THIRD QUARTER 1997
MONITORING REPORT

UNION PACIFIC MOTOR FREIGHT
FACILITY
OAKLAND, CALIFORNIA

LAIDLAW Project No.

792919-844

Prepared For:

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

LAIDLAW ENVIRONMENTAL SERVICES

Prepared by:

Laidlaw Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301

October 30, 1997

LAIDLAW ENVIRONMENTAL SERVICES

Consulting Services

October 30, 1997

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

Subject: *Third Quarter 1997 Monitoring Report* Oakland Motor Freight Facility, 1750 Ferro Street, Oakland, California, Laidlaw Project No. 96120-844

Dear Mr. Patterson:

Enclosed is the final copy of the *Third Quarter 1997 Monitoring Report*, for the Union Pacific Motor Freight Facility at 1750 Ferro Street in Oakland, California. The Second Quarter 1997 Monitoring Report, dated July 29, 1997 included the following recommendations:

- Discontinue the operation of the product skimming pump in the recovery well (RW);
- Change the fluid-level measurement frequency in well RW from monthly to quarterly;
- Change the groundwater sample collection frequency from quarterly to semi-annually (first and third quarters); and,
- Change the reporting frequency from quarterly to semi-annually (April and October).

Laidlaw has not received a response from the Alameda County Department of Environmental Health (ACDEH), regarding the above recommendations. The next quarterly monitoring event would normally occur in November of 1997. However, unless we are instructed otherwise by ACDEH, the next sampling event will be scheduled in February of 1998 and Laidlaw will implement the above recommendations.

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: Jennifer Eberle, ACDEH
John Prall, Port of Oakland
Jami Matanky, APL

oakmf\qtrmf397-ltr, 96120-844, October 30, 1997

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UNION PACIFIC RAILROAD
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OAKLAND, CALIFORNIA
Laidlaw Project No. 792919-844

Prepared for:
Union Pacific Railroad
Environmental Management - Room 930
1416 Dodge Street
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October 30, 1997

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1. INTRODUCTION

This report presents the results from the third quarter 1997 groundwater monitoring event conducted at the Union Pacific Railroad Motor Freight (UPMF) facility at 1750 Ferro Street in Oakland, California (Figure 1). The report has been prepared by Consulting Services of Laidlaw Environmental Services (Laidlaw) on behalf of Union Pacific Railroad (UPRR). The scope of work for the third quarter 1997 events has been performed as part of the groundwater monitoring and reporting program at the facility. 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 UPMF facility.

The quarterly monitoring program consists of the collection of fluid-level measurements in the groundwater monitoring wells and an analysis of dissolved contaminants in groundwater. The monitoring program is directed towards an understanding of the groundwater gradient and the changes in the concentration of dissolved petroleum hydrocarbons at the site. This report includes a discussion of the background information about the site, field and analytical results for the third quarter 1997 event, and conclusions.

2. BACKGROUND INFORMATION

The following subsections present information about the site history and investigative procedures.

2.1 Site History

The (UPMF) site is located on the southeastern portion of the UPRR Oakland trailer-on-flat-car (TOFC) Yard, which is adjacent to the Oakland Inner Harbor or Oakland Estuary (Figures 1 and 2). 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.

Five underground storage tanks (USTs) were removed from the UPMF site between 1987 and 1990. As a result of the tank removal activities, a site assessment was performed in two phases to define the extent of petroleum hydrocarbons in the soil and groundwater (Laidlaw, 1993). All petroleum hydrocarbons found at the site have been identified as either used motor oil or "bunker C." For brevity, the light non-aqueous phase of these hydrocarbons are referred to as "product."

Groundwater monitoring has been conducted at the site since 1993. A skimming system that removes product only has operated in recovery well RW since May 2, 1994.

The refueling portion of the TOFC yard, approximately 700 feet northwest and upgradient of the UPMF site, is currently undergoing groundwater remediation for recovery of non-aqueous phase liquid as diesel. (The refueling area is a separate project and is not the subject of this report.) The extent of contamination at the refueling area was defined during previous investigations (Laidlaw, 1991). On the basis of these investigations and subsequent monitoring, petroleum hydrocarbons from the refueling area do not extend to the UPMF facility.

2.2 Investigative Procedures

UPRR has contracted with Burns and McDonnell Waste Consultants, Inc. to perform a portion of the fieldwork associated with the project. Laidlaw and the UPRR subcontractor followed the standard operating procedures previously supplied to and approved by the ACDEH (Laidlaw, 1994). The quarterly monitoring activities consist of the following:

- Measuring fluid-levels in all of the UPMF groundwater monitoring wells;
- Purging and sampling groundwater monitoring wells where product is not observed;
- Analyzing groundwater samples for petroleum hydrocarbons and constituents;
- Removing product from the recovery well (RW) and monitoring the performance of the product skimmer; and
- Determining the local groundwater flow direction and gradient based on the groundwater elevations.

All samples for the third quarter 1997 monitoring event were analyzed for: (1) total petroleum hydrocarbons as diesel (TPH-D) and total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 8015 Modified; (2) benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020; and (3) arsenic by EPA Method 206.2.

Fluid-level measurements are collected from the recovery well RW on a monthly basis. These measurements are made to assess the temporal variations in the thickness of product and to evaluate the effectiveness of the skimming system. Fluid-level measurements are collected from the remaining monitoring wells on a quarterly basis.

3. FIELD INVESTIGATION RESULTS

The following subsections present the findings from activities completed during the monitoring event.

3.1 Fluid-Level Measurements

Fluid-levels were measured on August 27, 1997 and are compiled into Table 1. Copies of field notes for the fluid-level measurements are included in Appendix A. The data were used to produce the groundwater elevation map presented as Figure 3. A decrease in groundwater elevations relative to the previous monitoring event (second quarter 1997) was noted in monitoring wells OKUS-W1, OKUS-W2, OKUS-W7, and OKUS-W8. Groundwater elevations in monitoring wells APL/UP-W1 and APL/UP-W2 have increased. Since 1995, groundwater elevations have been highest during the first quarter of each year, and are typically lower during the second, third, and fourth quarters.

3.2 Groundwater Gradient

The groundwater gradient at the site averaged approximately 0.007 foot per foot (37 feet per mile) and the observed groundwater flow direction was to the east. The groundwater gradient and flow direction were consistent with gradients and flow directions observed during previous monitoring events. The lack of product observed during the collection of fluid-level measurements in downgradient groundwater monitoring wells indicates that product has not migrated downgradient.

3.3 Analytical Results

Analytical results for all monitoring wells sampled during the third quarter 1997 monitoring event are compiled into Table 2. Samples were collected from monitoring wells OKUS-W1, OKUS-W2, OKUS-W7, OKUS-W8, APL/UP-W2, and APL/UP-W2. Monitoring well OKUS-W3 was not sampled because a mobile water tank had inadvertently been positioned directly above it by on-site personnel, making the well inaccessible.

Monitoring well OKUS-W1 did not contain dissolved BTEX concentrations above the method detection limit (MDL) of 0.50 micrograms per liter (mg/l). The samples collected from monitoring wells OKUS-W2, OKUS-W7, and APL/UP-W1 contained dissolved BTEX. The samples collected from monitoring wells OKUS-W8 and APL/UP-W2 contained dissolved benzene, ethylbenzene, and xylenes.

Benzene concentrations ranged from below the MDL in OKUS-W1 to 140 mg/l in OKUS-W2. Toluene ranged from below the MDL in wells OKUS-W1, OKUS-W8, and APL/UP-W2 to 34 mg/l in OKUS-

W2. Ethylbenzene ranged from below the MDL in OKUS-W1 to 76 mg/l in OKUS-W2. Xylenes ranged from below the MDL in OKUS-W1 to 48 mg/l in OKUS-W2. Total BTEX concentrations ranged from below the MDL of 0.50 mg/l in OKUS-W1 to 300 mg/l (OKUS-W2).

Dissolved TPH-G, indicative of gasoline, were detected in samples collected from all monitoring wells sampled during the third quarter 1997 monitoring event with the exception of OKUS-W1. TPH-G concentrations ranged from below the MDL of 50 mg/l in OKUS-W1 to 4,600 mg/l in OKUS-W2.

Dissolved TPH-D concentrations representing diesel fuel were detected in samples collected from all monitoring wells sampled during the during event. TPH-D concentrations ranged from 140 mg/l in OKUS-W1 to 1,800 mg/l in OKUS-W2.

The groundwater analytical results for the wells at the site are presented in Table 2. The dissolved BTEX plume in the groundwater is presented in Figure 4. Analytical reports and chain of custody forms are included in Appendix B.

3.4 Non-Aqueous Phase Liquid

Fluid-level measurement data indicated that monitoring wells OKUS-W5 and OKUS-W6 continued to contain "bunker C" type product. An accurate determination of product thickness in OKUS-W5 and OKUS-W6 was not possible due to the high viscosity of the product and difficulty in measuring product thickness.

A product/water interface was not detected in recovery well RW during the third quarter sampling event. Burns and McDonnell field personnel reported no product for the month of July 1997. Laidlaw personnel detected a product sheen in well RW on August 27, 1997. The product recovery system was inoperable during the third quarter and is currently being repaired.

4. CONCLUSIONS

On the basis of the information obtained from the third quarter 1997 monitoring activities, Laidlaw concludes that:

- The groundwater flow direction is to the east at an average gradient of 0.007 foot per foot (37 feet per mile). This result is consistent with previous monitoring events;

- The dissolved BTEX and TPH concentrations are consistent with historical concentration ranges and, in most cases, lower than previously observed levels. This finding suggests that the product present in groundwater is weathered and not contributing significant concentrations of BTEX to groundwater;

- The product observed in wells OKUS-W5 and OKUS-W6 does not appear to have migrated downgradient; and,

- Historical monitoring results indicate that the residual petroleum contamination in the source area and downgradient wells has decreased over time. This results suggests that a continued source of contamination is not present and that the remaining residual contamination is relatively static.

5. REFERENCES

Laidlaw (formerly USPCI), 1991. "Hydrocarbon Investigation and Remediation Design," Union Pacific Railroad, June 10, 1991.

Laidlaw, 1993. "Phase II Site Assessment Report," Union Pacific Railroad, October, 1993.

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

TABLES

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

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEV.	CORR'D ELEV.
OKUS-W1	9.17	08/09/95	N/A	NP	8.18	0.99	0.99
	9.17	11/29/95	N/A	NP	8.78	0.39	0.39
	9.17	02/27/96	N/A	NP	7.58	1.59	1.59
	9.17	05/29/96	N/A	NP	7.80	1.37	1.37
	9.17	08/27/96	N/A	NP	8.34	0.83	0.83
	9.17	11/12/96	N/A	NP	8.71	0.46	0.46
	9.17	02/17/97	N/A	NP	7.58	1.59	1.59
	9.17	05/21/97	N/A	NP	8.24	0.93	0.93
	9.17	08/27/97	N/A	NP	8.37	0.80	0.80
OKUS-W2	9.71	08/09/95	N/A	NP	9.09	0.62	0.62
	9.71	11/29/95	N/A	NP	9.69	0.02	0.02
	9.71	02/27/96	N/A	NP	8.49	1.22	1.22
	9.71	05/29/96	N/A	NP	8.72	0.99	0.99
	9.71	08/27/96	N/A	NP	9.24	0.47	0.47
	9.71	11/12/96	N/A	NP	9.63	0.08	0.08
	9.71	02/17/97	N/A	NP	8.41	1.30	1.30
	9.71	05/21/97	N/A	NP	9.13	0.58	0.58
	9.71	08/27/97	N/A	NP	9.29	0.42	0.42
OKUS-W3	9.80	08/09/95	N/A	NP	9.41	0.39	0.39
	9.80	11/29/95	N/A	NP	9.97	-0.17	-0.17
	9.80	02/27/96	N/A	NP	8.73	1.07	1.07
	9.80	05/29/96	N/A	NP	8.94	0.86	0.86
	9.80	08/27/96	N/A	NP	9.52	0.28	0.28
	9.80	11/12/96	N/A	NP	9.90	-0.10	-0.10
	9.80	02/17/97	N/A	NP	8.67	1.13	1.13
	9.80	05/21/97	N/A	NP	9.44	0.36	0.36
	9.80	08/27/97	N/A	NP	WELL INACCESSABLE		
OKUS-W4	7.35	08/09/95	N/A	NP	6.10	1.25	1.25
	7.35	11/29/95	N/A	NP	6.70	0.65	0.65
		05/13/97	WELL DECOMMISSIONED				
OKUS-W5	9.25	08/09/95	N/A	Trace	9.75	-0.50	-0.50
	9.25	09/07/95	N/A	Trace	9.56	-0.31	-0.31
	9.25	10/18/95	9.82	P	--	--	--
	9.25	11/10/95	9.97	P	--	--	--
	9.25	12/15/95	9.60	P	--	--	--

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

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEV.	CORR'D ELEV.
OKUS-W5	9.25	01/10/96	9.58	P	--	--	--
	9.25	02/16/96	9.08	P	--	--	--
	9.25	03/25/96	8.99	P	--	--	--
	9.25	04/18/96	9.22	P	--	--	--
	9.25	05/29/96	9.06	P	--	--	--
	9.25	06/13/96	9.11	P	--	--	--
	9.25	07/25/96	9.11	P	--	--	--
	9.25	08/27/96	9.44	P	--	--	--
	9.25	09/16/96	N/A	--	--	--	--
	9.25	10/17/96	9.65	P	--	--	--
	9.25	11/12/96	9.87	P	--	--	--
	9.25	12/16/96	N/A	--	--	--	--
	9.25	01/20/97	N/A	--	--	--	--
	9.25	02/17/97	9.09	P	--	--	--
	9.25	05/21/97	9.29	P	--	--	--
	9.25	08/27/97	9.42	P	--	--	--
OKUS-W6	7.02	08/09/95	5.65	P	--	--	--
	7.02	09/07/95	5.98	P	--	--	--
	7.02	10/18/95	6.38	P	--	--	--
	7.02	11/10/95	6.52	P	--	--	--
	7.02	12/15/95	5.47	P	--	--	--
	7.02	01/10/96	5.58	P	--	--	--
	7.02	02/16/96	4.70	P	--	--	--
	7.02	03/25/96	4.72	P	--	--	--
	7.02	04/18/96	5.19	P	--	--	--
	7.02	05/29/96	5.02	P	--	--	--
	7.02	06/13/96	4.99	P	--	--	--
	7.02	07/25/96	5.23	P	--	--	--
	7.02	08/27/96	5.82	P	--	--	--
	7.02	09/16/96	N/A	--	--	--	--
	7.02	10/17/96	6.50	P	--	--	--
	7.02	11/12/96	6.27	P	--	--	--
	7.02	12/16/96	N/A	--	--	--	--
	7.02	01/20/97	N/A	--	--	--	--
	7.02	02/17/97	4.71	P	--	--	--
	7.02	05/21/97	6.03	P	--	--	--
	7.02	08/27/97	6.00	P	--	--	--

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

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEV.	CORR'D ELEV.
OKUS-W7	6.91	08/09/95	N/A	NP	5.53	1.38	1.38
	6.91	11/29/95	N/A	NP	6.09	0.82	0.82
	6.91	02/27/96	N/A	NP	4.98	1.93	1.93
	6.91	05/29/96	N/A	NP	5.08	1.83	1.83
	6.91	08/27/96	N/A	NP	5.68	1.23	1.23
	6.91	11/12/96	N/A	NP	5.99	0.92	0.92
	6.91	02/17/97	N/A	NP	4.85	2.06	2.06
	6.91	05/21/97	N/A	NP	5.53	1.38	1.38
	6.91	08/27/97	N/A	NP	5.76	1.15	1.15
OKUS-W8	6.75	08/09/95	N/A	NP	5.32	1.43	1.43
	6.75	11/29/95	N/A	NP	5.95	0.80	0.80
	6.75	02/27/96	N/A	NP	4.84	1.91	1.91
	6.75	05/29/96	N/A	NP	4.93	1.82	1.82
	6.75	08/27/96	N/A	NP	5.52	1.23	1.23
	6.75	11/12/96	N/A	NP	5.89	0.86	0.86
	6.75	02/17/97	N/A	NP	4.69	2.06	2.06
	6.75	05/21/97	N/A	NP	5.36	1.39	1.39
	6.75	08/27/97	N/A	NP	5.59	1.16	1.16
APL/UP-W1	8.12	08/09/95	N/A	NP	10.01	-1.89	-1.89
	8.12	11/29/95	N/A	NP	10.29	-2.17	-2.17
	8.12	02/27/96	N/A	NP	WELL INACCESSABLE		
	8.12	05/29/96	N/A	NP	WELL INACCESSABLE		
	8.12	08/27/96	N/A	NP	WELL INACCESSABLE		
	8.12	11/12/96	N/A	NP	WELL INACCESSABLE		
	8.12	02/17/97	N/A	NP	10.02	-1.90	-1.90
	8.12	05/21/97	N/A	NP	10.14	-2.02	-2.02
	8.12	08/27/97	N/A	NP	9.91	-1.79	-1.79
APL/UP-W2	7.31	08/09/95	N/A	NP	9.42	-2.11	-2.11
	7.31	11/29/95	N/A	NP	9.41	-2.10	-2.10
	7.31	02/27/96	N/A	NP	8.89	-1.58	-1.58
	7.31	05/29/96	N/A	NP	9.68	-2.37	-2.37
	7.31	08/27/96	N/A	NP	9.53	-2.22	-2.22
APL/UP-W2	7.31	11/12/96	N/A	NP	9.60	-2.29	-2.29
	7.31	02/17/97	N/A	NP	9.07	-1.76	-1.76
	7.31	05/21/97	N/A	NP	9.42	-2.11	-2.11
	7.31	08/27/97	N/A	NP	9.17	-1.86	-1.86

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

WELL NO.	ELEV.* TOC	DATE	DEPTH TO PRODUCT	PRODUCT THICKNESS	DEPTH TO WATER	WATER ELEV.	CORR'D ELEV.
RW	--	08/09/95	9.07	0.03	9.10	--	--
	--	09/07/95	9.18	0.01	9.19	--	--
	--	10/18/95	9.41	0.02	9.43	--	--
	--	11/10/95	9.58	--	N/A	--	--
	--	12/15/95	9.46	0.12	9.58	--	--
	--	01/10/96	9.24	0.04	9.28	--	--
	--	02/16/96	N/A	--	8.73	--	--
	--	03/25/96	N/A	--	8.50	--	--
	--	04/18/96	N/A	--	8.70	--	--
	--	05/29/96	N/A	--	8.68	--	--
	--	06/13/96	N/A	--	8.68	--	--
	--	07/25/96	N/A	--	9.09	--	--
	--	08/27/96	N/A	--	9.18	--	--
	--	09/16/96	N/A	--	9.33	--	--
	--	10/17/96	N/A	--	9.50	--	--
	--	11/12/96	N/A	--	9.59	--	--
	--	12/16/96	9.12	0.10	9.22	--	--
	--	01/20/97	N/A	SHEEN	8.50	--	--
	--	02/11/97	N/A	NP	8.33	--	--
	--	03/06/97	N/A	NP	8.70	--	--
	--	04/29/97	N/A	SHEEN	9.03	--	--
	--	05/27/97	9.09	0.03	9.12	--	--
	--	07/15/97	N/A	NP	9.22	--	--
	--	08/27/97	N/A	SHEEN	9.29	--	--

* All well casings measured to mean sea level (MSL).
-- Information not available or inaccurate.
N/A Non Applicable
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/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)
OKUS-W1	OKUS-W1	01/14/93	ND	410	20	4	220	ND	240	ND
"	"	05/12/93	120	ND	ND	ND	ND	ND	ND	ND
"	"	08/25/83	100	ND	ND	ND	ND	ND	ND	ND
"	"	11/11/93	160	91	1.1	0.88	21	1.6	24	ND
"	"	02/08/94	92	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
"	"	05/03/94	61	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
"	"	08/24/94	86	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
"	"	11/16/94	51	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	02/22/95	120	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	06/22/95	<50	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	08/09/95	<50	<50	<0.50	<0.50	<0.50	<0.50	ND	0.04
"	"	11/29/95	480	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.0050
"	"	02/27/96	330	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	05/30/96	320	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	08/27/96	440	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
"	"	11/13/96	180	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	02/18/97	400	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	05/21/97	190	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
"	"	08/27/97	140	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.0050
OKUS-W2	OKUS-W2	01/14/93	5400	14000	480	92	8500	ND	9100	0.036
"	"	05/12/93	2800	8800	220	47	4600	100	5000	0.093
"	"	08/25/93	6500	22000	420	92	10000	210	11000	0.089
"	"	11/11/93	7700	24000	540	150	13000	280	14000	ND
"	"	02/08/94	2300	4900	150	29	3000	78	3300	<0.10
"	"	05/03/94	2600	17000	300	<0.50	5800	220	6300	<0.10
"	"	08/24/94	8200	11000	320	67	7500	250	8100	<0.10
"	"	11/16/94	5500	10000	290	79	130	160	660	NA
"	"	02/22/95	2000	3500	100	18	1600	66	1800	NA
"	"	06/22/95	3200	13000	260	62	<0.50	110	430	NA
"	"	08/09/95	2900	4800	160	28	<0.50	200	390	0.92
"	"	11/29/95	5600	7100	240	34	<0.50	58	330	0.049
"	"	02/27/96	2400	5300	200	42	3400	160	3800	NA
"	"	05/30/96	1900	7000	210	<0.50	<0.50	180	390	NA
"	"	08/27/96	3100	6700	240	65	170	180	660	0.17
"	"	11/12/96	2900	6000	160	34	130	64	390	NA
"	"	02/18/97	3000	7800	190	44	4000	150	4390	NA
"	"	05/21/97	2500	3300	120	23	11	31	185	NA
"	"	08/27/97	1800	4600	140	34	76	48	300	0.052
OKUS-W3	OKUS-W3	01/14/93	4200	4900	230	42	2600	44	2900	NA
"	"	05/12/93	4400	4600	290	60	3500	72	3900	0.14
"	"	08/25/93	2700	9400	280	55	4300	41	4700	0.08
"	"	11/11/93	5000	9500	390	110	5100	130	5700	0.14
"	"	02/08/94	4400	17000	420	78	9800	160	10000	0.12
"	"	05/03/94	3000	14000	310	61	6400	210	7000	0.14
"	"	08/24/94	4500	10000	350	78	7300	170	7900	<0.10
"	"	11/16/94	4700	9100	260	64	95	<0.50	420	NA
"	"	02/22/95	2400	7400	250	51	4400	150	4900	NA
"	"	06/22/95	3300	8100	250	53	<0.50	76	380	NA
"	"	08/09/95	3100	5200	200	39	<0.50	140	380	1.6
"	"	11/29/95	4500	5300	220	42	<0.50	44	310	0.18
"	"	02/27/96	4000	7900	330	75	6400	240	7000	NA
"	"	05/30/96	2300	8900	200	<0.50	<0.50	61	260	NA
"	"	08/27/96	2700	3100	170	37	64	36	310	0.20
"	"	11/12/96	4700	7400	220	60	<0.50	<0.50	280	NA
"	"	02/18/97	4600	9300	260	62	5800	85	6210	NA
"	"	05/21/97	2400	6100	190	43	120	41	394	NA
"	"	08/27/97	WELL INACCESSABLE - NOT SAMPLED							NA

TABLE 2 (Cont)
ANALYTICAL RESULTS - GROUNDWATER MONITORING WELLS
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	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)
OKUS-W4	OKUS-W4	01/15/93	5400	8900	300	ND	4500	ND	4800	NA
"	"	05/12/93	2900	6000	320	110	4600	230	5300	0.16
"	"	08/26/93	2200	6700	350	72	4800	130	5400	0.098
"	"	11/11/93	2400	5500	250	53	4600	140	5000	0.13
"	"	02/07/94	2700	9100	250	<0.50	4900	150	5300	<0.10
"	"	05/03/94	2300	6500	240	34	4200	140	4600	0.12
"	"	08/24/94	2900	5200	200	41	3600	190	4000	0.11
"	"	11/16/94	2800	5500	320	52	<0.50	120	490	NA
"	"	02/22/95	2000	4300	250	47	2900	160	3400	NA
"	"	06/22/95	2700	4900	280	38	5200	140	5700	NA
"	"	08/09/95	2900	5300	270	54	<0.50	210	530	1.3
"	"	11/29/95	3100	4500	200	41	<0.50	46	290	0.14
"	"	05/13/97	WELL DECOMMISSIONED							
				550						
OKUS-W5	OKUS-W5	01/15/93	2900	550	53	11	180	20	260	NA
"	"	05/12/93	2100	550	81	14	250	37	380	0.56
"	"	08/25/93	PRODUCT IN WELL - NOT SAMPLED							
"	"	11/11/93	1600	590	14	3.1	54	6.2	77	0.53
"	"	02/07/94	1900	760	54	9.4	220	24	310	0.55
"	"	05/03/94	2000	820	57	9.5	240	27	330	0.38
"	"	08/24/94	1700	910	55	14	8.5	18	96	0.45
"	"	PRODUCT IN WELL - THE WELL HAS NOT BEEN SAMPLED SINCE 1994								
OKUS-W6	OKUS-W6	07/16/93	BRK	ND	2.5	ND	ND	ND	2.5	0.004
"	"	08/25/93	590	ND	2.6	ND	4.9	1.3	8.8	0.013
"	"	11/12/93	610	ND	3.6	ND	3.7	1.3	8.6	ND
"	"	PRODUCT IN WELL - THE WELL HAS NOT BEEN SAMPLED SINCE 1993								
OKUS-W7	OKUS-W7	07/16/93	ND	ND	2.1	ND	ND	ND	2.1	0.009
"	"	08/25/93	930	56	2.9	ND	1.2	ND	4.1	ND
"	"	11/12/93	1100	ND	ND	ND	ND	ND	ND	ND
"	"	02/07/94	1100	ND	0.7	<0.50	<0.50	<0.50	0.7	<0.10
"	"	05/03/94	1300	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
"	"	08/24/94	910	<50	2.5	0.54	<0.50	<0.50	3.0	<0.10
"	"	11/16/94	820	<50	0.62	<0.50	<0.50	<0.50	0.6	NA
"	"	02/22/95	830	<50	0.54	<0.50	<0.50	<0.50	0.5	NA
"	"	06/22/95	850	<50	2.4	<0.50	0.52	<0.50	2.9	NA
"	"	08/09/95	640	71	4.2	<0.50	1.2	1.2	6.6	0.074
"	"	11/29/95	1300	64	4.3	<0.50	1.3	0.51	6.1	0.0095
"	"	02/27/96	2600	<50	1.5	<0.50	0.54	<0.50	2.0	NA
"	"	05/30/96	1900	60	2	<0.50	0.54	<0.50	2.0	NA
"	"	08/27/96	1700	70	2.3	<0.50	<0.50	<0.50	2.3	<0.10
"	"	11/12/96	1400	86	4.1	<0.50	<0.50	<0.50	4.1	NA
"	"	02/18/97	2000	<50	0.75	<0.50	<0.50	<0.50	0.7	NA
"	"	05/21/97	1200	<50	2.6	<0.50	0.84	<0.50	3.4	NA
"	"	08/27/97	700	65	4.7	0.53	1.3	1.5	8.0	0.0069
OKUS-W8	OKUS-W8	07/16/93	ND	ND	ND	ND	ND	ND	ND	0.012
"	"	08/27/93	1100	120	1.3	ND	ND	0.85	2.2	ND
"	"	11/11/93	1300	190	3.5	1.3	46	4.9	55.7	ND
"	"	02/07/94	1000	120	0.9	<0.50	<0.50	<0.50	0.9	<0.10
"	"	05/03/94	780	79	0.99	<0.50	<0.50	<0.50	1.0	<0.10
"	"	08/24/94	700	100	1.4	<0.50	<0.50	<0.50	1.4	<0.10
"	"	11/16/94	830	110	0.77	<0.50	<0.50	<0.50	0.8	NA
"	"	02/22/95	370	150	0.96	<0.50	<0.50	1.2	2.2	NA
"	"	06/22/95	870	76	0.92	<0.50	<0.50	<0.50	0.9	NA
"	"	08/09/95	1100	90	1.1	<0.50	<0.50	1.3	2.4	0.078
"	"	11/29/95	2400	100	0.73	<0.50	<0.50	0.91	1.6	<0.0050
"	"	02/27/96	1900	80	<0.50	<0.50	<0.50	1.3	1.3	NA

TABLE 2 (Cont)
ANALYTICAL RESULTS - GROUNDWATER MONITORING WELLS
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

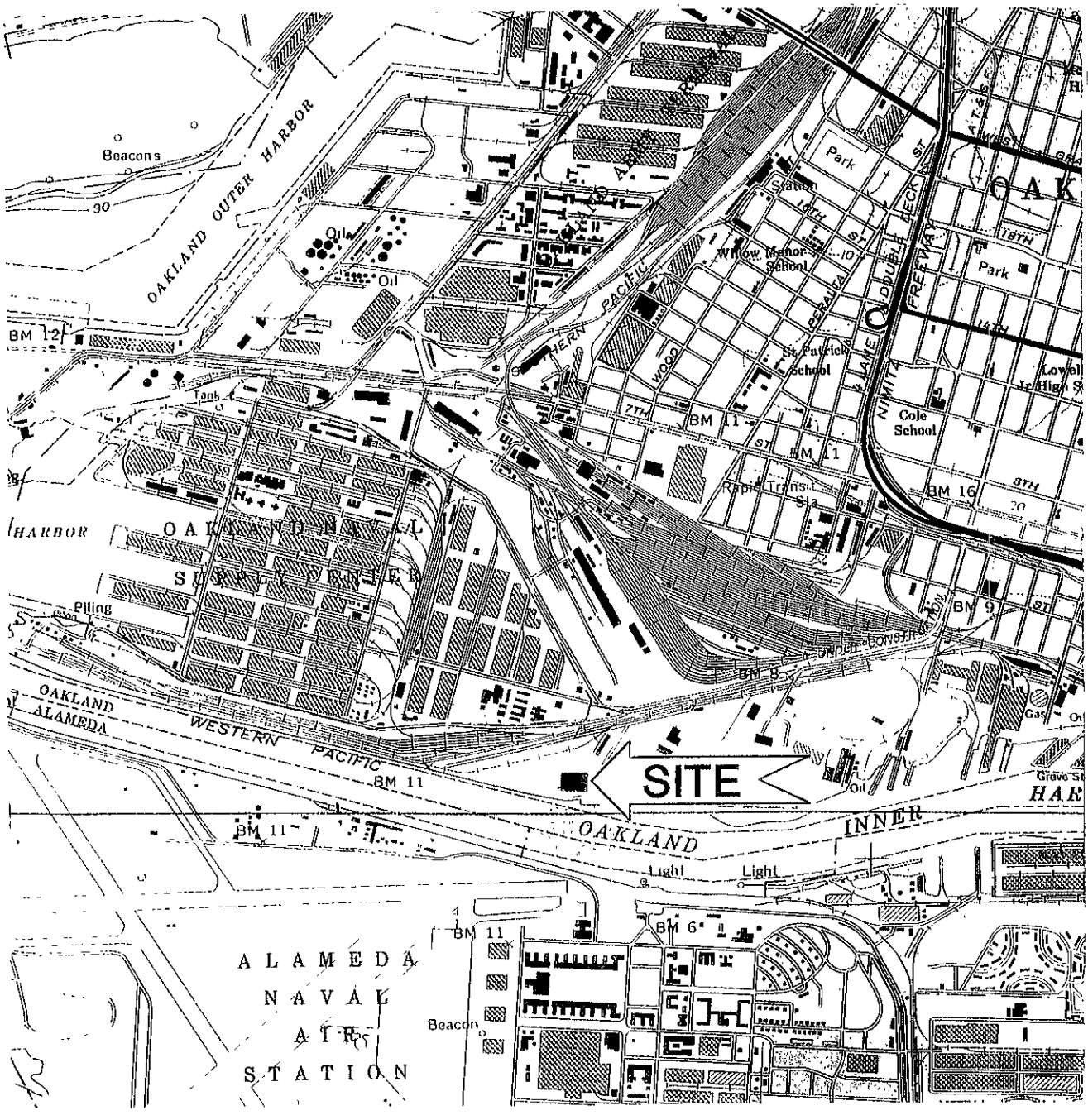
SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/D (ug/l)	TPH/G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	BTEX (ug/l)	As (mg/l)
OKUS-W8	OKUS-W8	05/30/96	2200	210	<0.50	<0.50	<0.50	0.7	0.7	NA
"	"	08/27/96	2100	150	0.64	<0.50	<0.50	<0.50	0.64	<0.10
"	"	11/12/96	1600	170	<0.50	<0.50	<0.50	1.1	1.1	NA
"	"	02/18/97	1900	140	<0.50	<0.50	<0.50	1.3	1.3	NA
"	"	05/21/97	1600	100	1.3	<0.50	<0.50	1.1	2.4	NA
"	"	08/27/97	1100	100	1.5	<0.50	1.1	3.2	5.8	<0.0050
APL/UP-W1	APL/UP-W1	07/16/93	700	300	25.4	1.7	ND	3.0	30	0.011
"	"	08/26/93	810	720	47	1.3	360	14.0	420	0.013
"	"	11/11/93	530	560	26	ND	220	11.0	260	ND
"	"	02/07/94	660	620	25	<0.50	180	10	220	<0.10
"	"	05/03/94	590	680	48	2.9	260	9.8	320	<0.10
"	"	08/24/94	420	830	48	4.8	12	3.2	68	<0.10
"	"	11/15/94	480	470	36	3.6	9.6	12	61	NA
"	"	02/22/95	510	470	33	2.8	170	9	210	NA
"	"	06/22/95	320	160	12	0.82	3.5	2.4	19	NA
"	"	08/09/95	160	69	4.2	<0.50	<0.50	2.3	7	<0.0050
"	"	11/29/95	920	170	7.4	0.58	66	3.5	78	0.018
"	"	02/27/96	WELL INACCESSABLE - NOT SAMPLED							
"	"	05/30/96	WELL INACCESSABLE - NOT SAMPLED							
"	"	08/27/96	WELL INACCESSABLE - NOT SAMPLED							
"	"	11/12/96	WELL INACCESSABLE - NOT SAMPLED							
"	"	02/18/97	1800	620	43	3.3	130	20	196	NA
"	"	05/21/97	850	260	22	<0.50	13	2.5	38	NA
"	"	08/27/97	930	310	31	1.2	9.7	8.5	50	0.026
APL/UP-W2	APL/UP-W2	07/16/93	ND	ND	8.0	ND	ND	ND	8	0.016
"	"	08/26/93	240	94	ND	ND	35	2.4	37	0.023
"	"	11/11/93	190	110	5.0	ND	38	2.6	46	ND
"	"	02/07/94	270	120	6.6	<0.50	38	1.8	46	<0.10
"	"	05/03/94	100	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
"	"	08/24/94	330	220	13.0	0.77	3.5	3.1	20	<0.10
"	"	11/15/94	320	190	11.0	<0.50	63.0	5.4	79	NA
"	"	02/22/95	550	320	19.0	<0.50	100	9.5	130	NA
"	"	06/22/95	300	170	10.0	62	2.2	2.3	76	NA
"	"	08/09/95	180	62	3.5	<0.50	<0.50	2.3	5.8	0.22
"	"	11/29/95	690	110	7.2	<0.50	49	2.3	59	0.019
"	"	02/27/96	480	100	5.3	<0.50	33	2.9	41	NA
"	"	05/30/96	280	<50	1.9	<0.50	<0.50	1.2	3.1	NA
"	"	08/27/96	320	<50	1.1	<0.50	1.0	<0.50	2.1	<0.10
"	"	11/12/96	470	85	3.2	<0.50	1.7	0.62	5.5	NA
"	"	02/18/97	770	170	12	0.77	81	9.4	103	NA
"	"	05/21/97	430	92	4.8	<0.50	1.1	<0.50	5.9	NA
"	"	08/27/97	450	130	6.4	<0.50	3.8	1.9	12.0	0.017
DUPLICATES										
OKUS-W5	OKUS-W6	01/15/93	2800	510	50	10	170	19	250	NA
OKUS-W1	OKUS-W6	05/12/93	140	ND	ND	ND	ND	ND	ND	ND
APL/UP-W1	QA/QC-1	07/16/93	ND	0.21	22.4	ND	ND	2.4	25	0.012
OKUS-W4	OKUS-W9	08/26/93	2700	6200	340	78	4500	100	5000	0.10
OKUS-W8	OKUS-W9	11/11/93	1300	120	1.3	ND	4	1.4	7	2.40
OKUS-W3	QA/QC-1	02/08/94	2900	15000	280	64	5800	<0.50	6100	0.12
OKUS-W4	OKUS-QC1	05/03/94	2500	5400	300	41	5200	130	5700	0.12
OKUS-W8	OKUS-QC1	08/24/94	950	92	1.6	<0.50	<0.50	<0.50	2	<0.10
APL/UP-W2	OKUS-QC1	11/16/94	310	190	10	<0.50	62	4.7	77	NA
APL/UP-W2	APL-W12	02/22/95	490	360	20	<0.50	110	6.7	140	NA
APL/UP-W2	APL-W12	08/09/95	160	71	3.4	<0.50	<0.50	2.2	6	0.20
APL/UP-W1	APL-W11	11/29/95	1100	170	7.5	0.57	66	4.4	79	0.02
OKUS-W1	OKUS-W11	02/27/96	330	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
OKUS-W1	OKUS-W11	05/30/96	570	<50	<0.50	<0.50	<0.50	<0.50	ND	NA

TABLE 2 (Cont)
ANALYTICAL RESULTS - GROUNDWATER MONITORING WELLS
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	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)
DUPLICATES										
OKUS-W1	OKUS-W11	08/27/96	330	<50	<0.50	<0.50	<0.50	<0.50	ND	<0.10
OKUS-W2	OKUS-W12	11/12/96	3000	11000	210	55	26	89	380	NA
APL/UP-W1	APL/UP-W11	02/18/97	1800	370	42	1.4	140	18	201	NA
OKUS-W1	OKUS-W11	05/21/97	220	<50	<0.50	<0.50	<0.50	<0.50	ND	NA
OKUS-W2	OKUS-W12	08/27/97	1500	4800	140	29	70	23	260	0.068
TRIP BLANKS										
UPMF	OAK-FB 1	07/16/93	NA	NA	ND	ND	ND	ND	ND	NA
UPMF	OAK-TB 2	07/16/93	NA	NA	ND	ND	ND	ND	ND	NA
UPMF	TB-1	08/27/93	NA	NA	ND	ND	ND	ND	ND	NA
UPMF	TB-2	08/27/93	NA	NA	ND	ND	ND	ND	ND	NA
UPMF	TB-1	11/12/93	NA	NA	ND	ND	ND	ND	ND	NA
UPMF	TB-1	08/24/94	NA	NA	ND	ND	ND	ND	ND	NA
UPMF	TB-1	11/16/94	NA	NA	NA	NA	NA	NA	NA	NA
UPMF	TB-1	02/22/95	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TB-1	06/22/95	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TB-1	08/09/95	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	11/29/95	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	02/27/96	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	05/29/96	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	08/27/96	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	11/12/96	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	02/18/97	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	05/21/97	NA	ND	ND	ND	ND	ND	ND	NA
UPMF	TRIP BLANK	08/27/97	NA	ND	ND	ND	ND	ND	ND	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/D - anaylzed using EPA Method 8015 Mod.
TPH/G - anaylzed using EPA Method 8015 Mod.
BTEX - analyzed using EPA Method 8020
As - analyzed using EPA Method 7060

FIGURES



SITE

CALIFORNIA

ADAPTED FROM U.S.G.S. 7.5' SERIES QUADRANGLE OAKLAND WEST, CALIFORNIA

LOCMAP

North

0 2000

FEET

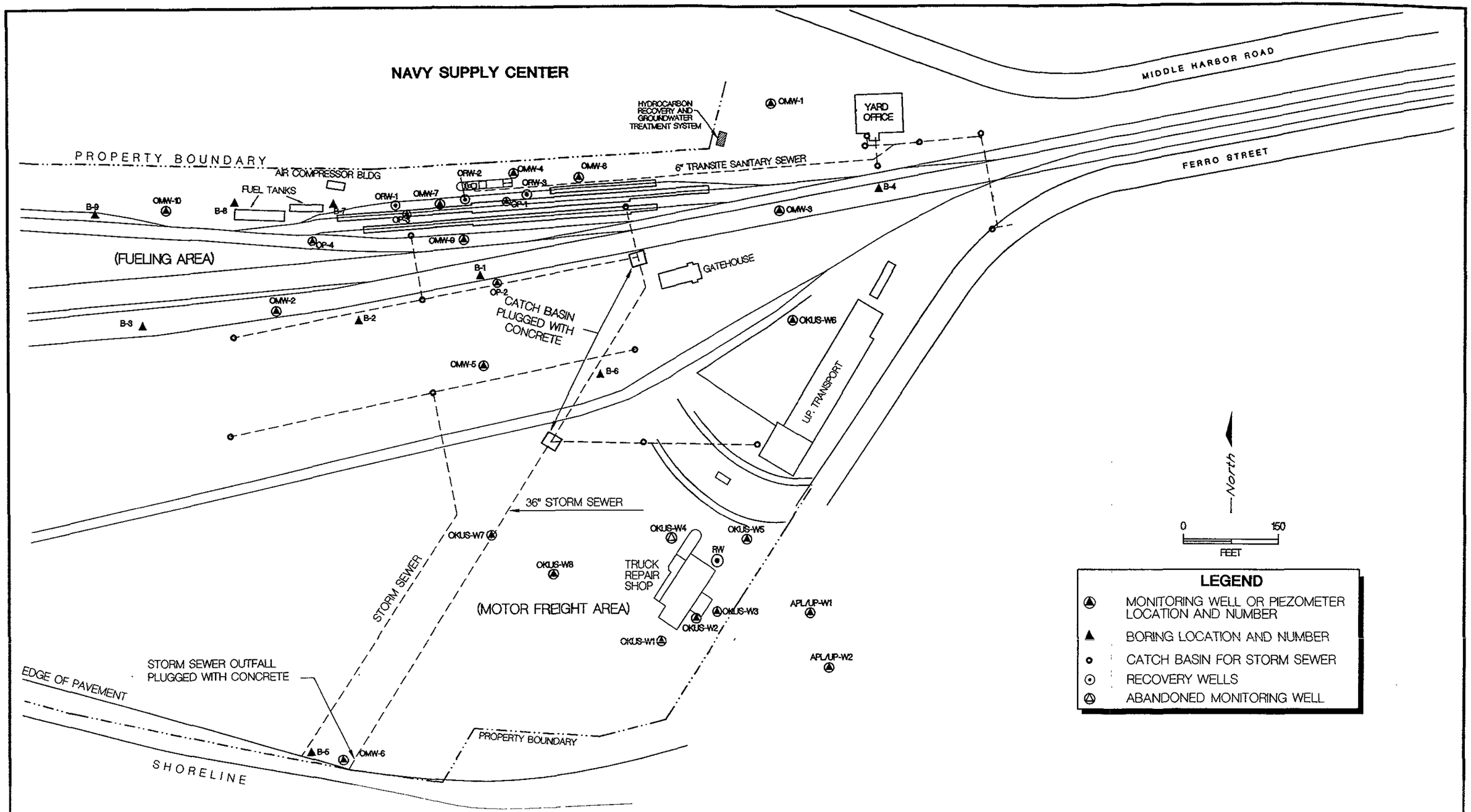
USPCI

A LAIDLAW COMPANY

UP MOTOR FREIGHT FACILITY-OAKLAND, CA

FIGURE 1
SITE LOCATION MAP

SCALE:	DATE:
1" = 2000'	6/27/96



LEGEND

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

	BY	DATE
DRAWN	CJJ	10/15/97
CHECKED		
APPROVED		
APPROVED		
APPROVED		

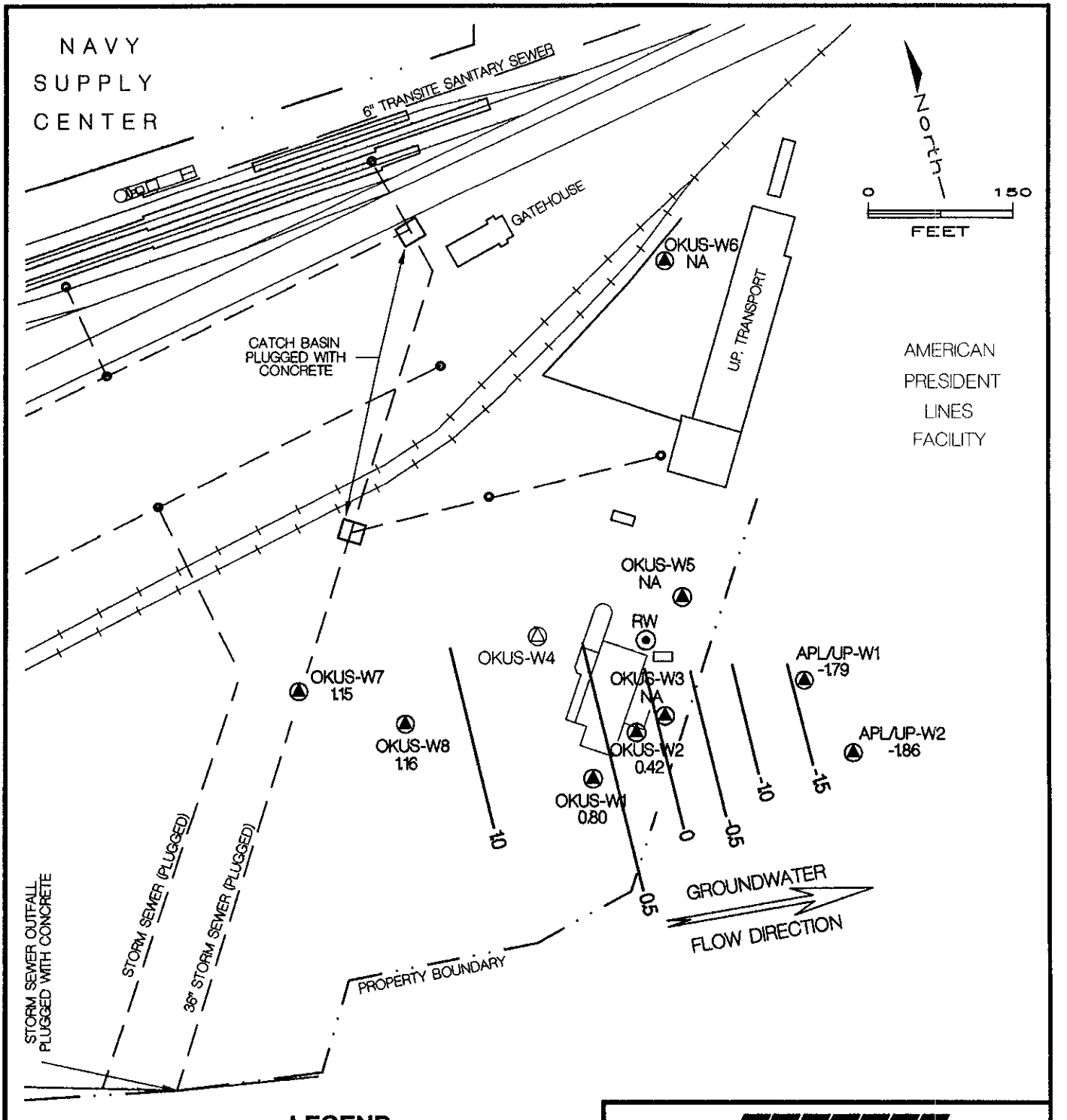
LAIDLAW ENVIRONMENTAL SERVICES

UPRR TOFC RAILYARD
UPMF REPAIR SHOP- OAKLAND, CALIFORNIA

FIGURE 2
SITE VICINITY MAP

SCALE: 1" = 150'

DWG. NO. 96120-861



LEGEND

OKUS-W1 -1.79	MONITOR WELL LOCATION AND NUMBER WITH GROUNDWATER ELEVATION
	RECOVERY WELL
	CATCH BASIN FOR STORM SEWER
0	GROUNDWATER ELEVATION CONTOUR (FEET RELATIVE TO MEAN SEA LEVEL)
NA	NOT AVAILABLE
	ABANDONED WELL

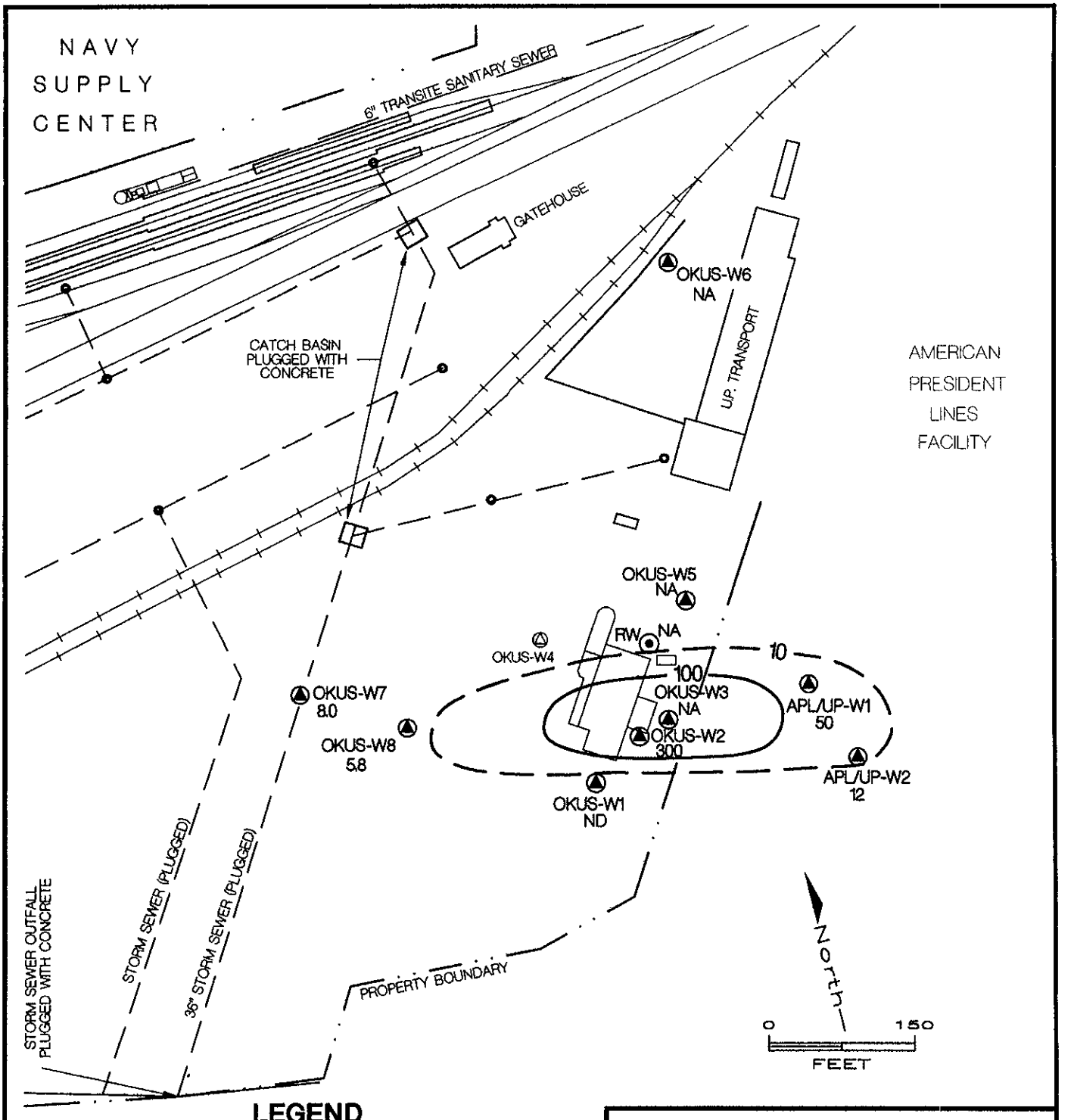
LAIDLAW ENVIRONMENTAL SERVICES

UPMF REPAIR SHOP-OAKLAND, CALIFORNIA

FIGURE 3
GROUNDWATER ELEVATION MAP (8/97)

SCALE: 1" = 150' | APPROVED/DATE

96120-949



LEGEND

OKUS-W8 5.8	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
	ABANDONED WELL

NOTE: ALL ANALYTICAL RESULTS IN µg/L

96120-948

LAIDLAW ENVIRONMENTAL SERVICES

UPMF REPAIR SHOP-OAKLAND, CALIFORNIA

FIGURE 4
DISSOLVED PHASE BTEX DISTRIBUTION (8/97)

SCALE: 1" = 150' | APPROVED/DATE

APPENDICES

APPENDIX A

FLUID-LEVEL MEASUREMENTS AND SAMPLE COLLECTION LOGS

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight** | Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top Of Casing (North Side)** | **Well No. OKUS-W1**

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

Casing Diameter: **2 Inches** | Sampling Date: **8/27/97**

Depth to Ground Water (Below MP): **8.37 Feet** | Sample ID No. **OKUS-W1**

Method of Well Development: | Time: **13:10**

☐ 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: **Light**

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

○ ABS Plastic ○ PVC ◉ HDPE

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: **BTEX, TPH-Gasoline, TPH-Diesel, Arsenic**

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)
12:44	**Begin Well**					
12:48	**7.0**	**1,600**	**15.0**		**1.75**	
12:53	**7.0**	**1,900**	**14.8**		**3.50**	
12:59	**7.0**	**2,000**	**14.5**		**5.25**	
13:10	**Sample Well**					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

{Comments may continue on back}

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight** | Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top of Casing (North Side)**

Well Depth: (Below MP): **22.34 Feet**

Well No. OKUS-W2

Casing Diameter: **2 Inches** | Sampling Date: **08/27/97**

Depth to Ground Water (Below MP): **9.29 Feet** | Sample ID No. **OKUS-W2**

Method of Well Development: | Time: **14:00**

☐ 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:

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

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

○ ABS Plastic ○ PVC ◉ HDPE

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: **BTEX, TPH-Gasoline, TPH-Diesel, Arsenic**

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)
13:33	**Begin Well**					
13:38	**7.0**	**3,300**	**14.5**		**2.00**	
13:44	**7.0**	**3,600**	**14.5**		**4.25**	
13:49	**7.0**	**3,800**	**14.0**		**6.50**	
14:00	**Sample Well**					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments: **Duplicate sample = OKUS-W12 at 14:30**

[Comments may continue on back]

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight**	Laidlaw Project Number: **96120-844**
Measuring Point (MP) Location: **Top of Casing (North Side)**	**Well No. OKUS-W3**
Well Depth: (Below MP):	
Casing Diameter: **2 Inches**	Sampling Date: **N/A**
Depth to Ground Water (Below MP):	Sample ID No. **N/A**
Method of Well Development:	Time:
☐ 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: **N/A**
☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample	Odor: **N/A**
☐ Bailer Type ○ Teflon ○ Stainless Steel	Sampling Problems (if any):
○ ABS Plastic ○ PVC ○ HDPE	
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:

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						

Comments: **The well was inaccessable due to a mobile water tank sitting over the well and therefore not sampled.**

[Comments may continue on back]

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight**	Laidlaw Project Number: **96120-844**
Measuring Point (MP) Location: **Top of Casing (North Side)**	**Well No. OKUS-W5**
Well Depth: (Below MP): **21.00 Feet**	
Casing Diameter: **2 Inches**	Sampling Date: **N/A**
Depth to Product (Below MP): **9.42 Feet**	Sample ID No. **N/A**
Method of Well Development:	Time: **17:15**
☐ 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: **N/A**
☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample	Odor: **N/A**
☐ Bailer Type ○ Teflon ○ Stainless Steel	Sampling Problems (if any): **Product in well water**
○ ABS Plastic ○ PVC ○ HDPE	
Pump Intake Or Bailer Set At _____ Feet Below MP	Decontamination Performed: **Probe**
Tubing Type (if used):	
Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Te	Samples Collected:

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						

Comments: **The well was not sampled because of the presence of phase-separated hydrocarbon.**

[Comments may continue on back]

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight** | Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top of Casing (North Side)**

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

Well No. OKUS-W6

Casing Diameter: **2 Inches** | Sampling Date: **N/A**

Depth to Product (Below MP): **6.00 Feet** | Sample ID No. **N/A**

Method of Well Development: | Time: **17:00**

☐ 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: **N/A**

☐ Tap ☐ Submersible Pump ☑ Bladder Pump Sample | Odor: **N/A**

☐ Bailer Type ○ Teflon ○ Stainless Steel | Sampling Problems (if any): **Product in well water**

○ ABS Plastic ○ PVC ○ HDPE

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:

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						

Comments: **The well was not sampled because of the presence of phase-separated hydrocarbon.**

[Comments may continue on back]

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight** | Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top of Casing (North Side)** | **Well No. OKUS-W7**

Well Depth: (Below MP): **19.88 Feet**

Casing Diameter: **2 Inches** | Sampling Date: **08/27/97**

Depth to Ground Water (Below MP): **5.76 Feet** | Sample ID No. **OKUS-W7**

Method of Well Development: | Time: **14:55**

☐ 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: **Very Slightly Turbid/light yellow**

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

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

○ ABS Plastic ○ PVC ◉ HDPE

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: **BTEX, TPH-Gasoline, TPH-Diesel, Arsenic**

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)
14:25	**Begin Well**					
14:34	**7.0**	**1,800**	**14.5**		**2.25**	
14:40	**7.0**	**2,100**	**14.5**		**4.50**	
14:47	**7.0**	**1,900**	**14.5**		**7.00**	
14:55	**Sample Well**					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight** | Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top of Casing (North Side)**

Well Depth: (Below MP): **14.80 Feet**

Well No. OKUS-W8

Casing Diameter: **2 Inches** | Sampling Date: **08/27/97**

Depth to Ground Water (Below MP): **5.59 Feet** | Sample ID No. **OKUS-W8**

Method of Well Development: | Time: **12:10**

☐ 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: **Very Slightly Turbid / yellow**

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

■ Bailer Type ○ Teflon ○ Stainless Steel | Sampling Problems (if any): **Water is Reactive**

○ ABS Plastic ○ PVC ◉ HDPE

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: **BTEX, TPH-Gasoline, TPH-Diesel, Arsenic**

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)
11:50	**Begin Well**					
11:53	**7.0**	**3,300**	**15.0**		**1.5**	
11:56	**7.0**	**3,600**	**15.0**		**3.0**	
11:59	**7.0**	**3,800**	**14.8**		**4.5**	
12:10	**Sample Well**					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

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

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight**

Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top of Casing (North Side)**

Well No. APL/UP-W1

Well Depth: (Below MP): **21.86 Feet**

Casing Diameter: **2 Inches**

Sampling Date: **08/27/97**

Depth to Ground Water (Below MP): **9.91 Feet**

Sample ID No. **APL/UP-W1**

Method of Well Development:

Time: **10:35**

☐ 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

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: **BTEX, TPH-Gasoline, TPH-Diesel, Arsenic**

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)
10:07	**Begin Well**					
10:14	**7.0**	**2,300**	**12.0**		**2.0**	
10:19	**7.0**	**2,400**	**11.8**		**4.0**	
10:24	**7.0**	**2,400**	**11.5**		**6.0**	
10:35	**Sample Well**					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

Form Completed By: **Mark McCormick**

Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Motor Freight**

Laidlaw Project Number: **96120-844**

Measuring Point (MP) Location: **Top of Casing (North Side)**

Well No. APL/UP-W2

Well Depth: (Below MP): **17.00 Feet**

Casing Diameter: **2 Inches**

Sampling Date: **08/27/97**

Depth to Ground Water (Below MP): **9.17 Feet**

Sample ID No. **APL/UP-W2**

Method of Well Development:

Time: **09:35**

☐ 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: **Light**

■ Bailer Type ○ Teflon ○ Stainless Steel

Sampling Problems (if any):

○ ABS Plastic ○ PVC ◉ HDPE

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: **BTEX, TPH-Gasoline, TPH-Diesel, Arsenic**

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)
09:15	**Begin Well**					
09:19	**7.0**	**2,200**	**12.5**		**1.25**	
09:22	**7.0**	**2,300**	**12.5**		**2.50**	
09:25	**7.1**	**2,300**	**12.7**		**3.75**	
09:35	**Sample Well**					

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments: **3 samples of TPH-Diesel were taken for MS/MSD**

[Comments may continue on back]

Form Completed By: **Mark McCormick**

Witnessed By:

APPENDIX B

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

Laidlaw Environmental Services
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 708-1534

Sampled: Aug 27, 1997
Received: Aug 27, 1997
Reported: Sep 11, 1997

QC Batch Number:	GC082997 802005A	GC082997 802005A	GC082997 802005A	GC082997 802005A	GC082997 802005A	GC082997 802005A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 708-1534 APL/UP-W2	Sample I.D. 708-1535 APL/UP-W1	Sample I.D. 708-1536 OKUS-W8	Sample I.D. 708-1537 Trip Blank	Sample I.D. 708-1538 OKUS-W1	Sample I.D. 708-1539 OKUS-W2
Purgeable Hydrocarbons	50	130	310	100	N.D.	N.D.	4,600
Benzene	0.50	6.4	31	1.5	N.D.	N.D.	140
Toluene	0.50	N.D.	1.2	N.D.	N.D.	N.D.	34
Ethyl Benzene	0.50	3.8	9.7	1.1	N.D.	N.D.	76
Total Xylenes	0.50	1.9	8.5	3.2	N.D.	N.D.	48
Chromatogram Pattern:		Gasoline & Discrete Peaks	Gasoline & Discrete Peaks	Gasoline & Unidentified Hydrocarbons >C8	--	--	Gasoline & Discrete Peaks

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	2.0	1.0	1.0	40
Date Analyzed:	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97
Instrument Identification:	HP-5	HP-5	HP-5	HP-5	HP-5	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	86	84	91	110	104	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

Melissa A. Brewer
Client Services Representative

7081534.LLL <1>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Laidlaw Environmental Services
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 708-1540

Sampled: Aug 27, 1997
Received: Aug 27, 1997
Reported: Sep 11, 1997

QC Batch Number: GC082997 802005A | GC090297 802002A | GC082997 802005A | GC090297 802002A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 708-1540 OKUS-W12	Sample I.D. 708-1541 OKUS-W7	Sample I.D. Method Blank	Sample I.D. Method Blank
Purgeable Hydrocarbons	50	4,800	65	N.D.	N.D.
Benzene	0.50	140	4.7	N.D.	N.D.
Toluene	0.50	29	0.53	N.D.	N.D.
Ethyl Benzene	0.50	70	1.3	N.D.	N.D.
Total Xylenes	0.50	23	1.5	N.D.	N.D.
Chromatogram Pattern:		Gasoline & Discrete Peaks	Gasoline & Unidentified Hydrocarbons >C8	--	--

Quality Control Data

Report Limit Multiplication Factor:	40	1.0	1.0	1.0
Date Analyzed:	8/29/97	9/2/97	8/29/97	9/2/97
Instrument Identification:	HP-5	HP-2	HP-5	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	86	116	105	94

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

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative

7081534.LLL <2>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Laidlaw Environmental Services
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 708-1534

Sampled: Aug 27, 1997
Received: Aug 27, 1997
Reported: Sep 11, 1997

QC Batch Number:	SP082997 8015EXA	SP082997 8015EXA	SP082997 8015EXA	SP082997 8015EXA	SP082997 8015EXA	SP082997 8015EXA

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 708-1534 APL/UP-W2	Sample I.D. 708-1535 APL/UP-W1	Sample I.D. 708-1536 OKUS-W8	Sample I.D. 708-1538 OKUS-W1	Sample I.D. 708-1539 OKUS-W2	Sample I.D. 708-1540 OKUS-W12
Extractable Hydrocarbons	50	450	930	1,100	140	1,800	1,500
Chromatogram Pattern:		Diesel & Unidentified Hydrocarbons <C15	Diesel & Unidentified Hydrocarbons <C15	Diesel & Unidentified Hydrocarbons >C20	Diesel & Unidentified Hydrocarbons >C20	Diesel & Unidentified Hydrocarbons <C15	Diesel & Unidentified Hydrocarbons <C15

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97
Date Analyzed:	8/30/97	8/29/97	8/30/97	8/30/97	8/30/97	8/30/97
Instrument Identification:	HP-3B	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

Melissa A. Brewer
Client Services Representative

7081534.LLL <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

Laidlaw Environmental Services	Client Project ID:	UP Motor Freight-Oakland	Sampled: Aug 27, 1997
5665 Flatiron Parkway	Sample Matrix:	Water	Received: Aug 27, 1997
Boulder, CO 80301	Analysis Method:	EPA 3510/8015 Mod.	Reported: Sep 11, 1997
Attention: Mark McCormick	First Sample #:	708-1541	

QC Batch Number: SP082997 SP082997

8015EXA 8015EXA

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 708-1541 OKUS-W7	Sample I.D. Method Blank
Extractable Hydrocarbons	50	700	N.D.
Chromatogram Pattern:		Diesel	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Extracted:	8/29/97	8/29/97
Date Analyzed:	8/30/97	8/30/97
Instrument Identification:	HP-3A	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

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Laidlaw Environmental Services
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Sample Descript: Water
Analysis for: Arsenic
First Sample #: 708-1534

Sampled: Aug 27, 1997
Received: Aug 27, 1997
Digested: Aug 29, 1997
Analyzed: Sep 10, 1997
Reported: Sep 11, 1997

LABORATORY ANALYSIS FOR: Arsenic

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L	QC Batch Number	Instrument ID
708-1534	APL/UP-W2	0.0050	0.017	ME0829972000MDA	MV-2
708-1535	APL/UP-W1	0.0050	0.026	ME0829972000MDA	MV-2
708-1536	OKUS-W8	0.0050	N.D.	ME0829972000MDA	MV-2
708-1538	OKUS-W1	0.0050	N.D.	ME0829972000MDA	MV-2
708-1539	OKUS-W2	0.0050	0.052	ME0829972000MDA	MV-2
708-1540	OKUS-W12	0.0050	0.068	ME0829972000MDA	MV-2
708-1541	OKUS-W7	0.0050	0.0069	ME0829972000MDA	MV-2

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative

7081534.LLL <5>

Sequoia Analytical

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Laidlaw Environmental Services
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Matrix: Liquid

QC Sample Group: 7081534-541

Reported: Sep 11, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Arsenic
QC Batch#:	GC082997	GC082997	GC082997	GC082997	SP082997	ME082997
	802005A	802005A	802005A	802005A	8015EXA	2000MDA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	EPA 206.2
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3510	EPA 200.0
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill	A. Kemp	T.Le
MS/MSD #:	7081537	7081537	7081537	7081537	7081534	7081534
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	450 µg/L	0.017 mg/L
Prepared Date:	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97
Analyzed Date:	8/29/97	8/29/97	8/29/97	8/29/97	8/30/97	9/10/97
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B	MV-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L	0.10 mg/L
Result:	18	18	18	56	660	0.13
MS % Recovery:	90	90	90	93	42	113
Dup. Result:	19	19	19	57	760	0.12
MSD % Recov.:	95	95	95	95	62	103
RPD:	5.4	5.4	5.4	1.8	14	8.0
RPD Limit:	0-20	0-20	0-20	0-20	0-50	0-20

LCS #:	5LCS082997	5LCS082997	5LCS082997	5LCS082997	LCS082997	LCS082997
Prepared Date:	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97
Analyzed Date:	8/29/97	8/29/97	8/29/97	8/29/97	8/30/97	9/10/97
Instrument I.D.#:	HP-5	HP-5	HP-5	HP-5	HP-3B	MV-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L	0.10 mg/L
LCS Result:	19	18	18	56	310	0.12
LCS % Recov.:	95	90	90	93	62	116

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	60-140	80-120

SEQUOIA ANALYTICAL, #1271

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Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The 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

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Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Matrix: Liquid

QC Sample Group: 7081534-541

Reported: Sep 11, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC090297	GC090297	GC090297	GC090297
	802002A	802002A	802002A	802002A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill
MS/MSD #:	7081750	7081750	7081750	7081750
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	9/2/97	9/2/97	9/2/97	9/2/97
Analyzed Date:	9/2/97	9/2/97	9/2/97	9/2/97
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	20	19	66
MS % Recovery:	110	100	95	110
Dup. Result:	24	23	21	74
MSD % Recov.:	120	115	105	123
RPD:	8.7	14	10	11
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	2LCS090297	2LCS090297	2LCS090297	2LCS090297
Prepared Date:	9/2/97	9/2/97	9/2/97	9/2/97
Analyzed Date:	9/2/97	9/2/97	9/2/97	9/2/97
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:	23	21	20	69
LCS % Recov.:	115	105	100	115
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL, #1271

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Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The 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

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Laidlaw Environmental Services
5665 Flatiron Parkway
Boulder, CO 80301
Attention: Mark McCormick

Client Project ID: UP Motor Freight-Oakland
Lab Number: 7081534-541

Received: Aug 27, 1997
Reported: Sep 11, 1997

LABORATORY NARRATIVE

EPA 3510/8015 Mod.: Total Extractable Petroleum Hydrocarbons Quality Control

The recovery for the Matrix Spike was outside of the lower Control Limit. Batch was validated using the LCS.

All other quality control measures were within criteria.

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Client Services Representative

7081534.LLL <8>

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

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☒ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: LAIDLAW ENV. SERVICES	Project Name: UP MOTOR FREIGHT
Address: 5665 FLATIRON PKWY	Billing Address (if different):
City: BOULDER State: CO Zip Code: 80301	
Telephone: (303) 938-5500 FAX #: (303) 938-5520	P.O. #: 96120-844
Report To: Sampler: MARK MCCORMICK	QC Data: ☐ Level D (Standard) ☒ Level C ☐ Level B ☐ Level A

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

☐ Drinking Water ☐ Waste Water ☒ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	8020 BTEX	MOD 8015 TPH-GASOLINE	MOD 8015 TPH-DIESEL	7060 As	Comments
1. APL/UP-W2	8/27/97 0935	AQU	3	VOA	7081534	X	X			
2.			3	1L AMBER			X			USE FOR MS/MSD
3.			2	PLASTIC				X		
4. APL/UP-W1	1035		3	VOA	7081535	X	X			
5.			1	1L AMBER			X			
6.			1	PLASTIC				X		
7. OKUS-W8	1210		3	VOA	7081536	X	X			
8.			1	1L AMBER			X			
9.			1	PLASTIC				X		
10. TRIP BLANK	—		1	VOA	7081537	X	X			

Relinquished By:	Date: 8/27/97	Time: 1615	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 8/27/97	Time: 1615

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

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
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Company Name:	Project Name: UP MOTOR FREIGHT
Address: SAME AS P.1	Billing Address (if different):
City: State: Zip Code:	
Telephone: FAX #:	P.O. #: 96120-844
Report To: Sampler:	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

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	8020 BTEX	MOD 8015 TPH-GASOLINE	MOD 8015 TPH-DIESEL	3060 A5	Comments
1. OKUS-W1	8/27/97 1310	AQU	3	VOA	7081538	X	X			
2.			1	1L AMBER				X		
3.			1	PLASTIC					X	
4. OKUS-W2	1400		3	VOA	7081539	X	X			
5.			1	1L AMBER				X		
6.			1	PLASTIC					X	
7. OKUS-W12	1430		3	VOA	7081540	X	X			
8.			1	1L AMBER				X		
9.			1						X	
10.										

Pink - Client
Yellow - Sequoia
White - Sequoia

Relinquished By:	Date: 8/27/97	Time: 1615	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 8/27/97	Time: 1615

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

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Company Name:	Project Name: UP MOTOR FREIGHT
Address: SAME AS P.1	Billing Address (if different):
City: State: Zip Code:	
Telephone: FAX #:	P.O. #: 96120-844
Report To: Sampler:	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

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	BOZO BTEX	MOD 8015 TPH-GASOLINE	MOD 8015 TPH-DIESEL	7060 AS DISS.	Comments
1. DKUS-W7	8/27/97 1955	AQU	3	VOA	7081541	X	X			
2.			1	1L AMBER			X			
3.			1	PLASTIC				X		
4.										
5.										
6.										
7.										
8.										
9.										
10.										

Relinquished By:	Date: 8/27/97	Time: 1615	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 8/27/97	Time: 1615

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

Pink - Client
Yellow - Sequoia
White - Sequoia