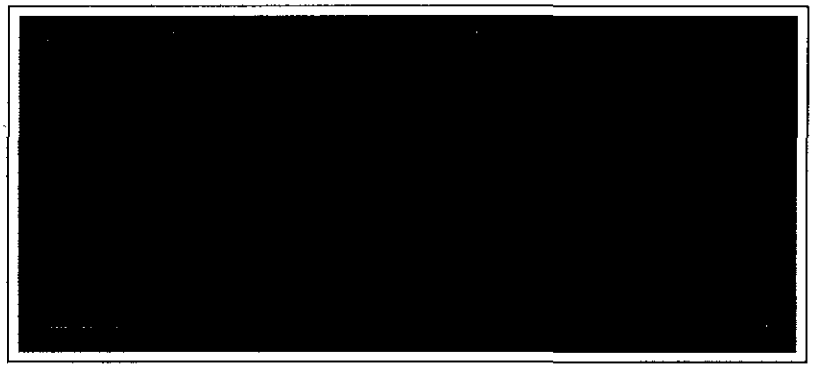


4-30-96

LAIDLAW
ENVIRONMENTAL
SERVICES

FIRST QUARTER 1996 MONITORING REPORT
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD
1717 MIDDLE HARBOR ROAD
OAKLAND, CALIFORNIA

USPCI PROJECT NO. 96199

APRIL 30, 1996

Prepared for:
Union Pacific Railroad

Prepared By:
USPCI/Laidlaw
Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301

USPCI
A LAIDLAW COMPANY

Consulting Services

April 30, 1996

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

RE: **"First Quarter 1996 Monitoring Report"**, Oakland Fueling Area in the Oakland TOFC Railyard, Oakland, California, USPCI Project No. 96199

Dear Mr. Patterson:

Enclosed is the final copy of the **"First Quarter 1996 Monitoring Report"**, dated April 30, 1996, for the Union Pacific Railroad Fueling Area at the trailer-on-flat-car (TOFC) loading facility at 1717 Middle Harbor Road in Oakland, California.

If you have any questions, please call us at (303) 938-5500.

Sincerely,

Denton Mauldin
Project Manager

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

cc: Charley Pinkerton, USPCI
Jennifer Eberle, ACDEH
John Amdur, Port of Oakland
Philip Herden, APL

Enclosure
DM/tjh

5665 Flatiron Parkway Boulder, Colorado 80301-2800
Phone 303.938.5500 Fax 303.938.5520

FIRST QUARTER 1996 MONITORING REPORT
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD
1717 MIDDLE HARBOR ROAD
OAKLAND, CALIFORNIA
USPCI/Laidlaw Project No. 96199

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

For submittal to:
Dale Klettke
Alameda County
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

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

Charley Pinkerton
Engineer

Sam Marquis
Project Hydrogeologist
R.G. No. 5110

April 30, 1996

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDIX

1. INTRODUCTION

This report was prepared by USPCI, a Laidlaw Company (Laidlaw) for Union Pacific Railroad (UPRR) in accordance with the Alameda County Department of Environmental Health letter dated September 21, 1994. The purpose of this report is to provide quarterly groundwater monitoring information pertaining to the hydrocarbon recovery system located at the fueling area of the UPRR Oakland Trailer on Flat Car (TOFC) railyard at 1717 Middle Harbor Road in Oakland, California. The objective of the quarterly groundwater monitoring is to evaluate changes in the distribution of petroleum hydrocarbons in groundwater and to assess the effectiveness of the hydrocarbon recovery system.

2. BACKGROUND INFORMATION

The fueling area is located in the northern portion of the UPRR Oakland TOFC Yard, which is adjacent to the Oakland Inner Harbor or Oakland Estuary (Figure 1). The area surrounding the site is used for heavy to light commerce. Residential areas are located approximately one-half mile north of the site and across the Oakland Estuary one-half mile south of the site.

Previous investigations indicated the presence of light non-aqueous phase liquid petroleum hydrocarbons (diesel) floating on the groundwater near the fueling area. A hydrocarbon recovery and groundwater treatment system (System) was installed to remove diesel from near the fueling area. The results from prior investigations and environmental engineering activities conducted by Laidlaw have been documented in previous reports.

Background information about the site was presented in the "**Hydrocarbon Investigation and Remediation Design**" report dated June 10, 1991. The results of the hydrocarbon investigation and a conceptual design of the 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 System has been presented in the "**Hydrocarbon Recovery System, As-Built Construction Report,**" dated July 20, 1992. Any process changes to the System were presented in the letter from UPRR dated March 22, 1993, which represented the permit renewal application.

3. CURRENT ACTIVITIES

The current activities at the site consist of performing sampling and maintenance on the System and conducting a groundwater monitoring program. Descriptions of these activities are included in the following sections.

3.1 SYSTEM ACTIVITIES

Water samples are collected from the water stream of the System. The samples are collected to assess the performance of the System and to compare the concentrations of the discharge with limits established by the East Bay Municipal Utility District.

Water samples are collected from sampling ports located before, between, and after the two granular activated carbon vessels. On a quarterly basis, samples are collected from before and after the carbon vessels. The samples are 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 a monthly basis, water samples are collected from sample ports before and between the carbon vessels and analyzed for TPH-D. The water samples collected from between the two vessels are analyzed for BTEX.

System maintenance consists of changing particulate filters (typically weekly), backwashing the carbon, and checking the chlorine feed system. Operational readings (cumulative flow, hydrocarbon storage volume, and pressure drop across the particle filters) are collected during each site visit.

3.2 GROUNDWATER MONITORING

Groundwater monitoring activities consist of collecting fluid level measurements in the groundwater monitoring wells on a bi-monthly basis, and collecting groundwater samples on a semi-annual basis.

Fluid levels measurements are used to generate potentiometric surface maps. The potentiometric surface maps provide information about the groundwater gradient and the operation of the recovery wells. The data used in these maps include wells with diesel. The groundwater elevations in these wells are corrected to account for the diesel overlying the water column in the well. This correction was 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.

Groundwater samples are collected from wells without the presence of diesel. Diesel is recovered by hand from wells with the presence of diesel. The samples are submitted to a laboratory and analyzed for BTEX and TPH-D.

4. SYSTEM OPERATION

The three well recovery system operated properly throughout the First Quarter of 1996 with limited downtime required for periodic maintenance. Detailed performance records for the recovery system are included in the semi-annual reports prepared following the second and fourth quarters of each year.

5. GROUNDWATER MONITORING

The following sections provide information about the recent groundwater monitoring.

5.1 FLUID LEVEL MEASUREMENTS

First quarter fluid level measurements were obtained from groundwater monitoring wells and piezometers at the fueling area on January 10 and March 25, 1996. All monitoring wells and piezometers, with the exception of OMW-6 and OP-3, demonstrated increased water level elevations in the quarter. The increase of groundwater elevations is consistent with past site data. The potentiometric surface map for January 1996 is presented in Figure 2. Figure 3 presents the potentiometric surface for March 1996. Historical fluid levels for each well are provided in Table 1.

Diesel was observed in three groundwater monitoring wells (OMW-4, OMW-7, and OMW-9) and three piezometers (OP-2, OP-3, and OP-4). In January 1996, traces of diesel were detected in well OMW-10 and piezometer OP-1. Figures 4 and 5 illustrate the diesel thicknesses as measured in the monitoring wells and piezometers during the January and March 1996 monitoring events, respectively.

The potentiometric surface results for January and March 1996 indicate that groundwater flow outside the influence of the recovery wells is to the south at an approximate hydraulic gradient of 0.006 feet/foot (32 feet/mile). A groundwater depression created by the recovery wells (ORW-1, ORW-2, and ORW-3) is evident on the potentiometric surface maps (Figures 2 and 3). The contour lines show an increased hydraulic gradient or convergent flow towards each individual recovery well and the entire well network in the portion of the site containing diesel. The hydraulic gradients in the immediate area of the recovery wells range from approximately 0.1 to 0.2 feet/foot (530 to 1,000 feet/mile), which is more than three orders of magnitude greater than the natural gradient outside of the zone of influence of the recovery wells.

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

All of the wells indicated that BTEX concentrations were below the method detection limit of 0.0005 mg/L. TPH was detected in monitoring wells OMW-1, OMW-2, OMW-3, OMW-5, OMW-6, and OMW-8. The concentrations of TPH ranged from 0.24 to 13 milligrams per liter. The BTEX concentrations were consistent with previous site data. However, TPH concentrations increased above the values observed since 1992. The analytical results are included as Table 2. Laboratory analytical reports from the November 1995 sampling event are included in the Appendix.

6. CONCLUSIONS AND RECOMMENDATIONS

The following subsections present conclusions and recommendations based on the first quarter 1996 monitoring results.

6.1 CONCLUSIONS

On the basis of the first quarter 1996 monitoring event, the following conclusions have been drawn:

- A steep hydraulic gradient has been developed towards the recovery wells
- The groundwater gradient, fluid level elevations, and observation of diesel is consistent with previous monitoring events
- The detection of TPH increased above historical levels

6.2 RECOMMENDATIONS

On the basis of the site information, Laidlaw recommends the following:

- Continue the quarterly monitoring program to estimate whether the increase of TPH is a trend
- Continue the operation of the system

FIGURES

NAVY
SUPPLY
CENTER

PROPERTY BOUNDARY

HYDROCARBON RECOVERY AND GROUNDWATER TREATMENT SYSTEM

OMW-1

YARD OFFICE

6" TRANSITE SANITARY SEWER

AIR COMPRESSOR BLDG

RETIRED FUEL TANKS

B-9 OMW-10 B-8 B-7 ORW-1 OMW-7 ORW-2 OMW-4 OMW-8 ORW-3 OP-1 OP-3 OP-4 OMW-9 OMW-3 B-4

B-1 OP-2 GATEHOUSE

OMW-2 B-3 B-2

CATCH BASIN PLUGGED WITH CONCRETE

OMW-5 B-6

U.P. TRANSPORT

CROSSTIES LEFT OFF FOR CLARITY

36" STORM SEWER

STORM SEWER

TRUCK REPAIR SHOP

EDGE OF PAVEMENT

SHORELINE

STORM SEWER OUTFALL PLUGGED WITH CONCRETE

B-5 OMW-6

PROPERTY BOUNDARY

OAKLAND ESTUARY

North

0 150

FEET

LEGEND

- MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS

BY	DATE
DRAWN CJJ	11/28/95
CHECKED	
APPROVED	
APPROVED	
APPROVED	

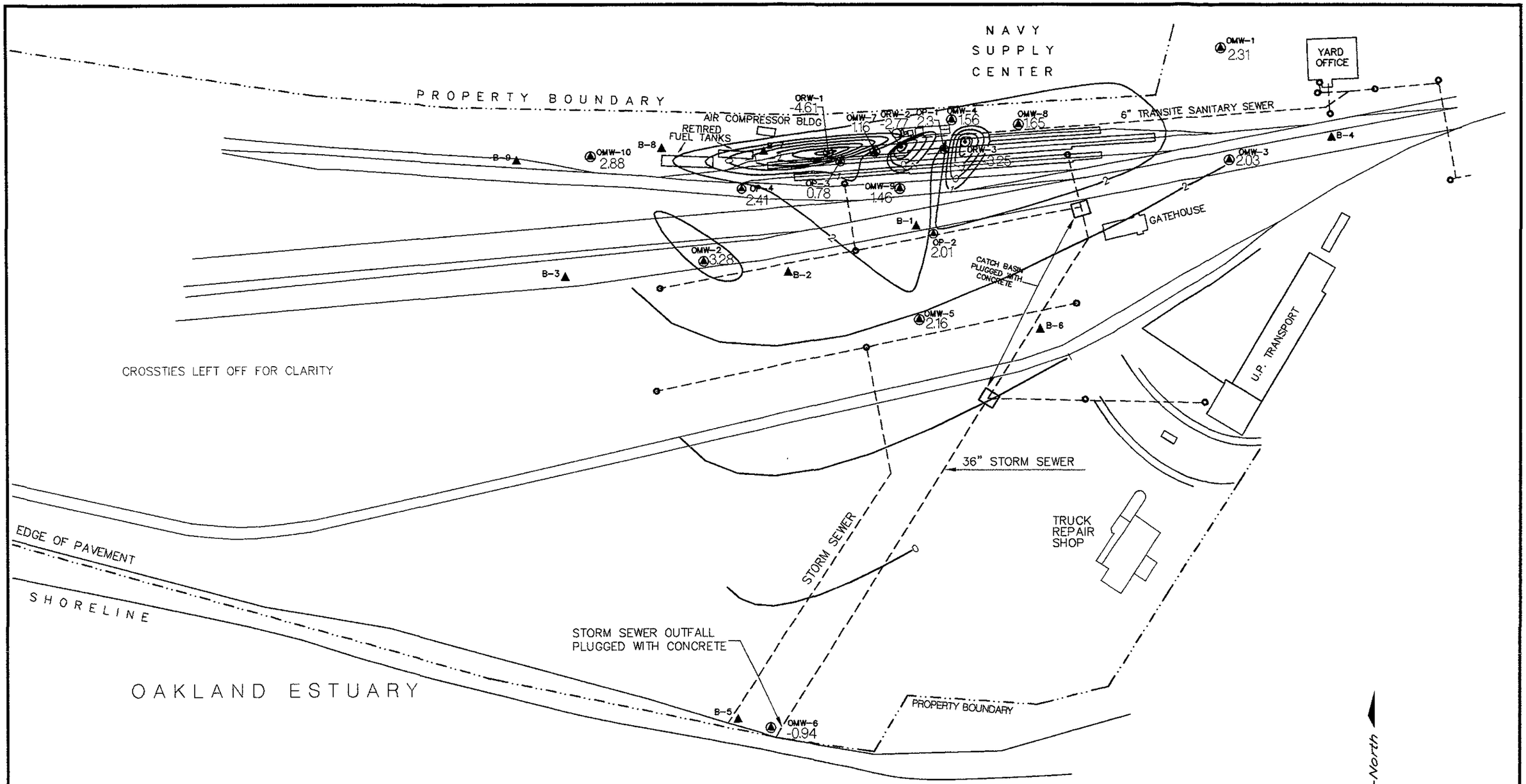
USPCI
A CADILLAC COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 1
SITE LOCATION MAP

SCALE 1" = 150'

DWG NO 96199-55



LEGEND

- ▲ MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- ▲ BORING LOCATION AND NUMBER
- o CATCH BASIN OR STORM SEWER
- ⊙ RECOVERY WELLS
- GROUNDWATER ELEVATION CONTOUR

BY	DATE
DRAWN WRB	4/23/96
CHECKED	
APPROVED	
APPROVED	
APPROVED	

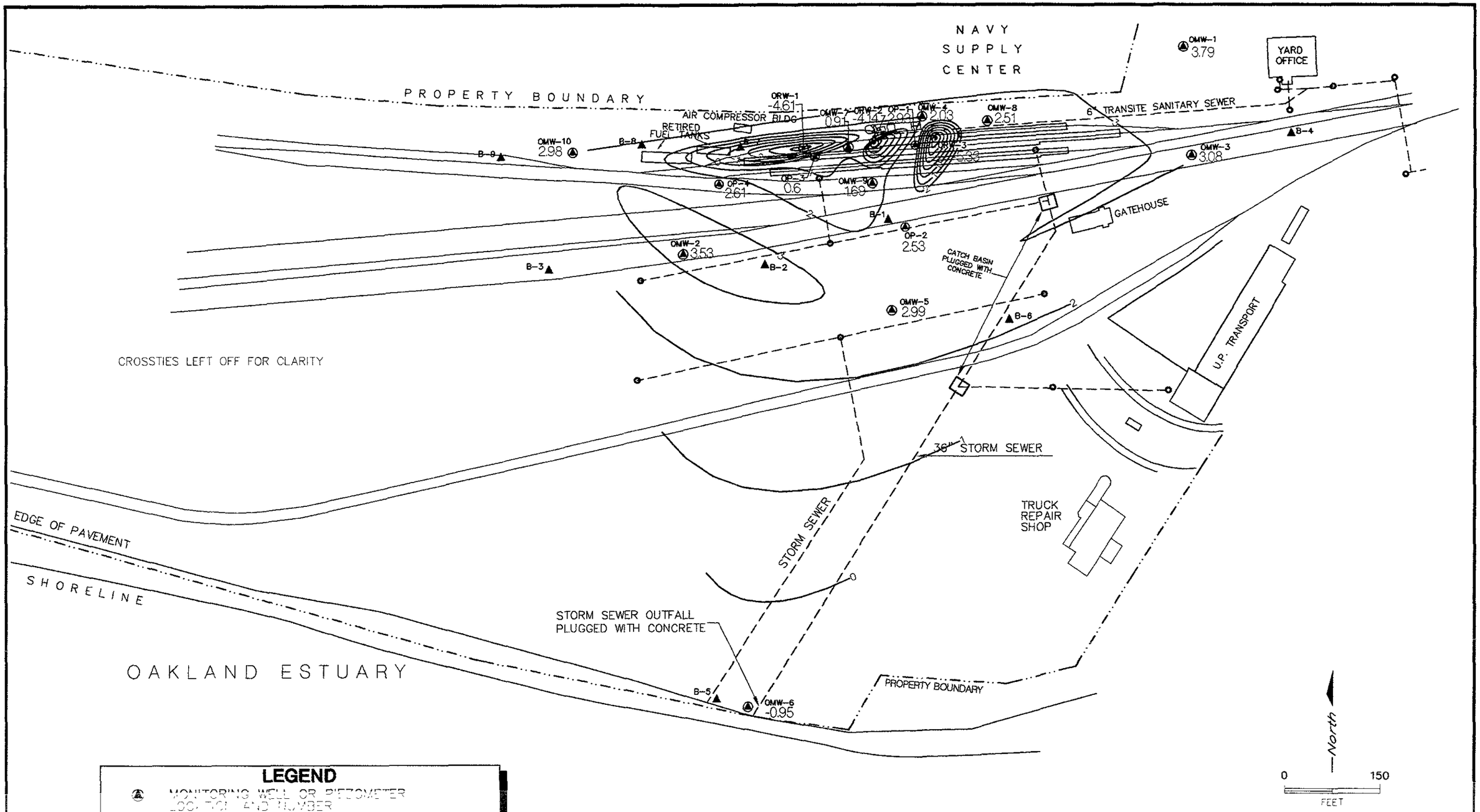
USPCI
A WASTE MANAGEMENT COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 2
WATER LEVEL MEASURED IN MONITORING WELLS
JANUARY 1996

SCALE 1" = 150'

DWG NO 96199-67



LEGEND

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

BY	DATE
DRAWN WRB	4/23/96
CHECKED	
APPROVED	
APPROVED	
APPROVED	

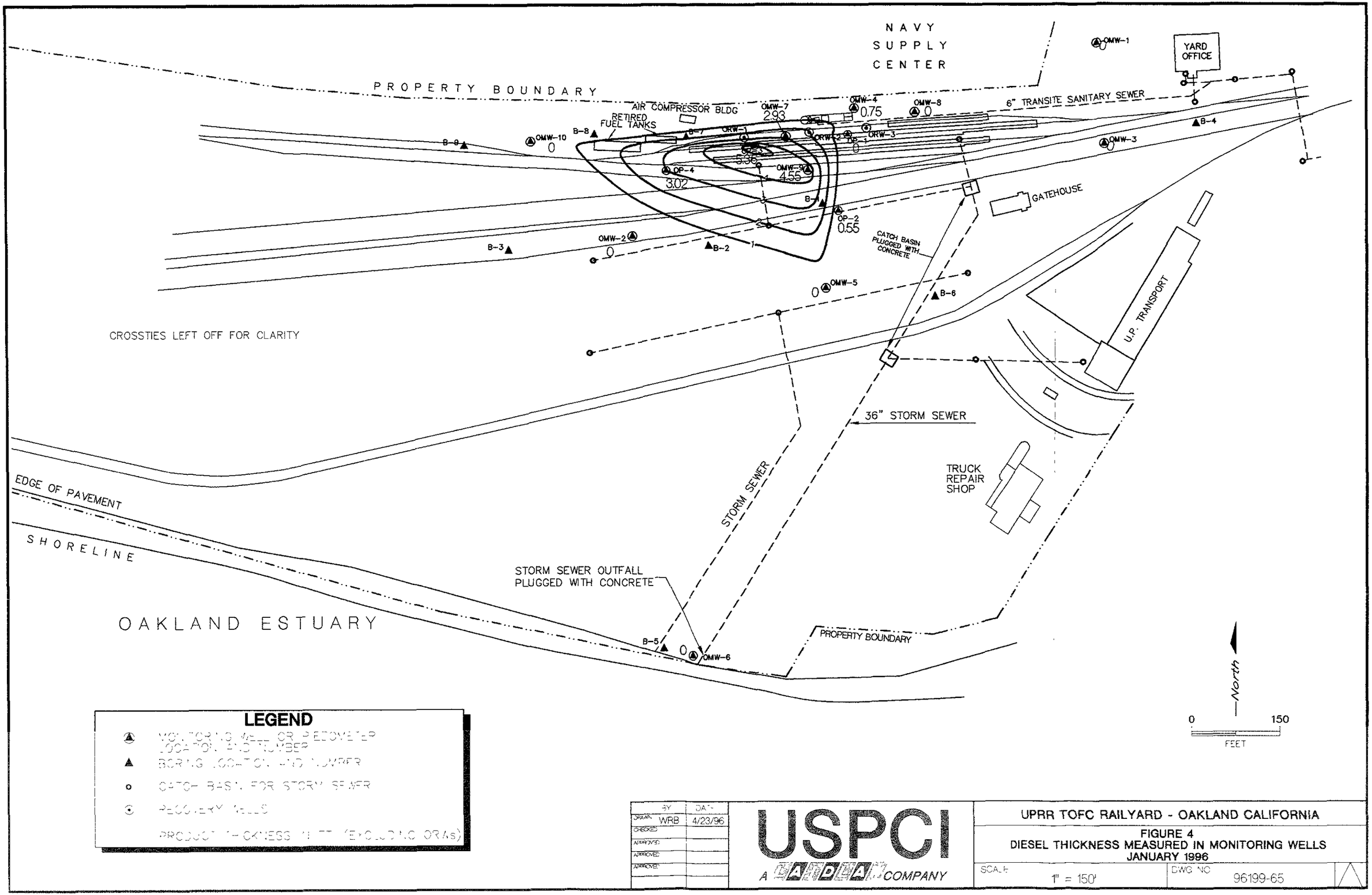
USPCI
A WASTE MANAGEMENT COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 3
WATER LEVEL MEASURED IN MONITORING WELLS
MARCH 1996

SCALE 1" = 150'

DWG NO 96199-68



LEGEND

- ▲ MONITORING WELL OR PIEDOMETER LOCATION AND NUMBER
- ▲ BORING LOCATION AND NUMBER
- o CATCH BASIN FOR STORM SEWER
- ⊙ RECOVERY WELLS
- PRODUCT THICKNESS IN FT. (EXCLUDING ORWs)

	BY	DATE
DRAWN	WRB	4/23/96
CHECKED		
APPROVED		
APPROVED		
APPROVED		

USPCI
A ADVANCED COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 4
DIESEL THICKNESS MEASURED IN MONITORING WELLS
JANUARY 1996

SCALE: 1" = 150'

DWG NO: 96199-65

TABLES

TABLE 1
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling 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		
	06/19/91			6.89	1.90		
	05/11/92			6.34	2.45		
	06/09/92			6.91	1.88		
	07/07/92			7.21	1.58		
	08/11/92			7.55	1.24		
	09/04/92			7.82	0.97		
	10/13/92			7.96	0.83		
	11/12/92			7.64	1.15		
	12/17/92			6.64	2.15		
	03/18/93			5.98	2.81		
	05/14/93			6.39	2.40		
	07/13/93			7.12	1.67		
	09/30/93			7.84	0.95		
	11/10/93			8.08	0.71		
	01/24/94			7.54	1.25		
	03/23/94			6.69	2.10		
	05/02/94			6.61	2.18		
	07/29/94			7.32	1.47		
	09/26/94			7.67	1.12		
	11/15/94			3.67	5.12		
	01/25/95			2.52	6.27		
	05/09/95			5.55	3.24		
	05/17/95			4.43	4.36		
	07/31/95			6.43	2.36		
	09/07/95			6.86	1.93		
	11/30/95			7.69	1.10		
	01/10/96			6.48	2.31		
	03/25/96			5.00	3.79		
OMW-2	04/09/91	5.88		2.10	3.78		
	06/19/91			3.59	2.29		
	05/11/92			3.22	2.66		
	06/09/92			3.97	1.91		
	07/07/92			4.21	1.67		
	08/11/92			4.46	1.42		
	09/04/92			4.77	1.11		
	10/13/92			4.96	0.92		
	11/12/92			4.08	1.80		
	12/17/92			1.70	4.18		
	03/18/93			1.94	3.94		
	05/14/93			3.29	2.59		
	07/13/93			4.28	1.60		
	09/30/93			4.99	0.89		
	11/10/93			5.23	0.65		
	01/24/94			3.30	2.58		
	03/23/94			3.55	2.33		
	05/02/94			4.95	0.93		
	07/29/94			4.49	1.39		
	09/26/94			4.92	0.96		
	11/16/94			1.03	4.85		
	01/25/95			3.35	2.53		
	05/09/95		NOT GAUGED				
	05/17/95			2.44	3.44		
	07/31/95		NOT GAUGED				
	09/07/95			4.35	1.53		
	11/30/95			5.12	0.76		
	01/10/96			2.60	3.28		
	03/25/96			2.35	3.53		

TABLE 1 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-3	04/09/91	7.16		3.93	3.23		
	06/19/91			5.33	1.83		
	05/11/92			5.92	1.24		
	06/09/92			5.48	1.68		
	07/07/92			5.78	1.38		
	08/11/92			6.09	1.07		
	09/04/92			6.33	0.83		
	10/13/92			6.55	0.61		
	11/12/92			6.16	1.00		
	12/17/92			5.15	2.01		
	03/18/93			2.58	4.58		
	05/14/93			4.91	2.25		
	07/13/93			5.70	1.46		
	09/30/93			6.43	0.73		
	11/10/93			6.92	0.24		
	01/24/94			3.50	3.66		
	03/23/94			5.90	1.26		
	05/02/94			5.84	1.32		
	07/29/94			5.98	1.18		
	09/26/94			6.32	0.84		
	11/15/94			2.36	4.80		
	01/25/95		NOT GAUGED – WELL UNDER WATER				
	05/09/95			4.37	2.79		
	05/17/95			4.46	2.70		
	07/31/95			5.22	1.94		
	09/07/95			5.64	1.52		
	11/30/95			6.36	0.80		
	01/10/96			5.13	2.03		
	03/25/96			4.08	3.08		
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
	01/10/96		5.73	6.48	0.93	0.75	1.56
	03/25/96		5.22	6.19	1.22	0.97	2.03

TABLE 1 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-5	04/09/91	7.62		4.64	2.98		
	06/19/91			5.35	2.27		
	05/11/92			5.18	2.44		
	06/09/92			5.85	1.77		
	07/07/92			6.02	1.60		
	08/11/92			6.18	1.44		
	09/04/92			6.59	1.03		
	10/13/92			6.54	1.08		
	11/12/92			6.23	1.39		
	12/17/92			5.23	2.39		
	03/18/93			3.33	4.29		
	05/14/93			5.06	2.56		
	07/13/93			5.96	1.66		
	09/30/93			6.70	0.92		
	11/10/93			5.92	1.70		
	01/24/94		NOT GAUGED				
	03/23/94			5.74	1.88		
	05/02/94			5.71	1.91		
	07/29/94			6.27	1.35		
	09/26/94			6.56	1.06		
	11/16/94			5.31	2.31		
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95			4.84	2.78		
	07/31/95		NOT GAUGED				
	09/07/95			5.85	1.77		
	11/30/95			6.55	1.07		
	01/10/96			5.46	2.16		
	03/25/96			4.63	2.99		
OMW-6	04/09/91	5.78		7.60	-1.82		
	06/19/91			6.98	-1.20		
	05/11/92			7.41	-1.63		
	06/09/92			7.18	-1.40		
	07/07/92			6.61	-0.83		
	08/11/92			7.14	-1.36		
	09/04/92			6.58	-0.80		
	10/13/92**			6.16	-0.38		
	11/12/92			6.91	-1.13		
	12/17/92			6.16	-0.38		
	03/18/93			7.31	-1.53		
	05/14/93			6.59	-0.81		
	07/13/93			6.58	-0.80		
	09/30/93			5.49	0.29		
	11/10/93			5.08	0.70		
	01/24/94			5.40	0.38		
	03/23/94			6.90	-1.12		
	05/02/94			7.44	-1.66		
	07/29/94			5.65	0.13		
	09/26/94			6.88	-1.10		
	11/16/94			5.35	0.43		
	01/25/95			6.91	-1.13		
	05/09/95			7.19	-1.41		
	05/17/95			6.84	-1.06		
	07/31/95			5.65	0.13		
	09/07/95			5.51	0.27		
	11/30/95			6.71	-0.93		
	01/10/96			6.72	-0.94		
	03/25/96			6.73	-0.95		

TABLE 1 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-7	04/09/91	7.03	3.26	7.48	-0.45	4.22	3.09
	06/19/91		4.13	7.66	-0.63	3.53	2.34
	05/11/92		3.70	7.32	-0.29	3.62	2.75
	06/09/92		5.79	7.78	-0.75	1.99	0.92
	07/07/92		5.98	7.88	-0.85	1.90	0.75
	08/11/92		6.01	9.22	-2.19	3.21	0.51
	09/04/92		6.53	8.92	-1.89	2.39	0.12
	10/13/92		5.97	8.00	-0.97	2.03	0.74
	11/12/92		5.29	8.69	-1.66	3.40	1.20
	12/17/92		5.60	8.66	-1.63	3.06	0.94
	03/18/93		3.93	7.97	-0.94	4.04	2.45
	05/14/93		5.34	8.21	-1.18	2.87	1.23
	07/13/93		5.95	7.49	-0.46	1.54	0.83
	09/30/93		6.65	9.75	-2.72	3.10	-0.12
	11/10/93		6.75	9.12	-2.09	2.37	-0.10
	01/24/94		6.00	7.87	-0.84	1.87	0.73
	03/23/94		5.79	8.56	-1.53	2.77	0.80
	05/02/94		4.79	6.64	0.39	1.85	1.94
	07/29/94		6.15	8.46	-1.43	2.31	0.51
	09/26/94		6.14	7.11	-0.08	0.97	0.73
	11/16/94		4.23	4.63	2.40	0.40	2.74
	01/25/95		3.31	9.53	-2.50	6.22	2.72
	05/09/95		5.22	9.25	-2.22	4.03	1.17
	05/17/95		5.41	8.38	-1.35	2.97	1.14
	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
	01/10/96		5.40	8.33	-1.30	2.93	1.16
	03/25/96		5.46	9.60	-2.57	4.14	0.91
OMW-8	04/09/91	7.52		4.25	3.27		
	06/19/91			5.27	2.25		
	05/11/92			5.05	2.47		
	06/09/92			6.25	1.27		
	07/07/92			6.33	1.19		
	08/11/92			6.48	1.04		
	09/04/92			7.00	0.52		
	10/13/92			6.23	1.29		
	11/12/92			6.34	1.18		
	12/17/92			6.10	1.42		
	03/18/93			4.51	3.01		
	05/14/93			5.78	1.74		
	07/13/93			6.26	1.26		
	09/30/93			7.06	0.46		
	11/10/93			7.12	0.40		
	01/24/94			6.58	0.94		
	03/23/94			6.15	1.37		
	05/02/94			6.06	1.46		
	07/29/94			6.47	1.05		
	09/26/94			6.50	1.02		
	11/15/94			4.74	2.78		
	01/25/95		TRACE	3.55	3.97		
	05/09/95			5.00	2.52		
	05/17/95			5.16	2.36		
	07/31/95			5.70	1.82		
	09/07/95			5.99	1.53		
	11/30/95			6.53	0.99		
	01/10/96			5.87	1.65		
	03/25/96			5.01	2.51		

TABLE 1 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-9	05/11/92	6.64	3.41	7.65	-1.01	4.24	2.55
	06/09/92		5.09	8.17	-1.53	3.08	1.06
	07/07/92		5.28	8.42	-1.78	3.14	0.86
	08/11/92		5.29	9.45	-2.81	4.16	0.68
	09/04/92		5.70	9.56	-2.92	3.86	0.32
	10/13/92		5.70	6.88	-0.24	1.18	0.75
	11/12/92		5.23	6.44	0.20	1.21	1.22
	12/17/92		5.08	6.40	0.24	1.32	1.35
	03/18/93		3.01	6.69	-0.05	3.68	3.04
	05/14/93		4.38	10.37	-3.73	5.99	1.30
	07/13/93		5.57	6.79	-0.15	1.22	0.87
	09/30/93		5.86	9.81	-3.17	3.95	0.15
	11/10/93		6.06	9.61	-2.97	3.55	0.01
	01/24/94		5.41	7.71	-1.07	2.30	0.86
	03/23/94		4.91	9.10	-2.46	4.19	1.06
	05/02/94		4.52	4.54	2.10	0.02	2.12
	07/29/94		5.46	8.40	-1.76	2.94	0.71
	09/26/94		5.74	6.39	0.25	0.65	0.80
	11/16/94		4.91	4.95	1.69	0.04	1.72
	01/25/95		3.83	6.25	0.39	2.42	2.42
	05/09/95		4.94	9.02	-2.38	4.08	1.05
	05/17/95		4.18	8.95	-2.31	4.77	1.70
	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
	01/10/96		4.45	9.00	-2.36	4.55	1.46
	03/25/96		4.19	8.96	-2.32	4.77	1.69
OMW-10	05/11/92	7.56		4.76	2.80		
	06/09/92			5.42	2.14		
	07/07/92			5.58	1.98		
	08/11/92			5.83	1.73		
	09/04/92			6.18	1.38		
	10/13/92**			5.30	2.26		
	11/12/92			5.41	2.15		
	12/17/92			4.20	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		
	01/24/94			5.55	2.01		
	03/23/94			4.81	2.75		
	05/02/94			5.06	2.50		
	07/29/94			6.94	0.62		
	09/26/94			6.36	1.20		
	11/15/94			4.01	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		
	11/30/95		TRACE	7.78	-0.22		-0.22
	01/10/96		TRACE	4.68	2.88		2.88
	03/25/96			4.58	2.98		

TABLE 1 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
ORW-1	06/19/91	6.59	3.91	9.36	-2.77	5.45	1.81
	05/11/92		NOT GAUGED				
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			8.39	-1.80		
	09/04/92			8.35	-1.76		
	10/13/92		6.95	8.15	-1.56	1.20	-0.55
	11/12/92		NOT GAUGED				
	12/17/92		8.30	8.35	-1.76	0.05	-1.72
	03/18/93		3.60	7.39	-0.80	3.79	2.38
	05/14/93			8.63	-2.04		
	07/13/93			8.60	-2.01		
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				
	07/29/94		NOT GAUGED				
	09/26/94		NOT GAUGED				
	11/15/94		NOT GAUGED				
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95		8.77	9.76	-3.17	0.99	-2.34
	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
	01/10/96		TRACE	11.20	-4.61		-4.61
	03/25/96			11.20	-4.61		
ORW-2	06/19/91	6.79	4.36	4.38	2.41	0.02	2.43
	05/11/92		3.55	6.34	0.45	2.79	2.79
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			9.30	-2.51		
	09/04/92			9.31	-2.52		
	10/13/92		8.20	9.20	-2.41	1.00	-1.57
	11/12/92		NOT GAUGED				
	12/17/92			9.45	-2.66		
	03/18/93		2.94	7.48	-0.69	4.54	3.12
	05/14/93			8.21	-1.42		
	07/13/93		9.30	9.41	-2.62	0.11	-2.53
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				
	07/29/94		NOT GAUGED				
	09/26/94		NOT GAUGED				
	11/15/94		NOT GAUGED				
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95		9.55	9.56	-2.77	0.01	-2.76
	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
	01/10/96		9.55	9.60	-2.81	0.05	-2.77
	03/25/96		10.75	11.85	-5.06	1.10	-4.14

TABLE 1 (cont.)
Fluid Level Measurements
Union Pacific Railroad
Okland Fueiling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
ORW-3	06/19/91	6.30	4.07	4.10	2.20	0.03	2.23
	05/11/92		3.24	5.31	0.99	2.07	2.73
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			8.90	-2.60		
	09/04/92			8.75	-2.45		
	10/13/92			8.59	-2.29		
	11/12/92		NOT GAUGED				
	12/17/92			8.35	-2.05		
	03/18/93		2.90	5.71	0.59	2.81	2.95
	05/14/93			8.16	-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
	01/10/96		TRACE	9.55	-3.25		-3.25
	03/25/96		11.55	12.05	-5.75	0.50	-5.33
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
	01/10/96		TRACE	4.41	2.30		2.30
	03/25/96			3.78	2.93		
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
	01/10/96		5.70	6.25	1.55	0.55	2.01
	03/25/96		5.00	6.67	1.13	1.67	2.53
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
	01/10/96		4.84	10.20	-3.72	5.36	0.78
	03/25/96		5.12	9.84	-3.36	4.72	0.60
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
	01/10/96		3.43	6.45	-0.13	3.02	2.41
	03/25/96		3.11	6.89	-0.57	3.78	2.61

* 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 2
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	0.240	<0.0005	<0.0005	<0.0005	<0.0005
OMW-2	05/11/92	4.5	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	2.7	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	3.4	<0.0005	0.00057*	0.0011	0.0033
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.082	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	4.0	<0.0005	<0.0005	<0.0005	<0.0005
OMW-3	05/11/92	2.3	.0003J	0.0013	.0003J	0.0034
	08/11/92	5.8	<0.0005	0.00071	<0.0005	.0017
	11/13/92	110	<0.0005	0.00089*	0.0015	.0084
	05/14/93	0.180	<0.0003	0.036	<0.0003	.0027
	11/10/93	1.80	<0.0003	0.0005	<0.0003	<0.0009
	05/02/94	1.80	<0.0005	0.0023	<0.0005	0.00089
	11/15/94	1.20	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.46	<0.0005	0.0013	<0.0005	<0.0005
	11/30/95	2.40	<0.0005	<0.0005	<0.0005	<0.0005
OMW-5	05/11/92	2.1	<0.0005	.0004J	<0.0005	0.0003
	08/11/92	2.1	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	4.4	<0.0005	0.00078*	<0.0005	<0.0005
	05/14/93	11	<0.0003	0.0018	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	0.0006	<0.0003	<0.0009
	05/02/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.52	<0.0005	0.0012	0.0014	0.0077
	05/18/95	2.4	<0.0005	<0.0005	<0.0005	0.0017
	11/30/95	13	<0.0005	<0.0005	<0.0005	<0.0005
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	2.5	<0.0005	<0.0005	<0.0005	<0.0005

TABLE 2 (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	1.7	<0.0005	<0.0005	<0.0005	<0.0005
OMW-10	05/11/92	2.1	0.033	<0.0005	<0.0005	0.0027
	08/11/92	1.3	0.0096	<0.0005	<0.0005	.00062
	11/13/92	2.8	0.0066	0.00084*	<0.0005	.00062
	05/14/93	****** NOT SAMPLED – Well Contained Product**********				
	11/10/93	2.6	0.0043	0.0011	<0.0003	.00012
	05/02/94	2.6	0.00052	<0.0005	<0.0005	<0.0005
	11/16/94	****** NOT SAMPLED – Well Contained Product**********				
	05/17/95	****** NOT SAMPLED – Well Contained Product**********				
	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.

APPENDIX

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UP Fueling Area
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 512-0180

Sampled: Nov 30, 1995
Received: Nov 30, 1995
Reported: Dec 14, 1995

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 512-0180 OMW-1	Sample I.D. 512-0181 OMW-3	Sample I.D. 512-0182 OMW-8	Sample I.D. 512-0183 OMW-18	Sample I.D. 512-0184 OMW-6	Sample I.D. 512-0185 OMW-5
QC Batch Number:		GC120695 802004A	GC120695 802005A	GC120695 802004A	GC120695 802004A	GC120695 802004A	GC120795 802009A
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	12/6/95	12/6/95	12/6/95	12/6/95	12/6/95	12/7/95
Instrument Identification:	HP-4	HP-5	HP-4	HP-4	HP-4	HP-9
Surrogate Recovery, %: (QC Limits = 70-130%)	95	82	98	101	92	90

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

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.	Client Project ID:	UP Fueling Area	Sampled: Nov 30, 1995
5665 Flatiron Parkway	Sample Matrix:	Water	Received: Nov 30, 1995
Boulder, CO 80301	Analysis Method:	EPA 5030/8015 Mod./8020	Reported: Dec 14, 1995
Attention: Denton Mauldin	First Sample #:	512-0186	

QC Batch Number: GC120695 802004A / GC120695 802004A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 512-0186 OMW-2	Sample I.D. 512-0187 Trip Blank
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.50	N.D.	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	12/6/95	12/6/95
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	92	89

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

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

5120180.UUU <2>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UP Fueling Area
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 512-0180

Sampled: Nov 30, 1995
Received: Nov 30, 1995
Reported: Dec 14, 1995

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 512-0180 OMW-1	Sample I.D. 512-0181 OMW-3	Sample I.D. 512-0182 OMW-8	Sample I.D. 512-0183 OMW-18	Sample I.D. 512-0184 OMW-6	Sample I.D. 512-0185 OMW-5
QC Batch Number:		SP120595 8015EXC	SP120595 8015EXC	SP120595 8015EXC	SP120595 8015EXC	SP120595 8015EXC	SP120595 8015EXC
Extractable Hydrocarbons	50	240	2,400	1,700	1,600	2,500	13,000
Chromatogram Pattern:		Unidentified Hydrocarbons >C16	Diesel & Unidentified Hydrocarbons >C16	Diesel & Unidentified Hydrocarbons >C16	Diesel & Unidentified Hydrocarbons >C16	Diesel & Unidentified Hydrocarbons >C16	Diesel & Unidentified Hydrocarbons >C16

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	20
Date Extracted:	12/5/95	12/5/95	12/5/95	12/5/95	12/5/95	12/5/95
Date Analyzed:	12/6/95	12/6/95	12/6/95	12/6/95	12/6/95	12/6/95
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

5120180.UUU <3>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UP Fueling Area
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 512-0186

Sampled: Nov 30, 1995
Received: Nov 30, 1995
Reported: Dec 14, 1995

QC Batch Number: SP120595

8015EXC

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 512-0186 OMW-2
Extractable Hydrocarbons	50	4,000

Chromatogram Pattern: Diesel & Unidentified Hydrocarbons >C16

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Extracted:	12/5/95
Date Analyzed:	12/6/95
Instrument Identification:	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UP Fueling Area
Matrix: Liquid
QC Sample Group: 5120180-187
Reported: Dec 14, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
QC Batch#:	GC120695	GC120695	GC120695	GC120695	SP120595
	802004A	802004A	802004A	802004A	8015EXC
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3510
Analyst:	N. Beaman	N. Beaman	N. Beaman	N. Beaman	J. Dinsay
MS/MSD #:	5120180	5120180	5120180	5120180	BLK120595
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/6/95	12/6/95	12/6/95	12/6/95	12/5/95
Analyzed Date:	12/6/95	12/6/95	12/6/95	12/6/95	12/6/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3B
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Result:	20	20	20	61	370
MS % Recovery:	100	100	100	102	123
Dup. Result:	20	21	21	62	350
MSD % Recov.:	100	105	105	103	117
RPD:	0.0	4.9	4.9	1.6	5.6
RPD Limit:	0-20	0-20	0-20	0-20	0-20

LCS #:	2LCS120695	2LCS120695	2LCS120695	2LCS120695	LCS120595
Prepared Date:	12/6/95	12/6/95	12/6/95	12/6/95	12/5/95
Analyzed Date:	12/6/95	12/6/95	12/6/95	12/6/95	12/6/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3B
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
LCS Result:	18	18	18	55	350
LCS % Recov.:	90	90	90	92	117

MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120	38-122

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UP Fueling Area
Matrix: Liquid
QC Sample Group: 5120180-187
Reported: Dec 14, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC120695 802005A	GC120695 802005A	GC120695 802005A	GC120695 802005A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	N. Beaman	N. Beaman	N. Beaman	N. Beaman
MS/MSD #:	5112320	5112320	5112320	5112320
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/6/95	12/6/95	12/6/95	12/6/95
Analyzed Date:	12/6/95	12/6/95	12/6/95	12/6/95
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	18	18	21	55
MS % Recovery:	90	90	105	92
Dup. Result:	19	18	21	54
MSD % Recov.:	95	90	105	90
RPD:	5.4	0.0	0.0	1.8
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	3LCS120695	3LCS120695	3LCS120695	3LCS120695
Prepared Date:	12/6/95	12/6/95	12/6/95	12/6/95
Analyzed Date:	12/6/95	12/6/95	12/6/95	12/6/95
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	17	17	17	52
LCS % Recov.:	85	85	85	87

MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

USPCI / Laidlaw Environmental Serv.
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UP Fueling Area
Matrix: Liquid
QC Sample Group: 5120180-187
Reported: Dec 14, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC120795 802009A	GC120795 802009A	GC120795 802009A	GC120795 802009A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	N. Beaman	N. Beaman	N. Beaman	N. Beaman
MS/MSD #:	5112185	5112185	5112185	5112185
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	12/7/95	12/7/95	12/7/95	12/7/95
Analyzed Date:	12/7/95	12/7/95	12/7/95	12/7/95
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	21	22	22	74
MS % Recovery:	105	110	110	123
Dup. Result:	22	22	23	75
MSD % Recov.:	110	110	115	125
RPD:	4.7	0.0	4.4	1.3
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	4LCS120795	4LCS120795	4LCS120795	4LCS120795
Prepared Date:	12/7/95	12/7/95	12/7/95	12/7/95
Analyzed Date:	12/7/95	12/7/95	12/7/95	12/7/95
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	17	18	18	61
LCS % Recov.:	85	90	90	102
MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

Kevin Van Slambrook
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

[redacted] ☐ [redacted] Chel[redacted]ake [redacted] • R[redacted]od [redacted], CA [redacted] • ([redacted]64-[redacted] FA[redacted]5) 3[redacted]33 [redacted]
☐ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
☒ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: USPCI/Laidlaw	Project Name: UP Fueling Area
Address: 5665 Flatiron Parkway	Billing Address (if different): proj. # 96199
City: Boulder State: CO Zip Code: 80301	—
Telephone: (303)938-5500 FAX #: 938-5590	P.O. #: 96199 (will call)
Report To: Denton Mauldin Sampler: Mark McCormack	QC Data: ☐ Level D (Standard) ☒ Level C ☐ Level B ☐ Level A

Turnaround Time: ☒ 10 Working Days ☐ 3 Working Days ☐ 2 - 8 Hours ☐ 7 Working Days ☐ 2 Working Days ☐ 5 Working Days ☐ 24 Hours

☐ Drinking Water ☐ Waste Water ☒ Other GW

Analyses Requested: 8020 BTEX; MOD 8015 TPH-DIESEL

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	8020 BTEX	MOD 8015 TPH-DIESEL	Comments
1. OMW-1	11/30/95 09:25	GW	3	VOA	5120100	ADX		Please bill
2.	09:25		1	1L Amber			X	as proj #
3. OMW-3	09:40		3	VOA	5120101	ADX		96199
4.	09:40		1	1L Amber			X	
5. OMW-8	10:20		3	VOA	5120102	ADX		
6.	10:20		1	1L Amber			X	
7. OMW-18	10:30		3	VOA	5120103	ADX		
8.	10:30		1	1L Amber			X	
9. OMW-6	11:20		3	VOA	5120104	ADX		
10.	11:20		1	1L Amber			X	

Relinquished By: [signature]	Date: 11/30/95	Time:	Received By: [signature]	Date: 11/30/95	Time: 2:20 PM
Relinquished By: [signature]	Date: 11/30/95	Time: 6:15	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: [signature]	Date: 11/30	Time: 1815

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment _____

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

[redacted] 680 Chesapeake Drive • Redwood City, CA 94063 • (415) 364-9600 FAX (415) 364-9233
☐ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
☒ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: USPCI / Laidlaw	Project Name: UP Fueling Area/proj #96199
Address: 5665 Flatiron Parkway	Billing Address (if different): —
City: Boulder State: CO Zip Code: 80301	
Telephone: (303) 938-5500 FAX #: 938-5590	P.O. #: [redacted] 4413 96199 (will call)
Report To: Denton Mauldin / Sampler: Mark McCormick	QC Data: ☐ Level D (Standard) ☒ Level C ☐ Level B ☐ Level A

Turnaround Time:
☒ 10 Working Days ☐ 3 Working Days ☐ 2 - 8 Hours
☐ 7 Working Days ☐ 2 Working Days
☐ 5 Working Days ☐ 24 Hours

☐ Drinking Water
☐ Waste Water
☒ Other GW

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	BTEX 8020	MBAS BOIS TPH-DIESEL								Comments
1. DMW-5	11/30/95 12:15	GW	3	VOA	5120165	X									Please bill
2. "	12:15		1	1L Amber			X								as proj #
3. DMW-2	"		3	VOA	5120166	X									96199
4. "	"		1	1L Amber			X								
5. Trip Blank	—	—	1	VOA	5120167	X									
6.															
7.															
8.															
9.															
10.															

Relinquished By: [signature]	Date: 11/30/95	Time:	Received By: [signature]	Date: 11/30/95	Time: 2:20 pm
Relinquished By: [signature]	Date: 11/30/95	Time: 6:15	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: [signature]	Date: 11/30/95	Time: 1815

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment _____

Pink - Client
Yellow - Sequoia
White - Sequoia

NAVY SUPPLY CENTER

PROPERTY BOUNDARY

YARD OFFICE

6" TRANSITE SANITARY SEWER

AIR COMPRESSOR BLDG

RETIRED FUEL TANKS

GATEHOUSE

CATCH BASIN PLUGGED WITH CONCRETE

U.P. TRANSPORT

36" STORM SEWER

STORM SEWER

TRUCK REPAIR SHOP

STORM SEWER OUTFALL PLUGGED WITH CONCRETE

PROPERTY BOUNDARY

EDGE OF PAVEMENT

SHORELINE

OAKLAND ESTUARY

CROSSTIES LEFT OFF FOR CLARITY

OMW-1 0
OMW-2 0
OMW-3 0
OMW-4 0.97
OMW-5 0
OMW-6 0
OMW-7 4.14
OMW-8 0
OMW-9 4.77
OMW-10 0
OP-1 0
OP-2 1.67
OP-3 4.72
OP-4 3.78
ORW-1
ORW-2
ORW-3
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9

LEGEND

- MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- BORING LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- PRODUCT THICKNESS IN FT. (INCLUDING ORWs)

North

0 150
FEET

BY	DATE
DRAWN WRB	4/23/96
CHECKED	
APPROVED	
APPROVED	
APPROVED	

USPCI
A WASTE MANAGEMENT COMPANY

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

FIGURE 5
DIESEL THICKNESS MEASURED IN MONITORING WELLS
MARCH 1996

SCALE 1" = 150'

DWG NO 96199-66