____ (Time)
Lori L. Spitt 11/22/95
 (Printed Name) _____ (Date)
 Company: AEN

Total Number of Containers → 5
 Head Space? Y / N
 Received in good Condition (Color) Y / N
 Containers to Record? Y / N

SAMPLE RECEIPT

12/06/95 17:30 DEC-05-95 TUE 16:52 AEN CALIFORNIA FAX NO. 5109300256 P. 05/05