USPCI
A LAIDLAW COMPANY

October 31, 1995

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

RE: **"Third Quarter 1995 Monitoring Report"** Oakland Motor Freight Facility, 1750 Ferro Street, Oakland, California, USPCI/Laidlaw Project No. 96120-844

Dear Mr. Patterson:

Enclosed is the final copy of the **"Third Quarter 1995 Monitoring Report"**, dated October 30, 1995, for the Union Pacific Motor Freight Facility at 1750 Ferro Street in Oakland, California.

The annual arsenic results were approximately one order of a magnitude over the results of the previous sampling events. It has been recommended that arsenic be re-sampled during the fourth quarter of 1995.

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

Sincerely,

Denton Mauldin
Project Engineer

Sam Marquis
Project Hydrogeologist

cc: [redacted], ACDEH
John Amdur, Port of Oakland
Philip Herden, APL
Mark McCormick, USPCI/Laidlaw
Ken Fossey, USPCI/Laidlaw (cover letter)

Enclosure
DM/tjh

oakmf\qtrmf395.ltr, 96120-844, October 31, 1995

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

THIRD QUARTER 1995
MONITORING REPORT

UNION PACIFIC RAILROAD

UNION PACIFIC MOTOR FREIGHT
FACILITY
OAKLAND, CALIFORNIA

USPCI/LAIDLAW PROJECT NO.
96120-844

PREPARED FOR:

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

Prepared by:

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

October 30, 1995

THIRD QUARTER 1995 MONITORING REPORT
UNION PACIFIC RAILROAD
UNION PACIFIC MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
USPCI/Laidlaw Project No. 96120-844

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

FOR

Mark McCormick
Environmental Assistant

Sam Marquis
Project Hydrogeologist
R.G. No. 5110

October 31, 1995

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1. INTRODUCTION

The 1995 Third Quarterly Monitoring Report was prepared by USPCI, a Laidlaw Company (Laidlaw) for Union Pacific Railroad (UPRR). The report was prepared in response to an April 29, 1993, Alameda County Department of Environmental Health, Hazardous Materials Division (ACDEH) request for UPRR to begin a quarterly monitoring program at the Union Pacific Motor Freight (UPMF) Ferro Street facility in Oakland, California (Figure 1). The facility was the site of a release of petroleum hydrocarbons from underground storage tanks (USTs).

The third quarterly monitoring event involved:

- Collecting fluid level measurements from all of the groundwater monitoring wells and purging and sampling eight of the ten existing monitoring wells not containing non-aqueous phase liquid petroleum hydrocarbon (product);
- Monitoring the performance of the product skimmer in recovery well RW;
- Analyzing groundwater samples for petroleum hydrocarbons from the groundwater monitoring wells where product was not measured.
- Determining the local hydraulic gradient based on the groundwater level measurements; and
- Preparation of the Third Quarterly Monitoring Report.

Product was detected in monitoring wells OKUS-W5, OKUS-W6, and recovery well RW during the Third Quarter 1995 Monitoring Event. Groundwater samples were collected from the eight remaining monitoring wells at the facility on August 9, 1995.

1.1 SITE BACKGROUND

The following describes the historical activities at the railyard and vicinity as well as the location of and access to the site.

The site is located on the southeastern end of the UPRR Oakland trailer-on-flat-car (TOFC) Yard (Figure 2), which is adjacent to the Oakland Inner Harbor or Oakland Estuary. The area surrounding the site is used for heavy to light commerce, with residential areas located approximately one half mile to the north and to the south across the Oakland Estuary. Five USTs were removed from the UPMF site from 1987 to 1990. The refueling portion of the TOFC yard, approximately 700 feet northwest of the truck repair shop, is currently undergoing groundwater remediation for recovery of

product. The limits of the diesel plume in that portion of the site were defined during previous investigations (Laidlaw, 1991), and the plume does not extend to the area of impacted groundwater at the truck repair facility in the Oakland TOFC Yard.

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

1.2 Investigative Procedures

All Laidlaw and subcontractor field activities, including data recording procedures, decontamination methods, groundwater sample collection, and purge water disposal, were completed following Laidlaw's standard operating procedures previously supplied to the ACDEH. The quarterly monitoring event was conducted by Laidlaw personnel on August 9, 1995.

2. FIELD INVESTIGATION RESULTS

The continued monitoring of wells and the compilation of the field and analytical data is directed towards an understanding of groundwater and petroleum hydrocarbon migration beneath the site. The field investigation presented in this report was completed on August 9, 1995. Groundwater level measurements and samples were collected on the same day. Samples were analyzed for total petroleum hydrocarbons as diesel (TPH-D) by EPA Method 8015 Modified; TPH as gasoline (TPH-G) by EPA Method 8015 Modified; benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8020; and Arsenic by EPA method 7060 and Lead by EPA method 7241. The following subsections present the findings and activities completed during the Third Quarter field investigation.

2.1 Groundwater Characteristics

The UPRR Oakland UPMF Facility is adjacent to the Oakland Estuary, which is located in the eastern portion of the San Francisco Bay (Figure 2). No observable tidal influences have been noted to date at the site; however, the close proximity of the estuary to the site suggests that a direct hydrologic connection may exist between the estuary and the groundwater beneath the site.

2.2 Groundwater Gradient

Static water levels measured on August 9, 1995 (Table 1) were used to produce the groundwater elevation map presented as Figure 3. A decrease in groundwater elevations was noted in most of the

monitoring wells at the site since the first and second quarter 1995 sampling events. The groundwater gradient at the site was to the east and was consistent with the gradient observed during the two previous (first and second quarters 1995) gauging and sampling events. Sample collection logs and sampling reports are presented in Appendix B.

2.3 Analytical Results

Analytical results of the samples collected from the groundwater monitoring wells reveal dissolved concentrations of TPH-D, TPH-G and BTEX in samples from monitoring wells OKUS-W2, OKUS-W3, OKUS-W4, OKUS-W7, OKUS-W8, APL/UP-W1, and APL/UP-W2. Monitoring well OKUS-W1 did not exhibit dissolved BTEX concentrations above the method detection limits (MDLs) of 0.50 micrograms per liter (μg/L). Total BTEX concentrations ranged from below the MDLs of 0.50 μg/L in the sample collected from monitoring well OKUS-W1 to approximately 530 μg/L in the sample collected from monitoring well OKUS-W4 (Table 2). TPH-G concentrations ranged from below the MDL of 50 μg/L in the sample collected from OKUS-W1 to 5,300 μg/L in the sample from OKUS-W4. TPH-D concentrations ranged from below the MDL of 50μg/L in sample OKS-W1 to 3,100 μg/L in the sample from OKUS-W3. The hydrocarbon plume is elongated in the net direction of groundwater flow to the east (Figure 4). Concentrations of total BTEX ($<$ 10 μg/L) were detected in the furthest downgradient well, APL\UP-W2. Comprehensive groundwater analytical results for the wells at the site are presented in Table 2. Analytical reports and chain of custody forms are included in Appendix A.

Lead was not detected in any of the samples from the monitoring wells. Arsenic concentrations ranged from below the MDL of 0.0050 milligrams per liter (mg/L) in APL/UP-W1 to 1.6 mg/L in OKUS-W4. Arsenic concentrations were approximately one order of magnitude higher than the concentrations during the previous sampling events.

2.4 Monitoring and Recovery of Non-Aqueous Phase Liquid

Fluid level measurement data indicated that monitoring wells OKUS-W5, OKUS-W6, and recovery well RW contained product. As indicated in Table 1, monitoring well OKUS-W5 had no measurable product during the August 1995 monitoring event. However, product was observed in the groundwater during well purging procedures and no sample was collected. Monitoring well OKUS-W6 continues to contain "bunker C" type hydrocarbon, as evidenced by the highly viscous nature of the product. An accurate determination of product thickness is not possible due to the high viscosity of the product in OKUS-W6.

A product skimming system was installed in recovery well RW on April 29, 1994 and began operation during the week of May 2, 1994. The skimmer has been out of service for the majority of the third quarter 1995 while repairs to the height adjustment mechanism are being made.

Nevertheless, approximately 0.5 gallons of product was retrieved from the recovery well on August 9, 1995 by Laidlaw personnel and 0.5 gallons was recovered on September 7, 1995 by Smith/Riedel personnel.

3. CONCLUSIONS AND RECOMMENDATIONS

The following subsections present conclusions and recommendations based on the field and analytical results from the subject site.

3.1 CONCLUSIONS

The analytical results from the 1993 site assessments and current groundwater monitoring program indicate a dissolved plume of BTEX and TPH which is not limited to the immediate area surrounding the UPMF facility. An estimate of the lateral extent of the dissolved contaminant plume is presented in Figure 4. Based on the recent sampling results, the downgradient edge of the plume appears to be near monitoring well APL/UP-W2. Comparison of historical data to the most recent sampling results suggests that the dissolved BTEX plume has achieved a steady-state where downgradient concentrations are no longer increasing and the areal extent of the plume has remained relatively constant. Monitoring well OKUS-W1 continues to show results below MDLs indicating no areal increase of the plume at elevated concentrations.

Bunker C continues to be observed in monitoring well OKUS-W6.

Product has been retrieved from recovery well RW.

3.2 RECOMMENDATIONS

Based on the above conclusions, the following recommendations are made:

- To monitor the status of the dissolved petroleum hydrocarbon plume in the groundwater at the site, the quarterly monitoring program should be continued.
- The monitoring of bunker C and product near the UPMF facility should be continued.
- The product in recovery well RW should continue to be removed.
- Samples should continue to be analyzed for arsenic and lead on an annual basis. Arsenic should be re-analyzed during the Fourth Quarter 1995 sampling event to confirm the increase observed in the Third Quarter 1995 results.

4. REFERENCES

Laidlaw, 1994. "Fourth Quarter 1993, Monitoring Event, Union Pacific Railroad, May, 1994.

TABLE 1
FLUID LEVEL MEASUREMENT DATA
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT ELEVATION	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEVATION	CORR'D ELEVATION
OKUS-W1	9.17	01/14/93	N/A	N/A	NP	8.42	0.75	0.75
	9.17	01/15/93	N/A	N/A	NP	8.45	0.72	0.72
	9.17	02/18/93	N/A	N/A	NP	7.79	1.38	1.38
	9.17	05/12/93	N/A	N/A	NP	8.04	1.13	1.13
	9.17	08/25/93	N/A	N/A	NP	8.61	0.56	0.56
	9.17	11/11/93	N/A	N/A	NP	9.24	-0.07	-0.07
	9.17	02/08/94	N/A	N/A	NP	8.47	0.70	0.70
	9.17	05/03/94	N/A	N/A	NP	8.49	0.68	0.68
	9.17	08/24/94	N/A	N/A	NP	8.89	0.28	0.28
	9.17	11/16/94	N/A	N/A	NP	8.56	0.61	0.61
	9.17	02/22/95	N/A	N/A	NP	7.61	1.56	1.56
	9.17	06/22/95	N/A	N/A	NP	8.00	1.17	1.17
	9.17	08/09/95	N/A	N/A	NP	8.18	0.99	0.99
OKUS-W2	9.71	01/14/93	N/A	N/A	NP	9.08	0.63	0.63
	9.71	01/15/93	N/A	N/A	NP	9.12	0.59	0.59
	9.71	02/18/93	N/A	N/A	NP	8.70	1.01	1.01
	9.71	05/12/93	N/A	N/A	NP	9.04	0.67	0.67
	9.71	08/25/93	N/A	N/A	NP	9.61	0.10	0.10
	9.71	11/11/93	N/A	N/A	NP	10.20	-0.49	-0.49
	9.71	02/08/94	N/A	N/A	NP	9.46	0.25	0.25
	9.71	05/03/94	N/A	N/A	NP	9.50	0.21	0.21
	9.71	08/24/94	N/A	N/A	NP	9.74	-0.03	-0.03
	9.71	11/16/94	N/A	N/A	NP	9.74	-0.03	-0.03
	9.71	02/22/95	N/A	N/A	NP	8.49	1.22	1.22
	9.71	06/22/95	N/A	N/A	NP	8.90	0.81	0.81
	9.71	08/09/95	N/A	N/A	NP	9.09	0.62	0.62
OKUS-W3	9.80	01/14/93	N/A	N/A	NP	9.39	0.41	0.41
	9.80	01/15/93	N/A	N/A	NP	9.33	0.47	0.47
	9.80	02/18/93	N/A	N/A	NP	8.85	0.95	0.95
	9.80	05/12/93	N/A	N/A	NP	9.23	0.57	0.57
	9.80	08/25/93	N/A	N/A	NP	9.82	-0.02	-0.02
	9.80	11/11/93	N/A	N/A	NP	10.30	-0.50	-0.50
	9.80	02/08/94	N/A	N/A	NP	9.73	0.07	0.07
	9.80	05/03/94	N/A	N/A	NP	9.75	0.05	0.05
	9.80	08/24/94	N/A	N/A	NP	9.98	-0.18	-0.18
	9.80	11/16/94	N/A	N/A	NP	9.61	0.19	0.19
	9.80	02/22/95	N/A	N/A	NP	8.76	1.04	1.04
	9.80	06/22/95	N/A	N/A	NP	9.15	0.65	0.65
	9.80	08/09/95	N/A	N/A	NP	9.41	0.39	0.39
OKUS-W4	7.35	01/14/93	N/A	N/A	NP	6.43	0.92	0.92
	7.35	01/15/93	N/A	N/A	NP	6.44	0.91	0.91
	7.35	02/18/93	N/A	N/A	NP	5.77	1.58	1.58
	7.35	05/12/93	6.39	0.96	0.01	6.40	0.95	0.95
	7.35	08/25/93	N/A	N/A	NP	6.63	0.72	0.72
	7.35	11/11/93	N/A	N/A	NP	7.10	0.25	0.25
	7.35	02/07/94	N/A	N/A	NP	6.64	0.71	0.71
	7.35	03/07/94	N/A	N/A	NP	6.45	0.90	0.90
	7.35	04/18/94	N/A	N/A	NP	6.58	0.77	0.77
	7.35	05/03/94	N/A	N/A	NP	6.55	0.80	0.80
	7.35	06/07/94	N/A	N/A	NP	6.62	0.73	0.73
	7.35	07/29/94	N/A	N/A	NP	6.65	0.70	0.70
	7.35	08/24/94	N/A	N/A	NP	6.80	0.55	0.55
	7.35	09/01/94	N/A	N/A	NP	6.93	0.42	0.42
	7.35	09/26/94	N/A	N/A	NP	6.95	0.40	0.40
	7.35	10/27/94	N/A	N/A	NP	7.05	0.30	0.30
	7.35	11/16/94	N/A	N/A	NP	6.71	0.64	0.64
	7.35	01/25/95	N/A	N/A	NP	5.63	1.72	1.72
	7.35	02/22/95	N/A	N/A	NP	5.71	1.64	1.64
	7.35	06/22/95	N/A	N/A	NP	6.01	1.34	1.34
	7.35	07/31/95	N/A	N/A	NP	5.96	1.39	1.39
	7.35	08/09/95	N/A	N/A	NP	6.10	1.25	1.25
	7.35	09/07/95	N/A	N/A	NP	6.36	0.99	0.99

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UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT ELEVATION	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEVATION	CORR'D ELEVATION
OKUS-W5	9.25	01/14/93	N/A	N/A	NP	9.13	0.12	0.12
	9.25	01/15/93	N/A	N/A	NP	9.15	0.10	0.10
	9.25	02/18/93	N/A	N/A	NP	8.85	0.40	0.40
	9.25	05/12/93	9.18	0.07	0.02	9.20	0.05	0.05
	9.25	08/25/93	8.82	0.43	0.02	8.84	0.41	0.41
	9.25	11/11/93	N/A	N/A	NP	10.15	-0.90	-0.90
	9.25	02/07/94	N/A	N/A	NP	9.61	-0.36	-0.36
	9.25	03/07/94	N/A	N/A	NP	9.51	-0.26	-0.26
	9.25	04/18/94	N/A	N/A	NP	9.78	-0.53	-0.53
	9.25	05/03/94	N/A	N/A	NP	9.77	-0.52	-0.52
	9.25	06/07/94	N/A	N/A	NP	9.71	-0.46	-0.46
	9.25	07/29/94	N/A	N/A	NP	9.83	-0.58	-0.58
	9.25	08/24/94	N/A	N/A	NP	9.93	-0.68	-0.68
	9.25	09/01/94	9.91	N/A	0.01	9.92	-0.67	-0.67
	9.25	09/26/94	N/A	N/A	NP	9.92	-0.67	-0.67
	9.25	10/27/94	10.08	-0.83	0.06	10.14	-0.89	-0.89
	9.25	11/16/94	9.59	-0.34	0.22	9.81	-0.56	-0.56
	9.25	01/25/95	N/A	N/A	Trace	8.59	0.66	0.66
	9.25	02/22/95	8.75	0.50	0.16	8.91	0.34	0.34
	9.25	05/09/95	N/A	N/A	Trace	9.00	0.25	0.25
	9.25	06/22/95	N/A	N/A	Trace	9.29	-0.04	-0.04
	9.25	07/31/95	N/A	N/A	Trace	9.34	-0.09	-0.09
	9.25	08/09/95	N/A	N/A	Trace	9.75	-0.50	-0.50
	9.25	09/07/95	N/A	N/A	Trace	9.56	-0.31	-0.31
OKUS-W6	7.02	07/16/93	N/A	N/A	NP	6.20	0.82	0.82
	7.02	08/25/93	N/A	N/A	NP	6.52	0.50	0.50
	7.02	11/12/93	N/A	N/A	NP	7.22	-0.20	-0.20
	7.02	02/07/94	5.89	1.13	P	--	--	--
	7.02	05/03/94	5.90	1.12	P	--	--	--
	7.02	08/24/94	6.27	0.75	P	--	--	--
	7.02	09/26/94	6.50	0.52	P	--	--	--
	7.02	10/27/94	6.68	0.34	P	--	--	--
	7.02	11/16/94	5.13	1.89	P	--	--	--
	7.02	01/25/95	3.89	3.13	P	--	--	--
	7.02	02/22/95	4.96	2.06	P	--	--	--
	7.02	05/09/95	5.39	N/A	P	--	--	--
	7.02	06/22/95	5.30	N/A	P	--	--	--
	7.02	07/31/95	5.60	N/A	P	--	--	--
	7.02	08/09/95	5.65	N/A	P	--	--	--
	7.02	09/07/95	5.98	N/A	P	--	--	--
OKUS-W7	6.91	07/16/93	N/A	N/A	NP	5.72	1.19	1.19
	6.91	08/25/93	N/A	N/A	NP	5.94	0.97	0.97
	6.91	11/12/93	N/A	N/A	NP	6.50	0.41	0.41
	6.91	02/07/94	N/A	N/A	NP	5.81	1.10	1.10
	6.91	05/03/94	N/A	N/A	NP	5.69	1.22	1.22
	6.91	08/24/94	N/A	N/A	NP	6.11	0.80	0.80
	6.91	11/16/94	N/A	N/A	NP	5.90	1.01	1.01
	6.91	02/22/95	N/A	N/A	NP	4.89	2.02	2.02
	6.91	06/22/95	N/A	N/A	NP	5.26	1.65	1.65
	6.91	08/09/95	N/A	N/A	NP	5.53	1.38	1.38
OKUS-W8	6.75	07/16/93	N/A	N/A	NP	5.56	1.19	1.19
	6.75	08/27/93	N/A	N/A	NP	5.88	0.87	0.87
	6.75	11/11/93	N/A	N/A	NP	6.43	0.32	0.32
	6.75	02/07/94	N/A	N/A	NP	5.59	1.16	1.16
	6.75	05/03/94	N/A	N/A	NP	5.55	1.20	1.20
	6.75	08/24/94	N/A	N/A	NP	5.98	0.77	0.77
	6.75	11/16/94	N/A	N/A	NP	5.75	1.00	1.00
	6.75	02/22/95	N/A	N/A	NP	4.79	1.96	1.96
	6.75	06/22/95	N/A	N/A	NP	5.18	1.57	1.57
	6.75	08/09/95	N/A	N/A	NP	5.32	1.43	1.43

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OAKLAND MOTOR FREIGHT FACILITY

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT ELEVATION	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEVATION	CORR'D ELEVATION
APL/UP-W1	8.12	07/16/93	N/A	N/A	NP	10.02	-1.90	-1.90
	8.12	08/26/93	N/A	N/A	NP	9.93	-1.81	-1.81
	8.12	11/11/93	N/A	N/A	NP	10.25	-2.13	-2.13
	8.12	02/07/94	N/A	N/A	NP	9.71	-1.59	-1.59
	8.12	05/03/94	N/A	N/A	NP	10.10	-1.98	-1.98
	8.12	08/24/94	N/A	N/A	NP	10.25	-2.13	-2.13
	8.12	11/15/94	N/A	N/A	NP	10.08	-1.96	-1.96
	8.12	02/22/95	N/A	N/A	NP	9.76	-1.64	-1.64
	8.12	06/22/95	N/A	N/A	NP	10.25	-2.13	-2.13
	8.12	08/09/95	N/A	N/A	NP	10.01	-1.89	-1.89
APL/UP-W2	7.31	07/16/93	N/A	N/A	NP	9.38	-2.07	-2.07
	7.31	08/26/93	N/A	N/A	NP	9.20	-1.89	-1.89
	7.31	11/11/93	N/A	N/A	NP	9.65	-2.34	-2.34
	7.31	02/07/94	N/A	N/A	NP	8.85	-1.54	-1.54
	7.31	05/03/94	N/A	N/A	NP	10.02	-2.71	-2.71
	7.31	08/24/94	N/A	N/A	NP	9.13	-1.82	-1.82
	7.31	11/15/94	N/A	N/A	NP	9.40	-2.09	-2.09
	7.31	02/22/95	N/A	N/A	NP	8.85	-1.54	-1.54
	7.31	06/22/95	N/A	N/A	NP	9.42	-2.11	-2.11
	7.31	08/09/95	N/A	N/A	NP	9.42	-2.11	-2.11
RW	--	01/31/94	10.31	--	0.10	10.41	--	--
	--	02/07/94	10.26	--	0.10	10.36	--	--
	--	02/17/94	10.11	--	0.07	10.18	--	--
	--	02/23/94	10.01	--	0.09	10.10	--	--
	--	03/01/94	9.96	--	0.03	9.99	--	--
	--	03/07/94	9.92	--	0.04	9.96	--	--
	--	03/16/94	9.92	--	0.07	9.99	--	--
	--	03/23/94	9.93	--	0.06	9.99	--	--
	--	03/30/94	10.00	--	0.05	10.05	--	--
	--	04/05/94	10.02	--	0.01	10.03	--	--
	--	04/11/94	10.02	--	0.01	10.03	--	--
	--	04/18/94	10.07	--	0.02	10.09	--	--
	--	04/26/94	10.07	--	0.07	10.14	--	--
	--	06/07/94	9.94	--	0.03	9.97	--	--
	--	07/29/94	10.19	--	0.01	10.20	--	--
	--	09/01/94	9.71	--	0.09	9.80	--	--
	--	09/26/94	9.78	--	0.06	9.84	--	--
	--	10/27/94	9.81	--	0.05	9.86	--	--
	--	11/22/94	--	--	--	--	--	--
	--	12/20/94	--	--	--	--	--	--
	--	01/25/95	8.35	--	0.12	8.47	--	--
	--	02/22/95	8.35	--	0.14	8.49	--	--
	--	05/09/95	8.41	--	0.11	8.52	--	--
	--	06/22/95	8.72	--	0.10	8.82	--	--
	--	07/31/95	8.94	--	0.04	8.98	--	--
	--	08/09/95	9.07	--	0.03	9.10	--	--
	--	09/07/95	9.18	--	0.01	9.19	--	--

* All well casings measured to mean sea level (MSL). N/A Non Applicable
-- Information not available or inaccurate. NP – No Product
P – Product (bunker C) was encountered but the oil/water interface could not be found.

TABLE 2
ANALYTICAL RESULTS – GROUNDWATER MONITORING WELLS
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

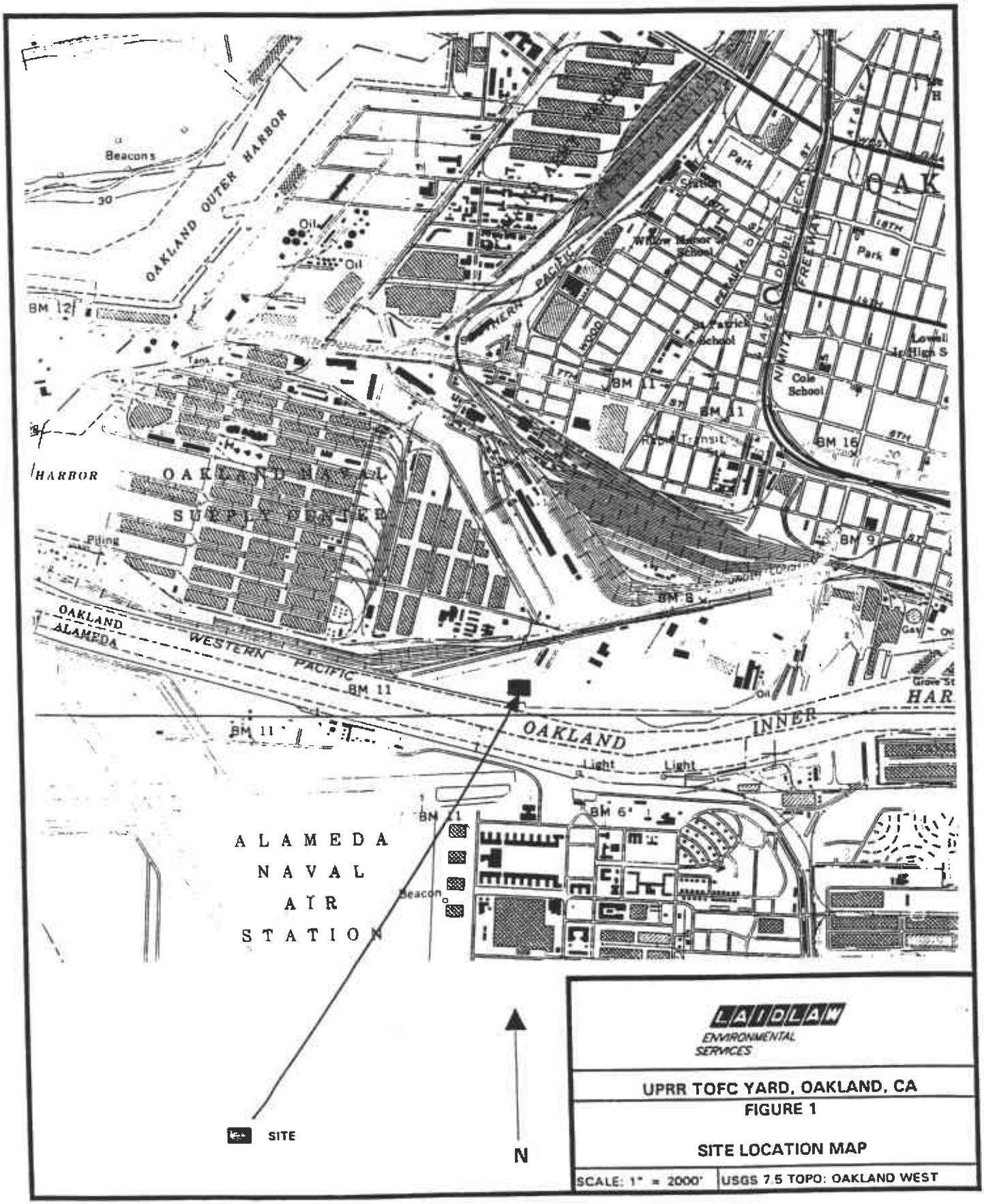
SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/IR (mg/l)	TPH/D (ug/l)	TPH/G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	BTEX (ug/l)	As (mg/l)	Pb (mg/l)
OKUS–W1	OKUS–W1	01/14/93	ND	ND	410	20	4	220	ND	240	ND	ND
"	"	05/12/93	80	120	ND	ND	ND	ND	ND	ND	ND	ND
		08/25/83	ND	100	ND	ND	ND	ND	ND	ND	ND	ND
		11/11/93	ND	160	91	1.1	0.88	21	1.6	24	ND	ND
		02/08/94	NA	92	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10	<0.02
		05/03/94	NA	61	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10	<0.02
		08/24/94	NA	86	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10	NA
		11/16/94	NA	51	<50	<0.50	<0.50	<0.50	<0.50	ND	NA	NA
		02/22/95	NA	120	<50	<0.50	<0.50	<0.50	<0.50	ND	NA	NA
		06/22/95	NA	<50	<50	<0.50	<0.50	<0.50	<0.50	ND	NA	NA
		08/09/95	NA	<50	<50	<0.50	<0.50	<0.50	<0.50	ND	0.040	<0.050
OKUS–W2	OKUS–W2	01/14/93	2.5	5400	14000	480	92	8500	ND	9100	0.036	ND
"	"	05/12/93	ND	2800	8800	220	47	4600	100	5000	0.093	ND
		08/25/93	5.8	6500	22000	420	92	10000	210	11000	0.089	ND
		11/11/93	3.5	7700	24000	540	150	13000	280	14000	ND	ND
		02/08/94	NA	2300	4900	150	29	3000	78	3300	<0.10	<0.02
		05/03/94	NA	2600	17000	300	<0.50	5800	220	6300	<0.10	<0.02
		08/24/94	NA	8200	11000	320	67	7500	250	8100	<0.10	NA
		11/16/94	NA	5500	10000	290	79	130	160	660	NA	NA
		02/22/95	NA	2000	3500	100	18	1600	66	1800	NA	NA
		06/22/95	NA	3200	13000	260	62	<0.50	110	430	NA	NA
		08/09/95	NA	2900	4800	190	28	<0.50	680	900	0.92	<0.050
OKUS–W3	OKUS–W3	01/14/93	4.5	4200	4900	230	42	2600	44	2900	NA	ND
"	"	05/12/93	1.7	4400	4600	290	60	3500	72	3900	0.14	ND
		08/25/93	1.5	2700	9400	280	55	4300	41	4700	0.08	ND
		11/11/93	2.3	5000	9500	390	110	5100	130	5700	0.14	ND
		02/08/94	NA	4400	17000	420	78	9800	160	10000	0.12	<0.02
		05/03/94	NA	3000	14000	310	61	6400	210	7000	0.14	<0.02
		08/24/94	NA	4500	10000	350	78	7300	170	7900	<0.10	NA
		11/16/94	NA	4700	9100	260	64	95	<0.50	420	NA	NA
		02/22/95	NA	2400	7400	250	51	4400	150	4900	NA	NA
		06/22/95	NA	3300	8100	250	53	<0.50	76	380	NA	NA
		08/09/95	NA	3100	5200	280	39	<0.50	140	460	1.6	<0.050
OKUS–W4	OKUS–W4	01/15/93	2.5	5400	8900	300	ND	4500	ND	4800	NA	ND
"	"	05/12/93	1.3	2900	6000	320	110	4600	230	5300	0.16	ND
		08/26/93	ND	2200	6700	350	72	4800	130	5400	0.098	ND
		11/11/93	ND	2400	5500	250	53	4600	140	5000	0.13	ND
		02/07/94	NA	2700	9100	250	<0.50	4900	150	5300	<0.10	<0.02
		05/03/94	NA	2300	6500	240	34	4200	140	4600	0.12	<0.02
		08/24/94	NA	2900	5200	200	41	3600	190	4000	0.11	NA
		11/16/94	NA	2800	5500	320	52	<0.50	120	490	NA	NA
		02/22/95	NA	2000	4300	250	47	2900	160	3400	NA	NA
		06/22/95	NA	2700	4900	280	38	5200	140	5700	NA	NA
		08/09/95	NA	2900	5900	270	54	<0.50	310	630	1.3	<0.050
OKUS–W5	OKUS–W5	01/15/93	ND	2900	550	53	11	180	20	260	NA	ND
"	"	05/12/93	130	2100	550	61	14	250	37	380	0.56	ND
		08/25/93	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		11/11/93	2.7	1600	590	14	3.1	54	6.2	77	0.53	ND
		02/07/94	NA	1900	760	54	9.4	220	24	310	0.55	<0.02
		05/03/94	NA	2000	820	57	9.5	240	27	330	0.38	<0.02
		08/24/94	NA	1700	910	55	14	8.6	18	96	0.45	NA
		11/16/94	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		02/22/95	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		06/22/95	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		08/09/95	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
OKUS–W6	OKUS–W6	07/16/93	BRK	BRK	ND	2.5	ND	ND	ND	2.5	0.004	ND
"	"	08/25/93	ND	590	ND	2.6	ND	4.9	1.3	8.8	0.013	ND
		11/12/93	ND	610	ND	3.6	ND	3.7	1.3	8.6	ND	ND
		02/07/94	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		05/03/94	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		08/24/94	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		11/16/94	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		02/22/95	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		06/22/95	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									
		08/09/95	PHASE SEPARATED HYDROCARBONS – WELL NOT SAMPLED									

TABLE 2
ANALYTICAL RESULTS – GROUNDWATER MONITORING WELLS
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/IR (mg/l)	TPH/D (ug/l)	TPH/G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	BTEX (ug/l)	As (mg/l)	Pb (mg/l)
OKUS–W7	OKUS–W7	07/16/93	16	ND	ND	2.1	ND	ND	ND	2.1	0.009	ND
"	"	08/25/93	ND	930	56	2.9	ND	1.2	ND	4.1	ND	ND
		11/12/93	ND	1100	ND	ND	ND	ND	ND	ND	ND	ND
		02/07/94	NA	1100	ND	0.7	<0.50	<0.50	<0.50	0.7	<0.10	<0.02
		05/03/94	NA	1300	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10	<0.02
		08/24/94	NA	910	<50	2.5	0.54	<0.50	<0.50	3.0	<0.10	NA
		11/16/94	NA	820	<50	0.62	<0.50	<0.50	<0.50	0.6	NA	NA
		02/22/95	NA	830	<50	0.54	<0.50	<0.50	<0.50	0.5	NA	NA
		06/22/95	NA	850	<50	2.4	<0.50	0.52	<0.50	2.9	NA	NA
		08/09/95	NA	[illegible]	71	4.2	<0.50	1.2	1.2	[illegible]	0.074	<0.050
OKUS–W8	OKUS–W8	07/16/93	15	ND	ND	ND	ND	ND	ND	ND	0.012	0.003
"	"	08/27/93	ND	1100	120	1.3	ND	ND	0.85	2.2	ND	0.005
		11/11/93	ND	1300	190	3.5	1.3	46	4.9	55.7	ND	ND
		02/07/94	NA	1000	120	0.9	<0.50	<0.50	<0.50	0.9	<0.10	<0.02
		05/03/94	NA	780	79	0.99	<0.50	<0.50	<0.50	1.0	<0.10	<0.02
		08/24/94	NA	700	100	1.4	<0.50	<0.50	<0.50	1.4	<0.10	NA
		11/16/94	NA	830	110	0.77	<0.50	<0.50	<0.50	0.8	NA	NA
		02/22/95	NA	370	150	0.96	<0.50	<0.50	1.2	2.2	NA	NA
		06/22/95	NA	870	76	0.92	<0.50	<0.50	<0.50	0.9	NA	NA
		08/09/95	NA	[illegible]	[illegible]	1.1	<0.50	<0.50	[illegible]	[illegible]	[illegible]	<0.050
APL/UP–W1	APL/UP–W1	07/16/93	11	700	300	25.4	1.7	ND	3.0	30	0.011	ND
"	"	08/26/93	ND	810	720	47	1.3	360	14.0	420	0.013	ND
		11/11/93	ND	530	560	26	ND	220	11.0	260	ND	ND
		02/07/94	NA	660	620	25	<0.50	180	10	220	<0.10	<0.02
		05/03/94	NA	590	680	48	2.9	260	9.8	320	<0.10	<0.02
		08/24/94	NA	420	830	48	4.8	12	3.2	68	<0.10	NA
		11/15/94	NA	480	470	36	3.6	9.6	12	61	NA	NA
		02/22/95	NA	510	470	33	2.8	170	9	210	NA	NA
		06/22/95	NA	320	160	12	0.82	3.5	2.4	19	NA	NA
		08/09/95	NA	[illegible]	[illegible]	[illegible]	<0.50	<0.50	[illegible]	[illegible]	<0.0050	<0.050
APL/UP–W2	APL/UP–W2	07/16/93	19	ND	ND	8.0	ND	ND	ND	8	0.016	ND
"	"	08/26/93	ND	240	94	ND	ND	35	2.4	37	0.023	ND
		11/11/93	ND	190	110	5.0	ND	38	2.6	46	ND	ND
		02/07/94	NA	270	120	6.6	<0.50	38	1.8	46	<0.10	<0.02
		05/03/94	NA	100	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10	<0.02
		08/24/94	NA	330	220	13.0	0.77	3.5	3.1	20	<0.10	NA
		11/15/94	NA	320	190	11.0	<0.50	63.0	5.4	79	NA	NA
		02/22/95	NA	550	320	19.0	<0.50	100	9.5	130	NA	NA
		06/22/95	NA	300	170	10.0	62	2.2	2.3	76	NA	NA
		08/09/95	NA	[illegible]	[illegible]	[illegible]	<0.50	<0.50	[illegible]	[illegible]	[illegible]	<0.050
OKUS–W5	OKUS–W6	01/15/93	ND	2800	510	50	10	170	19	250	NA	NA
OKUS–W1	OKUS–W6	05/12/93	ND	140	ND	ND	ND	ND	ND	ND	ND	ND
APL/UP–W1	QA/QC–1	07/16/93	12	ND	0.21	22.4	ND	ND	2.4	25	0.012	ND
OKUS–W4	OKUS–W9	08/26/93	ND	2700	6200	340	78	4500	100	5000	0.1	ND
OKUS–W8	OKUS–W9	11/11/93	ND	1300	120	1.3	ND	4	1.4	7	2.4	ND
OKUS–W3	QA/QC–1	02/08/94	NA	2900	15000	280	64	5800	<0.50	6100	0.12	0.12
OKUS–W4	OKUS–QC1	05/03/94	NA	2500	5400	300	41	5200	130	5700	0.12	<0.02
OKUS–W8	OKUS–QC1	08/24/94	NA	950	92	1.6	<0.50	<0.50	<0.50	2	<0.10	NA
APL/UP–W2	OKUS–QC1	11/16/94	NA	310	190	10	<0.50	62	4.7	77	NA	NA
APL/UP–W2	APL–W12	02/22/95	NA	490	360	20	<0.50	110	6.7	140	NA	NA
APL/UP–W2	APL–W12	08/09/95	NA	[illegible]	[illegible]	[illegible]	<0.50	<0.50	[illegible]	[illegible]	[illegible]	<0.050
UPMF	OAK–FB 1	07/16/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	OAK–TB 2	07/16/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–1	08/27/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–2	08/27/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–1	11/12/93	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–1	08/24/94	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–1	11/16/94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UPMF	TB–1	02/22/95	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–1	06/22/95	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA
UPMF	TB–1	08/09/95	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA

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

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



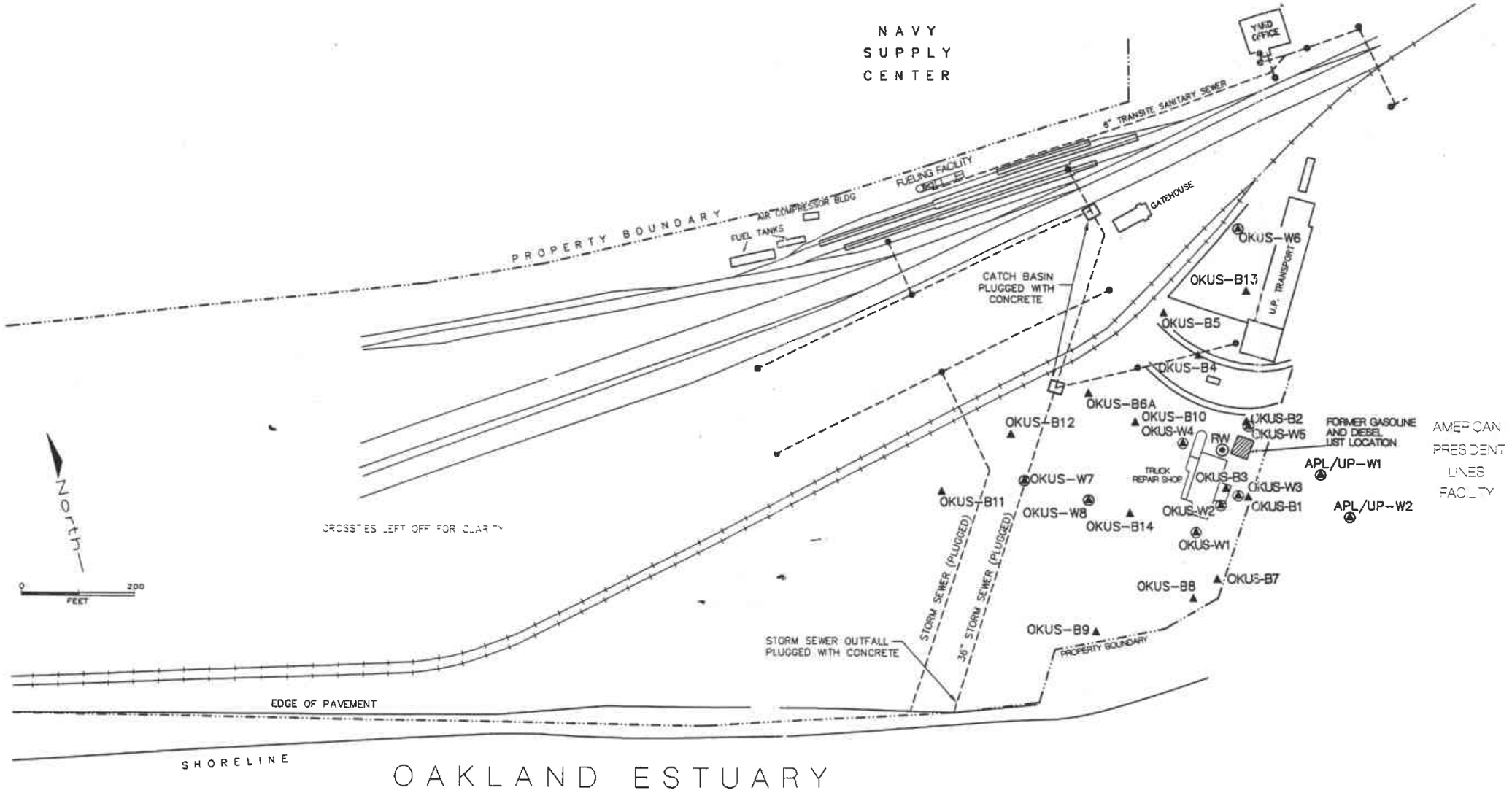
LAIDLAW ENVIRONMENTAL SERVICES

UPRR TOFC YARD, OAKLAND, CA

FIGURE 1

SITE LOCATION MAP

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



LEGEND

ⓐ OKUS-W1	MONITORING WELL LOCATION AND NUMBER
▲ OKUS-B1	BORING LOCATION AND NUMBER
•	CATCH BASIN FOR STORM SEWER
◉ RW	RECOVERY WELL

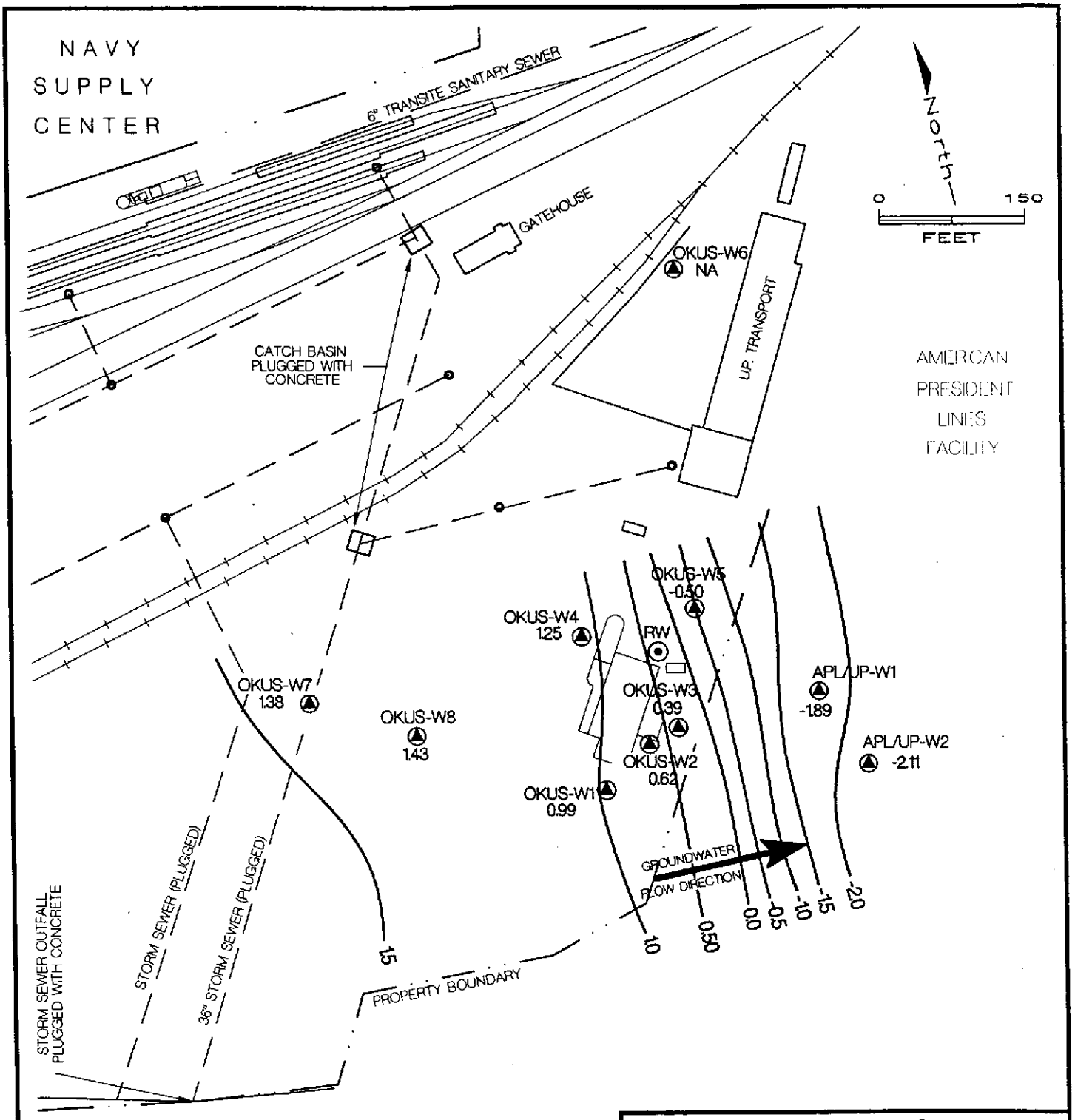
	BY	DATE
DRAWN	BILL	9/93
CHECKED	DM	9/99
APPROVED	DM	9/7/99
APPROVED		
APPROVED		

LAIDLAW ENVIRONMENTAL SERVICES

UPRR TOFC RAILYARD
UPMF REPAIR SHOP, OAKLAND, CALIFORNIA

FIGURE 2
SITE VICINITY MAP

SCALE	DATE	DWG. NO.
1"=200'	9/93	96120-556



LEGEND

OKUS-W1 0.99	MONITOR WELL LOCATION AND NUMBER WITH GROUNDWATER ELEVATION
RW	RECOVERY WELL
	CATCH BASIN FOR STORM SEWER
0	GROUNDWATER ELEVATION CONTOUR (FEET RELATIVE TO MEAN SEA LEVEL)

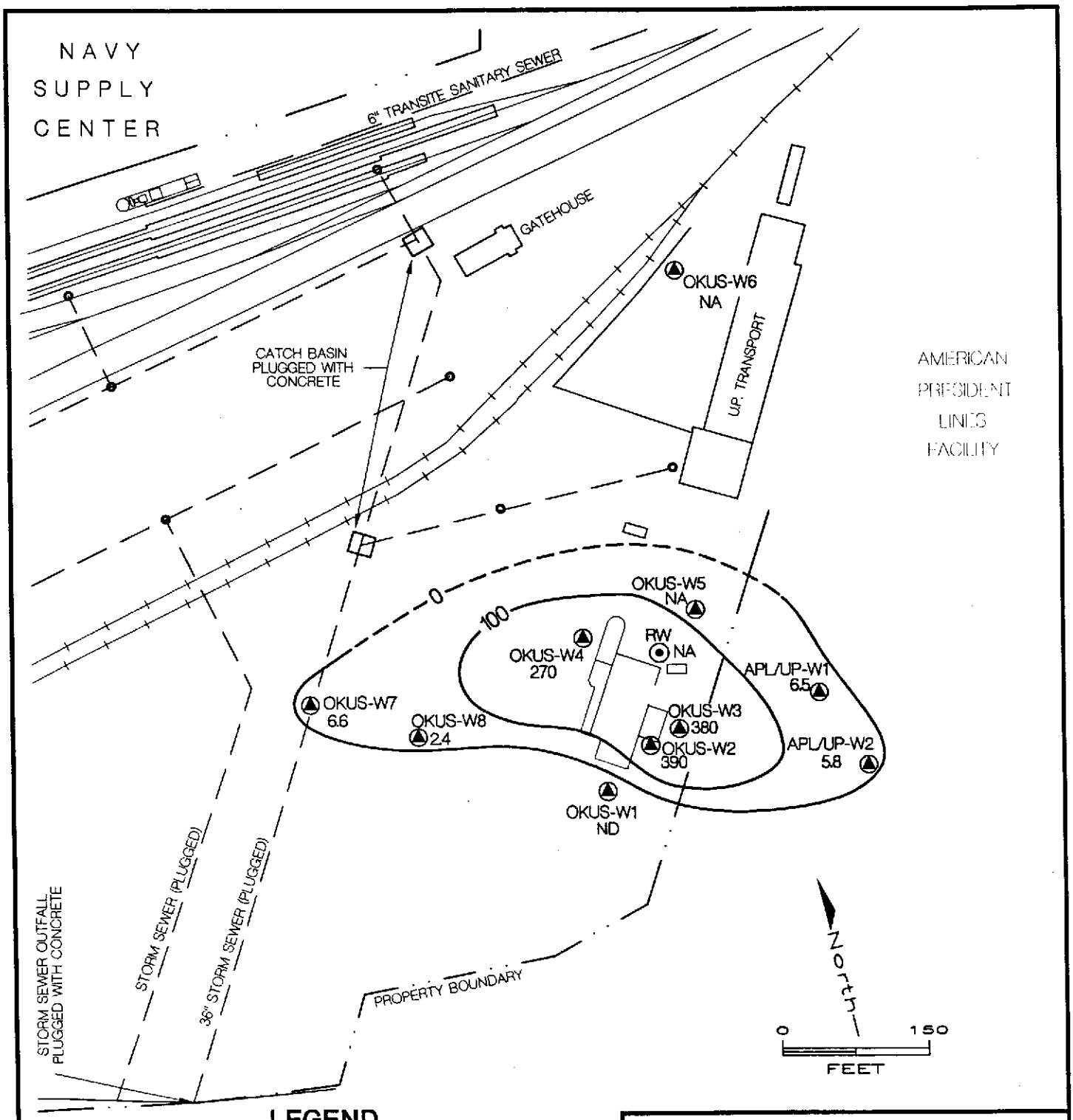
96120-771

USPCI
A LAIDLAW COMPANY

UPMF REPAIR SHOP-OAKLAND, CALIFORNIA

FIGURE 3
GROUNDWATER ELEVATION MAP (8/95)

SCALE:	APPROVED/DATE
1" = 150'	10/11/95



LEGEND

OKUS-W8 ▲ 4.0	MONITOR WELL LOCATION AND NUMBER WITH TOTAL DISSOLVED BTEX CONCENTRATION ug/L
RW ⊙	RECOVERY WELL
●	CATCH BASIN FOR STORM SEWER
—100—	TOTAL BTEX DISTRIBUTION CONTOUR; DASHED WHERE INFERRED
ND	NOT DETECTED
NA	NOT ANALYZED

NOTE: ALL ANALYTICAL RESULTS IN µg/L

96120-772

USPCI

A LAIDLAW COMPANY

UPMF REPAIR SHOP-OAKLAND, CALIFORNIA

FIGURE 4
DISSOLVED PHASE BTEX DISTRIBUTION (8/95)

SCALE	APPROVED/DATE
1" = 150'	10/11/95

APPENDIX A

ANALYTICAL REPORTS

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

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

Client Project ID: UPMF - Oakland: 96120-844
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 508-0597

Sampled: Aug 9, 1995
Received: Aug 10, 1995
Reported: Aug 23, 1995

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 508-0597 APL-W2	Sample I.D. 508-0598 APL-W12	Sample I.D. 508-0599 APL-W1	Sample I.D. 508-0600 OKUS-W8	Sample I.D. 508-0601 OKUS-W7	Sample I.D. 508-0602 OKUS-W4
QC Batch Number:		GC082095 802002A	GC082095 802002A	GC082095 802002A	GC082095 802002A	GC082095 802002A	GC082195 802002A
Purgeable Hydrocarbons	50	62	71	69	90	71	5,300
Benzene	0.50	3.5	3.4	4.2	1.1	4.2	270
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	54
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	1.2	N.D.
Total Xylenes	0.50	2.3	2.2	2.3	1.3	1.2	210
Chromatogram Pattern:		Gasoline and Unidentified Hydrocarbons	Gasoline and Unidentified Hydrocarbons	Gasoline and Unidentified Hydrocarbons	Gasoline and Unidentified Hydrocarbons >C9	Gasoline and Unidentified Hydrocarbons >C9	Gasoline and Unidentified Hydrocarbons

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	50
Date Analyzed:	8/20/95	8/20/95	8/20/95	8/20/95	8/20/95	8/21/95
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	105	99	106	110	106	108

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

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

Client Project ID: UPMF - Oakland: 96120-844
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 508-0603

Sampled: Aug 9, 1995
Received: Aug 10, 1995
Reported: Aug 23, 1995

QC Batch Number: GC082095 802002A | GC082095 802002A | GC082195 802004A | GC082195 802004A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 508-0603 Trip Blank	Sample I.D. 508-0604 OKUS-W1	Sample I.D. 508-0605 OKUS-W2	Sample I.D. 508-0606 OKUS-W3
Purgeable Hydrocarbons	50	N.D.	N.D.	4,800	5,200
Benzene	0.50	N.D.	N.D.	160	200
Toluene	0.50	N.D.	N.D.	28	39
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	200	140
Chromatogram Pattern:		--	--	Gasoline and Unidentified Hydrocarbons	Gasoline and Unidentified Hydrocarbons

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	50	40
Date Analyzed:	8/20/95	8/20/95	8/21/95	8/21/95
Instrument Identification:	HP-2	HP-2	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	99	99	102	106

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
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U.S.P.C.I. / Laidlaw	Client Project ID:	UPMF - Oakland: 96120-844	Sampled: Aug 9, 1995
5665 Flatiron Pkwy.	Sample Matrix:	Water	Received: Aug 10, 1995
Boulder, CO 80301	Analysis Method:	EPA 3510/8015 Mod.	Reported: Aug 23, 1995
Attention: Denton Mauldin	First Sample #:	508-0597	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 508-0597 APL-W2	Sample I.D. 508-0598 APL-W12	Sample I.D. 508-0599 APL-W1	Sample I.D. 508-0600 OKUS-W8	Sample I.D. 508-0601 OKUS-W7	Sample I.D. 508-0602 OKUS-W4
QC Batch Number:		SP081295 8015EXB	SP081295 8015EXB	SP081295 8015EXB	SP081295 8015EXB	SP081295 8015EXB	SP081295 8015EXB
Extractable Hydrocarbons	50	180	160	160	1,100	640	2,900
Chromatogram Pattern:		Diesel	Diesel	Diesel	Diesel	Diesel	Diesel

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/12/95	8/12/95	8/12/95	8/12/95	8/12/95	8/12/95
Date Analyzed:	8/14/95	8/14/95	8/14/95	8/14/95	8/14/95	8/14/95
Instrument Identification:	HP-3B	HP-3B	HP-3B	HP-3B	HP-3B	HP-3B

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

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404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy.
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: UPMF - Oakland: 96120-844
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 508-0604

Sampled: Aug 9, 1995
Received: Aug 10, 1995
Reported: Aug 23, 1995

QC Batch Number: SP081295 8015EXB | SP081295 8015EXB | SP081295 8015EXB

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 508-0604 OKUS-W1	Sample I.D. 508-0605 OKUS-W2	Sample I.D. 508-0606 OKUS-W3
Extractable Hydrocarbons	50	N.D.	2,900	3,100
Chromatogram Pattern:		--	Diesel and Unidentified Hydrocarbons <C15	Diesel and Unidentified Hydrocarbons <C15

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	8/12/95	8/12/95	8/12/95
Date Analyzed:	8/14/95	8/14/95	8/14/95
Instrument Identification:	HP-3B	HP-3B	HP-3B

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
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U.S.P.C.I. / Laidlaw	Client Project ID:	UPMF - Oakland: 96120-844	Sampled: Aug 9, 1995
5665 Flatiron Pkwy.	Sample Descript:	Water	Received: Aug 10, 1995
Boulder, CO 80301	Analysis for:	Lead	Extracted: Aug 16, 1995
Attention: Denton Mauldin	First Sample #:	508-0597	Analyzed: Aug 17, 1995
			Reported: Aug 23, 1995

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L	QC Batch Number	Instrument ID
508-0597	APL-W2	0.050	N.D.	ME0816952007MDC	MV-1
508-0598	APL-W12	0.050	N.D.	ME0816952007MDC	MV-1
508-0599	APL-W1	0.050	N.D.	ME0816952007MDC	MV-1
508-0600	OKUS-W8	0.050	N.D.	ME0816952007MDC	MV-1
508-0601	OKUS-W7	0.050	N.D.	ME0816952007MDC	MV-1
508-0602	OKUS-W4	0.050	N.D.	ME0816952007MDC	MV-1
508-0603	OKUS-W1	0.050	N.D.	ME0816952007MDC	MV-1
508-0604	OKUS-W2	0.050	N.D.	ME0816952007MDC	MV-1
508-0605	OKUS-W3	0.050	N.D.	ME0816952007MDC	MV-1

Analytes reported as N.D. were not present above the stated limit of detection.

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
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U.S.P.C.I. / Laidlaw	Client Project ID:	UPMF - Oakland: 96120-844	Sampled: Aug 9, 1995
5665 Flatiron Pkwy.	Sample Descript:	Water	Received: Aug 10, 1995
Boulder, CO 80301	Analysis for:	Arsenic by Hydride	Extracted: Aug 15, 1995
Attention: Denton Mauldin	First Sample #:	508-0597	Analyzed: Aug 16, 1995
			Reported: Aug 23, 1995

LABORATORY ANALYSIS FOR: Arsenic by Hydride

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L	QC Batch Number	Instrument ID
508-0597	APL-W2	0.0050	0.22	ME0815952703MDA	MV-1
508-0598	APL-W12	0.0050	0.20	ME0815952703MDA	MV-1
508-0599	APL-W1	0.0050	N.D.	ME0815952703MDA	MV-1
508-0600	OKUS-W8	0.0050	0.078	ME0815952703MDA	MV-1
508-0601	OKUS-W7	0.0050	0.074	ME0815952703MDA	MV-1
508-0602	OKUS-W4	0.0050	1.3	ME0815952703MDA	MV-1
508-0603	OKUS-W1	0.0050	0.040	ME0815952703MDA	MV-1
508-0604	OKUS-W2	0.0050	0.92	ME0815952703MDA	MV-1
508-0605	OKUS-W3	0.0050	1.6	ME0815952703MDA	MV-1

Analytes reported as N.D. were not present above the stated limit of detection.

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

Client Project ID: UPMF - Oakland: 96120-844
Matrix: Liquid
QC Sample Group: 5080597-606

Reported: Aug 23, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Arsenic	Lead
QC Batch#:	GC082095	GC082095	GC082095	GC082095	SP081295	ME081595	ME081695
	802002A	802002A	802002A	802002A	8015EXB	2703MDA	2007MDC
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 M	EPA 7061	EPA 7420
Prep. Method:	-	-	-	-	EPA 3510	EPA 7061	EPA 3010
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	J. Dinsay	-	T. Le
MS/MSD #:	5080601	5080601	5080601	5080601	BLK081295	-	5080597
Sample Conc.:	4.2 µg/L	N.D.	1.2 µg/L	1.2 µg/L	N.D.	-	N.D.
Prepared Date:	8/20/95	8/20/95	8/20/95	8/20/95	8/12/95	-	8/16/95
Analyzed Date:	8/20/95	8/20/95	8/20/95	8/20/95	8/14/95	-	8/17/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	GCHP-3B	-	MV-1
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L	-	1.0 mg/L
Result:	22	22	23	68	280	-	0.92
MS % Recovery:	110	110	115	113	93	-	92
Dup. Result:	23	23	24	69	290	-	0.87
MSD % Recov.:	115	115	120	115	97	-	87
RPD:	4.4	4.4	4.3	1.5	3.5	-	5.6
RPD Limit:	0-20	0-20	0-20	0-20	0-20	-	0-20

LCS #:	1LCS082095	1LCS082095	1LCS082095	1LCS082095	BLK081295	BLK081595	BLK081695
Prepared Date:	8/20/95	8/20/95	8/20/95	8/20/95	8/12/95	8/15/95	8/16/95
Analyzed Date:	8/20/95	8/20/95	8/20/95	8/20/95	8/14/95	8/16/95	8/17/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	GCHP-3B	MV-1	MV-1
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L	0.20 mg/L	1.0 mg/L
LCS Result:	22	22	23	68	280	0.23	0.89
LCS % Recov.:	111	109	113	114	93	115	89
MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120	38-122	75-125	75-125

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

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

Client Project ID: UPMF - Oakland: 96120-844
Matrix: Liquid
QC Sample Group: 5080597-606
Reported: Aug 23, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082195	GC082195	GC082195	GC082195
	802002A	802002A	802002A	802002A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	-	-	-	-
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill
MS/MSD #:	5080459	5080459	5080459	5080459
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/21/95	8/21/95	8/21/95	8/21/95
Analyzed Date:	8/21/95	8/21/95	8/21/95	8/21/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	22	22	23	69
MS % Recovery:	110	110	115	115
Dup. Result:	22	22	24	70
MSD % Recov.:	110	110	120	117
RPD:	0.0	0.0	4.3	1.4
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	1LCS082195	1LCS082195	1LCS082195	1LCS082195
Prepared Date:	8/21/95	8/21/95	8/21/95	8/21/95
Analyzed Date:	8/21/95	8/21/95	8/21/95	8/21/95
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	22	21	23	66
LCS % Recov.:	108	106	114	110
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

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

Client Project ID: UPMF - Oakland: 96120-844
Matrix: Liquid
QC Sample Group: 5080597-606
Reported: Aug 23, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082195	GC082195	GC082195	GC082195
	802004A	802004A	802004A	802004A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	-	-	-	-
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill
MS/MSD #:	5080615	5080615	5080615	5080615
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/21/95	8/21/95	8/21/95	8/21/95
Analyzed Date:	8/21/95	8/21/95	8/21/95	8/21/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	19	19	19	58
MS % Recovery:	95	95	95	97
Dup. Result:	17	18	18	56
MSD % Recov.:	85	90	90	93
RPD:	11	5.4	5.4	3.5
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	2LCS082195	2LCS082195	2LCS082195	2LCS082195
Prepared Date:	8/21/95	8/21/95	8/21/95	8/21/95
Analyzed Date:	8/21/95	8/21/95	8/21/95	8/21/95
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	20	21	21	63
LCS % Recov.:	101	105	106	106
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

[redacted] SEQUOIA ANALYTICAL [redacted]
CHAIN OF CUSTODY

☐ 6[redacted]hes[redacted]ke D[redacted] Re[redacted]d C[redacted]A 9[redacted] • (4[redacted]64-9[redacted] FAX[redacted]5) 3[redacted]233 [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: UPMF - Oakland: 96120-044
Address: 5665 FLATIRON PKWY.	Billing Address (if different):
City: BOULDER State: CO Zip Code: 80301	→ SAME
Telephone: (303) 938-5500 FAX #: (303) 938-5520	P.O. #:
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 #	8020 BTEX	MOD 8015 TPH Diesel	MOD 8015 TPH-Gasoline	Pb: 7420	As: 7061				Comments
1. APL-W2	8/9/95	AQU.	3	VOA		X		X			5080597 A-E			
2.	09:57		1	1L AMB.			X							
3.			1	Metals Plastic					X	X				Filtered in field (.45 Mc)
4. APL-W12	8/9/95		3	VOA		X		X			5080598 A-E			
5.	10:17		1	1L AMB.			X							
6.			1	Metals Plastic					X	X				Filtered in field .45 Mc
7. APL-W1	10:28 8/9/95		3	VOA		X		X			5080599 A-E			
8.	10:28		1	1L AMB			X							
9.			1	Metals Plastic					X	X				Filtered in field .45 M
10.														

Relinquished By: [signature]	Date: 8/10/95	Time: 15:40	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: [signature]	Date: 8/10/95	Time: 1540

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

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

[redacted] 6[redacted]nes[redacted]ke D[redacted] Re[redacted]d Ci[redacted]A 9[redacted] • (4[redacted]64-9[redacted] FAX[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/CAID LAW	Project Name: UPMF-Oakland; 96120 844
Address: 5665 FLATIRON PKWY	Billing Address (if different):
City: Boulder State: CO Zip Code: 80301	→ Same
Telephone: (303) 938-5500 FAX #: (303) 938-5520	P.O. #:
Report To: Denton Mauldin Sampler: MarkMMcCormick	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 #	8020 BTEX	MOD8015 TPH:GASOLINE	MOD8015 TPH Diesel	Pb: 7420	As: 7061				Comments
1. OKUS-WB	8/9/95	AQU	3	VOA		X	X				5080600	AE		
2.	13:32		1	1 LAMB.				X						
3.			1	Metals Plastic					X	X				Filtered in field w/.45 µ
4. OKUS-WF	8/9/95		[redacted]6	VOA		X	X				5080601	AI		USE FOR MS/MSD 8020 BTEX + MOD8015-G + TPH-D
5.	14:40		2	1L AMB.				X						
6.			1	metals Plastic					X	X				Filtered in field w/.45µ
7. OKUS-W4	8/9/95		3	VOA		X	X				5080602	AE		
8.	15:50		1	1L AMB.				X						
9.			1	metals Plastic					X	X				
10. Trip Blank (TB)			3	VOA		X	X				5080603	AC		Trip Blank Cunlab elec

Relinquished By: Mark M. McCormick	Date: 8/10/95	Time: 15:40	Received By:	Date: Time:
Relinquished By:	Date:	Time:	Received By:	Date: Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 8/10/95 Time: 1540

Were Samples Received in Good Condition? ☒ Yes ☐ No Samples on Ice? ☒ Yes ☐ No Method of Shipment: Sampler

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

☐ 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: UPMF-Oakland: 96120-844
Address: 5665 FLATIRON PKWY	Billing Address (if different):
City: BOULDER State: CO Zip Code: 80301	→ SAME
Telephone: (303) 938-5500 FAX #: (303) 938-5520	P.O. #:
Report To: Denton Mauldin Sampler: MarkNMcComick	QC Data: ☐ Level D (Standard) ☒ Level C ☐ Level B ☐ Level A

Turnaround Time: ☐ 10 Working Days ☐ 3 Working Days ☐ 2 - 8 Hours ~~☒ 24~~ 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 #	BOZO BTEX	MOD BOI'S TPH. GASOLINE	MOD BOI'S TPH. DIESEL	Pb: 7420	As: 7061				Comments
1.	OKUS-W1	8/9/95	AQU	3	VOA		X	X				5080604		AE	
2.				1	1L AMB.				X						
3.				1	Metals Plastic					X	X				Filtered in field w/ .45M
4.	OKUS-W2	8/9/95		3	VOA		X	X				5080605		AE	
5.				1	1L AMB.				X						
6.				1	Metals Plastic					X	X				Filtered in field w/ .45M
7.	OKUS-W3	8/9/95		3	VOA		X	X				5080606		AE	
8.				1	1L AMB				X						
9.				1	Metals Plastic					X	X				Filtered in field w/ .45M
10.															

Relinquished By: [signature]	Date: 8/10/95	Time: 15:40	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: [signature]	Date: 8/10/95	Time: 1540

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

Pink - Client
Yellow - Sequoia
White - Sequoia

APPENDIX B

HYDRODATA AND SAMPLE COLLECTION LOGS

HYDRODATA

Date: 7/31/95

PROJECT: UPRR-MF/TOFC EVENT: JULY H_2O/PRODUCT SAMPLER: CHRIS M. PATRICK

No.	Well or Location	Date	Time Hr.	Time Min.	Measurement DTP	Measurement DTW	Comments
1	RW-1	7/31/95			8.94	8.98	.04' PRODUCT
2	OKUS-W4	7/31/95				5.96'	NO PRODUCT
3	OKUS-W5	"				9.34	TRACE FILM
4	OKUS-W6	"				5.60	≈.05'
5	OMW-1	"				6.43	NO PRODUCT
6	OMW-2	X	X	X	X	X	P. PACKER LOADING TRAFFIC
7	OMW-3	"				5.22	WATER BUGS (LICE?)
8	OMW-4	"			5.78'	6.99'	1.21' PRODUCT
9	OMW-5	X	X	X	X	X	COVERED (PROBABLY W/SALT DEPOSITS?)
10	OMW-6	"				5.65	NO PRODUCT
11	OMW-7	"			5.61'	8.83'	3.22' PRODUCT
12	OMW-8	"				5.70'	
13	OMW-9	"			6.07	8.46'	2.39' PRODUCT
14	OMW-10	X	X	X	X	X	COVERED (ROAD BASE?)
15	ORW-1	"			8.35'	10.55'	2.20' PRODUCT - APPROXIMATE
16	ORW-2	"			9.30'	9.45'	.15' PRODUCT APPROXIMATE - DURING PUMPING
17	ORW-3	"				9.68'	NO APPRECIABLE THICKNESS
18	NEW MW - BETWEEN ORW2 +3	"			5.23'	5.35'	.12' PRODUCT
19	NEW MW - BETWEEN ORW1 +2	"			5.32'	8.46'	3.14' PRODUCT
20							

[1] All levels are depth from inner casing - describe any other reference points in comments column; when in doubt, describe reference point.
Note in comments column if well is not: properly labeled, locked, or able to be locked. Describe corrective action.
Note flooding of vault box, odor, access problems.

NOTE - ORW'S MEASUREMENTS OBTAINED APPROXIMATELY AT CYCLE END.

HYDRODATA

Date: 9/7/95

PROJECT: UPRR-TOFC EVENT: WELL DATA SAMPLER: CM/LS

No.	Well or Location	Date	Time Hr.	Time Min.	Measurement DTP	Measurement DTW	Comments
1	OKUS-4	9/7/95	11	41		6.36	NO PRODUCT
2	OKUS-5	9/7/95	11	36	9.56	≈9.56	THIN FILM BUNKER
3	OKUS-6	9/7/95	11	47	5.98	≈6.00	.01-.02 BUNKER C (OBSERVED PROBE)
4	RW	9/7/95	11:[illegible]	13	9.18'	9.19'	.01 PRODUCT BAILED ≈ .5 GAL OIL
NOTES	ORW-1		13	44	10.55	11.03'	2.47' PRODUCT
6	ORW-2		13	41	9.45	9.50	≈.05' PRODUCT
7	ORW-3		13	35	9.57'	9.60'	≈.03' PRODUCT
8	OMW-1		13	20		6.86'	NO PRODUCT
9	OMW-2		12	55		4.35'	NO PRODUCT
10	OMW-3		13	01		5.64	NO PRODUCT - BUGS IN H2O
11	OMW-4		13	28	6.01'	6.92'	.91' PRODUCT
12	OMW-5		12	30		5.85	NO PRODUCT (FOUND! AND WELL MARKED)
13	OMW-6		11	59		5.51'	NO PRODUCT
14	OMW-7		13	50	5.90'	7.97'	2.17' PRODUCT BAILED ≈ [illegible] GAL
15	OMW-8		13	24		5.99'	NO PRODUCT
16	OMW-9		13	54	5.23'	6.89'	1.66' PRODUCT
17	OMW-10		14	20		6.02'	NO PRODUCT (FOUND! CLOSE TO AC PAD)
18	OP-1		14	02	5.55	6.13	.58' PRODUCT
19	OP-2		12	39	6.04	7.85	1.81' PRODUCT
20	OP-3		14	08	5.16'	8.22'	3.06' PRODUCT BAILED 1.75

[1] All levels are depth from inner casing - describe any other reference points in comments column; when in doubt, describe reference point.
Note in comments column if well is not: properly labeled, locked, or able to be locked. Describe corrective action.
Note flooding of vault box, odor, access problems.

NOTE- ADJUSTED DRAWDOWN TO ≈ 11.18'

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. OKUS-W1

Well Depth: (Below MP): **18.70 Feet**

Casing diameter: **2 Inches** | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **8.18 Feet** | Sample ID No. **OKUS-W1**

Method Of Well Development: | Time: **16:55**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 9.17 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 6.85 Feet

Sampling Collection Method: | Sample Appearance: **Clear**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **None**

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

○ ABS Plastic ○ PVC ● HDPE plastic disposable

Pump Intake Or Bailer Set At _____ Feet Below MP | Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **TPH-Gasoline, , TPH-Diesel 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
16:28	Begin well					
16:34	7.9	700	23.0		1.75	
16:40	7.9	700	23.0		3.50	
16:44	7.9	800	22.5		5.25	
16:55	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Metals filtered with .45 micron filter**

(18.70 - 8.18) * 0.16 = 1.683 or 1.75 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland**

USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. OKUS-W2

Well Depth: (Below MP): **22.00 Feet**

Casing diameter: **2 Inches**

Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **9.09 Feet**

Sample ID No. **OKUS-W2**

Method Of Well Development:

Time: **17:40**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): 9.71 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: 7.05 Feet

Sampling Collection Method:

Sample Appearance: **Clear**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample

Odor: **Moderate**

■ Bailer Type: ○ Teflon ○ Stainless Steel

Sampling Problems (if any):

○ ABS Plastic ○ PVC ● HDPE plastic disposable

Pump Intake Or Bailer Set At _____ Feet Below MP

Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected: **TPH-Gasoline, TPH-Diesel, 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
17:11	Begin well					
17:18	7.9	2500	23.0		2.25	
17:23	7.8	2500	22.5		4.50	
17:28	7.6	2700	22.0		6.75	
17:40	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Metals filtered with .45 micron filter**

(22.00 - 9.09) * 0.16 = 2.066 or 2.25 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick**

Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland**

USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. OKUS-W3

Well Depth: (Below MP): **21.5 Feet**

Casing diameter: **2 Inches**

Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **9.41 Feet**

Sample ID No. **OKUS-W3**

Method Of Well Development:

Time: **18:25**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): 9.80 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: 6.55 Feet

Sampling Collection Method:

Sample Appearance: **Slightly turbid**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample

Odor: **Moderate**

■ Bailer Type: ○ Teflon ○ Stainless Steel

Sampling Problems (if any): Water is reactive

○ ABS Plastic ○ PVC ● HDPE plastic disposable

Pump Intake Or Bailer Set At _____ Feet Below MP

Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected: **TPH-Gasoline, TPH-Diesel, 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
17:55	Begin well					
18:03	7.8	2400	22.5		2.0	
18:09	7.8	2500	22.5		4.0	
18:14	7.7	2400	22.0		6.0	
18:25	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Heavy bacteria level obscuring water/air interface.**

Metals sample filtered with .45 micron filter

(21.50 - 9.41) * 0.16 = 1.934 or 2.0 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick**

Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. OKUS-W4

Well Depth: (Below MP): **20.69 Feet**

Casing diameter: **2 Inches** | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **6.10 Feet** | Sample ID No. **OKUS-W4**

Method Of Well Development: | Time: **15:50**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 7.35 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 6.08 Feet

Sampling Collection Method: | Sample Appearance: **Clear - v. slighly turbid**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **Moderate**

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

○ ABS Plastic ○ PVC ● HDPE plastic disposable

Pump Intake Or Bailer Set At _____ Feet Below MP | Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **TPH-Gasoline, TPH-Diesel 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
15:18	Begin well					
15:27	7.7	2200	23.5		2.5	
15:33	7.7	2400	23.0		5.0	
15:39	7.7	2400	23.0		7.5	
15:50	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Metals sample filtered with .45 micron filter**

(20.69 - 6.10) * 0.16 = 2.334 or 2.5 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing** | **Well No. OKUS-W5**

Well Depth: (Below MP): **21.00 Feet**

Casing diameter: **2 Inches** | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **9.75 Feet *** | Sample ID No. **N/A**

Method Of Well Development: | Time: **12:30**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 9.25 Feet

☐ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 5.95 Feet

Sampling Collection Method: | Sample Appearance:

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **Moderate**

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

◯ ABS Plastic ◯ PVC

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

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **None**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
WELL NOT	SAMPLED					

At Least Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: *** No Oil/Water interface detected, but product noted coating probe and in bailer, noted as diesel fuel.**

Well not sampled because of phase separated hydrocarbons.

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing** | **Well No. OKUS-W6**

Well Depth: (Below MP): **16.30 Feet**

Casing diameter: **2** Inches | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **6.10 Feet**
Depth to Product (Below MP): **5.65 Feet** | Sample ID No. **N/A**

Method Of Well Development: | Time: **12:12**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 7.29 Feet

☐ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 2.29 Feet

Sampling Collection Method: | Sample Appearance:

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **Strong**

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

◯ ABS Plastic ◯ PVC

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

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **None**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
WELL NOT	SAMPLED					

At Least Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Measurement only to product/air interface, viscosity of "bunker C" type hydrocarbon completely obsures the product/water interface. A bailer was inserted downhole and product thickness was measured by appearance on bailer.**

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

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

Well Depth: (Below MP): **19.78 Feet**

Casing diameter: **2 Inches** | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **5.53 Feet** | Sample ID No. **OKUS-W7**

Method Of Well Development: | Time: **14:40**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 7.4 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 2.4 Feet

Sampling Collection Method: | Sample Appearance: **Slightly turbid, yellow**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **Light - moderate**

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

○ ABS Plastic ○ PVC ● HDPE plastic disposable

Pump Intake Or Bailer Set At _____ Feet Below MP | Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **TPH-Gasoline, TPH-Diesel, 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
14:05	Begin well					
14:14	7.7	2100	22.0		2.50	
14:21	7.8	2000	22.0		4.75	
14:28	7.7	2100	22.0		7.50	
14:40	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Metals sample filtered with .45 micron filter**

(19.78 - 5.53) * 0.16 = 2.28 or 2.25 gallons per volume

Samples doubled for MS/MSD for TPH and BTEX

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. OKUS-W8

Well Depth: (Below MP): **14.87 Feet**

Casing diameter: **2 Inches** | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **5.32 Feet** | Sample ID No. **OKUS-W8**

Method Of Well Development: | Time: **13:32**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 7.11 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 2.11 Feet

Sampling Collection Method: | Sample Appearance: **Lightly turbid, bright yellow**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **Light**

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

○ ABS Plastic ○ PVC ● HDPE plastic disposable

Pump Intake Or Bailer Set At _____ Feet Below MP | Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **TPH-Gasoline, TPH-Diesel, 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
13:06	Begin well					
13:14	7.4	3400	23.5		1.50	
13:18	7.5	3600	23.0		3.25	
13:22	7.5	3500	23.0		4.75	
13:32	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Metals sample filtered with .45 micron filter.**

(14.87 - 5.32) * 0.16 = 1.528 or 1.5 to 1.75 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland**

USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. APL-W1

Well Depth: (Below MP): **21.87 Feet**

Casing diameter: **2 Inches**

Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **10.01 Feet**

Sample ID No. **APL-W1**

Method Of Well Development:

Time: **10:28**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump

Riser Elevation (MP): **7.11 Feet**

■ Bailer ☐ Centrifugal Pump ☐ Other

Top of Screen Elevation: **2.11 Feet**

Sampling Collection Method:

Sample Appearance: **Clear**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample

Odor: **Light**

■ Bailer Type: ○ Teflon ○ Stainless Steel

Sampling Problems (if any):

○ ABS Plastic ○ PVC ● HDPE disposable

Pump Intake Or Bailer Set At _____ Feet Below MP

Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests

Samples Collected: **TPH-Gasoline, TPH-Diesel, 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
08:59	Gauge well					
09:18	Begin well	purging				
09:21	7.8	1300	21.0		2.00	
09:25	7.8	1400	21.0		4.00	
09:30	7.8	1400	21.0		6.00	
10:28	Sample well					

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

Comments: **Metals sample filtered with .45 micron filter**

(21.87 - 10.01) * 0.16 = 1.898 or 2.0 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick**

Witnessed By:

USPCI SAMPLING AND WELL STABLIZATION FORM

USPCI Project Name: **UPMF Oakland** | USPCI Project Number: **96120-844**

Measuring Point (MP) Location **Top of casing**

Well No. APL-W2

Well Depth: (Below MP): **11.17 Feet**

Casing diameter: **2 Inches** | Sampling Date: **08/09/95**

Depth To Ground Water (Below MP): **9.42 Feet** | Sample ID No. **APL-W2**

Method Of Well Development: | Time: **09:57**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump | Riser Elevation (MP): 7.62 Feet

■ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation: 2.62 Feet

Sampling Collection Method: | Sample Appearance: **Clear**

☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **None**

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

○ ABS Plastic ○ PVC ● HDPE disposable

Pump Intake Or Bailer Set At _____ Feet Below MP | Decontamination Performed: Probe and filter

Tubing Type (if Used):

Tubing Used for: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **TPH-Gasoline, TPH-Diesel, 8020 BTEX, Pb, As**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From well (Gallons)	Pumping Rate in Gallons/Minute (GPM)
08:57	Gauge well					
09:04	Begin well	purging				
09:06	7.9	1400	21.0		0.33	
09:08	7.8	1500	21.0		0.66	
09:10	7.8	1500	21.0		1.00	
09:57	Sample well					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling Discharge Rate = GPM x 0.00223 = cfs

Comments: **Duplicate sample = APL-W12 at 10:17**

Metals sample filtered with .45 micron filter

(11.17 - 9.42) * 0.16 = 0.28 or .33 gallons per volume

[Comments may continue on back]

Form Completed By: **Mark McCormick** Witnessed By: