

ENVIRONMENTAL
PROTECTION

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April 30, 1997

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


RE: *First Quarter 1997 Monitoring Report* Oakland Fueling Area in the Oakland TOFC
Railyard, Oakland, California

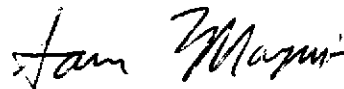
Dear Mr. Patterson:

Enclosed is the final copy of the *First Quarter 1997 Monitoring Report*, dated April 30, 1997,
for the Union Pacific Railroad Fueling Area at the trailer-on-flat-car (TOFC) loading facility at
1717 Middle Harbor Road in Oakland, California.

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

Sincerely,


Denton Mauldin
Project Manager


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

cc: Jennifer Eberle, ACDEH
John Prall, Port of Oakland
Philip Herden, APL

Enclosure
DM/tjh

oakfa\qtrfa197.ltr, 96199, April 30, 1997

**FIRST QUARTER 1997
MONITORING REPORT**

**UNION PACIFIC MOTOR FREIGHT
FACILITY
OAKLAND, CALIFORNIA**

**LIDLAW PROJECT No.
792919-844**

PREPARED FOR:

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

Prepared by:

**Laidlaw Consulting Services
5665 Flatiron Parkway
Boulder, Colorado 80301**

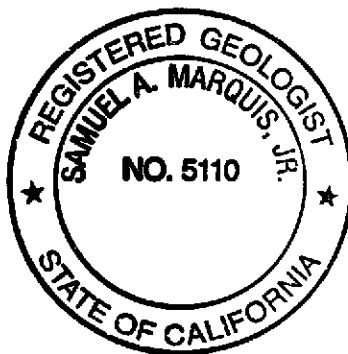
April 30, 1997

**FIRST QUARTER 1997 MONITORING REPORT
UNION PACIFIC RAILROAD
UNION PACIFIC MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
Laidlaw Project No. 792919-844**

Prepared for:
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Environmental Management - Room 930
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for submittal to:
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April 30, 1997

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1.0 INTRODUCTION

USPCI, a Laidlaw Company (Laidlaw) prepared this document on behalf of Union Pacific Railroad (UPRR) as part of the groundwater monitoring and reporting program at the Union Pacific Motor Freight (UPMF) facility at 1750 Ferro Street in Oakland, California (Figure 1). 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. Field and analytical data from this program are compiled in this report. This report includes a discussion of the background information about the site, field and analytical results, and conclusions.

2.0 BACKGROUND INFORMATION

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

2.1 SITE HISTORY

The 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 (USPCI, 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 product-only skimming system 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 (USPCI, 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 subcontracted 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 were analyzed for: total petroleum hydrocarbons as diesel (TPH-D) and total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 8015 Modified; and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020.

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. The ACDEH has approved Laidlaw's request to begin gauging wells OKUS-W5 and OKUS-W6 on a quarterly basis.

3.0 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 February 17, 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. An increase in groundwater elevations relative to the previous three monitoring events (second, third, and fourth quarters 1996) was noted in all of the monitoring wells gauged at the site. Since 1995, groundwater elevations have been highest during the first quarter of each year. These elevations typically decrease during the second, third, and fourth quarters.

Monitoring well OKUS-W4 was not gauged or sampled because of visible damage to the well head. The ACDEH has given approval for OKUS-W4 to be plugged and abandoned.

3.2 GROUNDWATER GRADIENT

The groundwater gradient at the site averaged approximately 0.010 foot per foot (53 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 first quarter 1997 monitoring event were compiled into Table 2. Samples were collected from monitoring wells OKUS-W1, OKUS-W2, OKUS-W3, OKUS-W7, OKUS-W8, APL/UP-W2, and APL/UP-W2.

Monitoring well OKUS-W1 did not contain dissolved BTEX concentrations above the method detection limit (MDL) of 0.50 micrograms per liter ($\mu\text{g/l}$). The samples collected from monitoring wells OKUS-W2, OKUS-W3, APL/UP-W1, and APL/UP-W2 contained dissolved BTEX. The sample collected from monitoring wells OKUS-W7 contained only dissolved benzene and the sample from OKUS-W8 contained only dissolved xylenes.

Benzene concentrations ranged from below the MDL in OKUS-W1 and OKUS-W8 to 260 $\mu\text{g/l}$ in OKUS-W3. Toluene ranged from below the MDL in OKUS-W1, OKUS-W7, and OKUS-W8 to 62

$\mu\text{g/l}$ in OKUS-W3. Ethylbenzene ranged from below the MDL in OKUS-W1, OKUS-W7, and OKUS-W8 to 5,800 $\mu\text{g/l}$ in OKUS-W3. Xylenes ranged from below the MDL in OKUS-W1 and OKUS-W7 to 150 $\mu\text{g/l}$ in OKUS-W2. Total BTEX concentrations ranged from below the MDL of 0.50 $\mu\text{g/l}$ (OKUS-W1) to 6,210 $\mu\text{g/l}$ (OKUS-W3).

Dissolved TPH-G, indicative of gasoline, was detected in the samples collected from monitoring wells OKUS-W2, OKUS-W3, OKUS-W8, APL/UP-W1, and APL/UP-W2. The TPH-G concentrations ranged from below the MDL of 50 $\mu\text{g/l}$ (OKUS-W1 and OKUS-W7) to 9,300 $\mu\text{g/l}$ (OKUS-W3).

Dissolved TPH-D concentrations indicating diesel fuel, were detected in the samples collected from all monitoring wells sampled during the first quarter 1997 monitoring event. TPH-D concentrations ranged from 400 $\mu\text{g/l}$ (OKUS-W1) to 4,600 $\mu\text{g/l}$ (OKUS-W3).

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 thicknesses in OKUS-W5 and OKUS-W6 was not possible due to the high viscosity of the product and difficulty in measuring product thickness.

Burns and McDonnell personnel were not able to measure the depth to product in monitoring wells OKUS-W5 and OKUS-W6 during January and February 1997 because of the viscosity of the product in the wells. During the first quarter 1997 event, Laidlaw personnel lowered a disposable bailer down the well until product was encountered. The depth to product was subsequently measured out of the well.

A product/water interface was detected in recovery well RW during the first quarter sampling event. Laidlaw personnel detected approximately 0.01 feet of product in well RW. Burns and McDonnell field personnel reported product "sheen" for the month of January 1997. During the first quarter of 1997, the product skimmer system recovered approximately two gallons of product.

4.0 CONCLUSIONS

On the basis of the information in the previous sections, Laidlaw concludes that:

- The groundwater flow direction is to the east at an average gradient of 0.010 foot per foot (53 feet per mile) and seasonal groundwater elevation fluctuations are consistent with previous monitoring events.
- The dissolved BTEX and TPH concentrations are consistent with historical concentrations in groundwater.
- The product observed in wells OKUS-W5, OKUS-W6, and RW, does not appear to have migrated downgradient.

5.0 REFERENCES

USPCI, 1991. "Hydrocarbon Investigation and Remediation Design," Union Pacific Railroad, June 10, 1991.

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

USPCI, 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 THICKNESS	DEPTH TO WATER	WATER ELEV.	CORR'D ELEV.
OKUS-W1	9.17	08/09/95	N/A	NP	6.16	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
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
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
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
	N/A	02/27/96	N/A	NP	WELL INACCESSABLE		
	N/A	05/29/96	N/A	NP	WELL DESTROYED		
	N/A	08/27/96	N/A	NP	WELL DESTROYED		
	N/A	11/12/96	N/A	NP	WELL DESTROYED		
	N/A	02/17/97	N/A	NP	WELL DESTROYED		
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	---	---	---
	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	---	---	---	

**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-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	--	--	--	
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	5.88	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
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
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 INACCESSIBLE		
	8.12	05/29/96	N/A	NP	WELL INACCESSIBLE		
	8.12	08/27/96	N/A	NP	WELL INACCESSIBLE		
	8.12	11/12/96	N/A	NP	WELL INACCESSIBLE		
	8.12	02/17/97	N/A	NP	10.02	-1.90	-1.90
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
	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

**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	--	8.50	--	--
	--	02/17/97	8.39	0.01	8.40	--	--

* All well casings measured to mean sea level (MSL).

-- Information not available or inaccurate.

P - Product (bunker C) was encountered but the oil/water interface could not be found.

N/A Non Applicable

NP - No Product

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
"	"	08/25/93	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
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
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

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	
"	"	02/27/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	05/30/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	08/27/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	11/12/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	02/18/97	WELL INACCESSIBLE – NOT SAMPLED								
OKUS-W5	OKUS-W5	01/15/93		550							
"	"	05/12/93	2900	550	53	11	180	20	260	NA	
"	"	08/25/93	2100	550	81	14	250	37	380	0.56	
"	"	11/11/93	PRODUCT IN WELL – NOT SAMPLED								
"	"	02/07/94	1600	590	14	3.1	54	6.2	77	0.53	
"	"	05/03/94	1900	760	54	9.4	220	24	310	0.55	
"	"	08/24/94	2000	820	57	9.5	240	27	330	0.38	
"	"	05/30/96	1700	910	55	14	8.5	18	96	0.45	
"	"	08/27/96	PRODUCT IN WELL – THE WELL HAS NOT BEEN SAMPLED SINCE 1994								
"	"	11/12/96	PRODUCT IN WELL – THE WELL HAS NOT BEEN SAMPLED SINCE 1994								
"	"	02/18/97	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	
"	"	05/30/96	PRODUCT IN WELL – THE WELL HAS NOT BEEN SAMPLED SINCE 1993								
"	"	08/27/96	PRODUCT IN WELL – THE WELL HAS NOT BEEN SAMPLED SINCE 1993								
"	"	11/12/96	PRODUCT IN WELL – THE WELL HAS NOT BEEN SAMPLED SINCE 1993								
"	"	02/18/97	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	

TABLE 2 (cont.)
ANALYTICAL RESULTS – GROUNDWATER MONITORING WELLS
UNION PACIFIC RAILROAD
OAKLAND MOTOR FREIGHT FACILITY

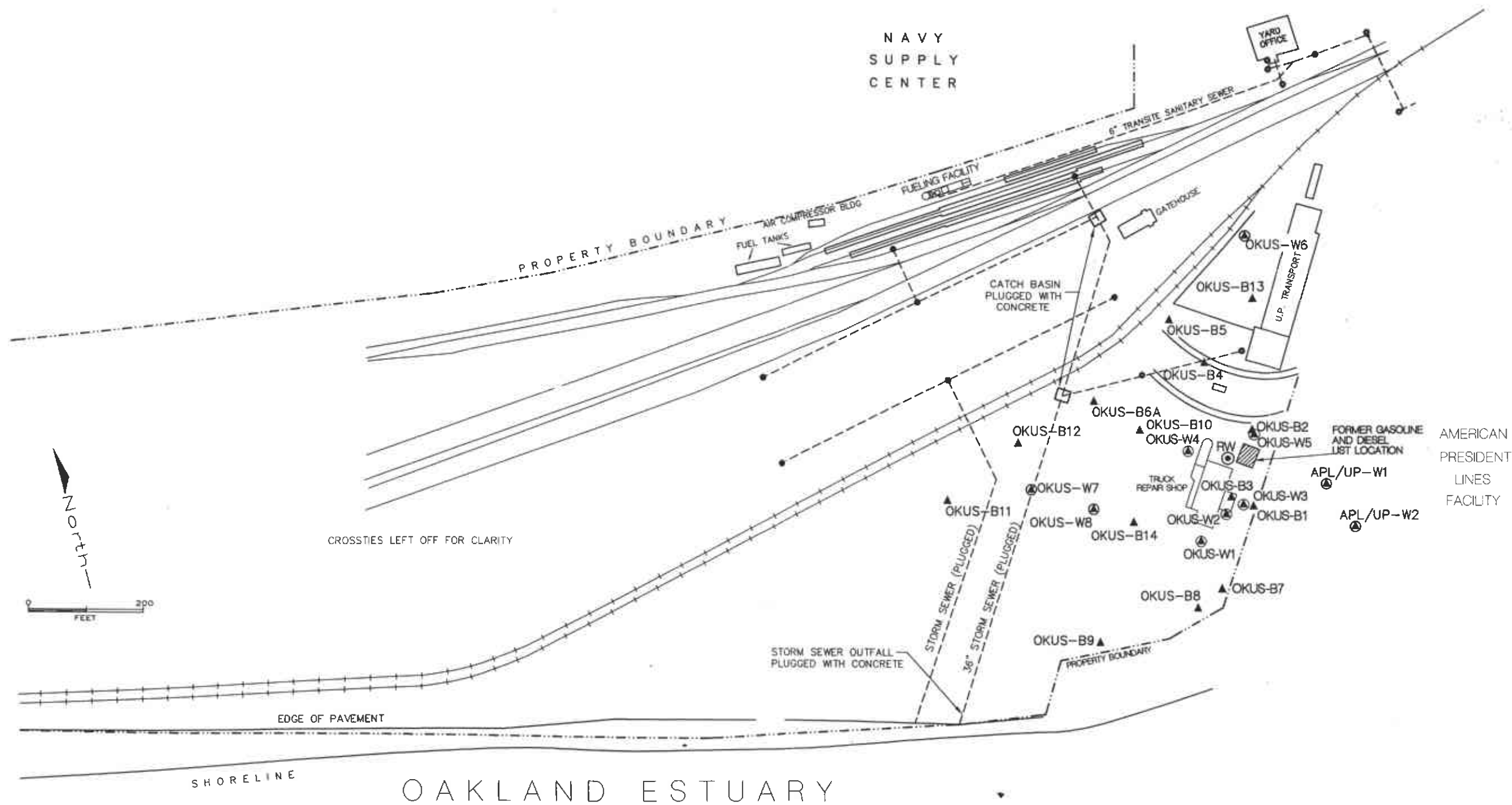
SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/D (ug/l)	TPH/G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	BTEX (ug/l)	As (mg/l)	
OKUS-W8	OKUS-W8	07/16/93	ND	ND	ND	ND	ND	ND	ND	0.012	
"	"	08/27/93	1100	120	1.3	ND	ND	0.85	2.2	ND	
"	"	11/11/93	1300	190	3.5	1.3	46	4.9	55.7	ND	
"	"	02/07/94	1000	120	0.9	<0.50	<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	
"	"	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	
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 INACCESSIBLE – NOT SAMPLED								
"	"	05/30/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	08/27/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	11/12/96	WELL INACCESSIBLE – NOT SAMPLED								
"	"	02/18/97	1800	620	43	3.3	130	20	196	NA	
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	

**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-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
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
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

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 – 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



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 WRB	7/18/95
CHECKED	
APPROVED	
APPROVED	

USPCI
A LAIDLAW COMPANY

UPRR TOFC RAILYARD UPMF REPAIR SHOP, OAKLAND, CALIFORNIA		
FIGURE 2 SITE VICINITY MAP		
SCALE 1"=200'	DATE 9/93	DWG. NO. 96120-556

NAVY
SUPPLY
CENTER

6" TRANSITE SANITARY SEWER

GATEHOUSE

CATCH BASIN
PLUGGED WITH
CONCRETE

UP TRANSPORT

AMERICAN
PRESIDENT
LINES
FACILITY



STORM SEWER OUTFALL
PLUGGED WITH CONCRETE

STORM SEWER (PLUGGED)

36" STORM SEWER (PLUGGED)

PROPERTY BOUNDARY

GROUNDWATER
FLOW DIRECTION

LEGEND

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

96120-898

USPCI

A LAIDLAW COMPANY

UPMF REPAIR SHOP-OAKLAND, CALIFORNIA

FIGURE 3
GROUNDWATER ELEVATION MAP (2/97)

SCALE 1" = 150'	APPROVED DATE 3/10/97
-----------------	-----------------------

NAVY
SUPPLY
CENTER

6" TRANSITE SANITARY SEWER

GATEHOUSE

CATCH BASIN
PLUGGED WITH
CONCRETE

OKUS-W6
NA

AMERICAN
PRESIDENT
LINES
FACILITY

OKUS-W5
NA

OKUS-W4
NA

OKUS-W7
0.7

OKUS-W8
13

RW
NA

100

OKUS-W3
6210

1000

OKUS-W2
430

100

OKUS-W1
ND

100

NORTH

0 150
FEET

PROPERTY BOUNDARY

STORM SEWER CUTFALL
PLUGGED WITH CONCRETE

STORM SEWER (PLUGGED)

36" STORM SEWER (PLUGGED)

LEGEND

- OKUS-W8
▲ 40
MONITOR WELL LOCATION AND NUMBER WITH TOTAL DISSOLVED BTEX CONCENTRATION $\mu\text{g/L}$
- 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 $\mu\text{g/L}$

USPCI
A LAIDLAW COMPANY

UPMF REPAIR SHOP-OAKLAND, CALIFORNIA

FIGURE 4
DISSOLVED PHASE BTEX DISTRIBUTION (2/97)

SCALE: 1" = 150'

APPROVED/DATE: 3/10/97

96120-887

APPENDIX A

**FLUID-LEVEL MEASUREMENTS AND SAMPLE
COLLECTION LOGS**

2-17-97

96199-01 UP Fueling Area
96120-844 UP Motor Freight

Sunny, mild

YardMaster

1339 On-site, meet w/ Willie, stay safe

Of Stake

	WELL	DTP	DTW	
1423	OMW-1	-	5.13	
1427	OMW-3	-	4.10	
1432	OMW-8	-	4.67	
1441	OMW-4	4.22	6.39	
1448	OMW-7	4.65	8.31	
1502	OMW-10	-	4.28	Product on Probe
1511	ORW-1	9.50	9.68	Pumping
1514	ORW-2	9.60	10.80	Pumping
1517	ORW-3	3.58	3.70	Not pumping
1531	OP-1	3.74	3.75	
1537	OP-3	4.23	8.46	
1550	ORW-4	2.98	6.40	Soil product tomorrow
1555	OMW-9	3.96	7.41	
1621	OP-2	4.87	6.29	
1632	OMW-2	-	2.40	
1646	OMW-5	-	4.15	CASINGS STILL DAMAGED
1707	OMW-6	-	7.26	
1713	OKUS-WB	-	4.69	
1717	OKUS-W17	-	4.85	
1730	OKUS-W3	-	8.67	
1733	OKUS-W12	-	8.41	
1737	OKUS-W1	-	7.58	
1743	OKUS-RW	8.39	8.40	
1759	OKUS-W5	9.09*	-	unable to gauge DTW

and treatment unit

WELL DTP DTW

1813	OKUS-W6	4.71*	-	Unable to gauge
1842	APL/UP-W1	-	10.02	access OK DTW
1856	APL/UP-W2	-	9.07	containers moved
1910	Quit	APL property		
1925	Treatment unit	- gear for tomorrow		
1945	Quit	site		
2000	Hotel			
		> Label bottles		
		> prepare well forms		

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: 2/18/97	
Depth To Ground Water (Below MP): 7.62 Feet		Sample ID No. OKUS-W1	
Method Of Well Development:		Time: 14:10	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump		Riser Elevation (MP): 9.17 Feet	
<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Centrifugal Pump <input type="checkbox"/> Other		Top of Screen Elevation: 6.85 Feet	
Sampling Collection Method:		Sample Appearance: Clear	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump Sample		Odor: Light	
<input checked="" type="checkbox"/> Bailer <u>Type:</u> <input type="radio"/> Teflon <input type="radio"/> Stainless Steel		Sampling Problems (if any):	
<input type="radio"/> ABS Plastic <input type="radio"/> PVC <input checked="" type="radio"/> HDPE plastic disposable			
Pump Intake Or Bailer Set At _____ Feet Below MP		Decontamination Performed: Probe	
Tubing Type (if Used):			
Tubing Used for: <input type="checkbox"/> Sample Collection <input type="checkbox"/> Well Development/Field Tests		Samples Collected: TPH-Gasoline, TPH-Diesel, 8020 BTEX	

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)
13:44	Begin well					
13:47	7.1	800	20.7		1.75	
13:52	7.2	1,200	19.9		3.50	
13:57	7.2	1,300	19.8		5.50	
14:10	Sample well					

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

Comments: $(18.70 - 7.62) * 0.16 = 1.773$ or about 1.75 gallons per volume

[Comments may continue on back]

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

USPCI SAMPLING AND WELL STABILIZATION 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): 22.34 Feet			
Casing diameter: 2 Inches		Sampling Date: 2/18/97	
Depth To Ground Water (Below MP): 8.43 Feet		Sample ID No. OKUS-W2	
Method Of Well Development:		Time: 14:45	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump		Riser Elevation (MP): 9.71 Feet	
<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Centrifugal Pump <input type="checkbox"/> Other		Top of Screen Elevation: 7.05 Feet	
Sampling Collection Method:		Sample Appearance: Clear	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump Sample		Odor: Moderate	
Bailer Type: <input type="radio"/> Teflon <input type="radio"/> Stainless Steel		Sampling Problems (if any):	
<input type="radio"/> ABS Plastic <input type="radio"/> PVC <input checked="" type="radio"/> HDPE plastic disposable			
Pump Intake Or Bailer Set At _____ Feet Below MP		Decontamination Performed: Probe	
Tubing Type (if Used):			
Tubing Used for: <input type="checkbox"/> Sample Collection <input type="checkbox"/> Well Development/Field Tests		Samples Collected: TPH-Gasoline, TPH-Diesel, 8020 BTEX	

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)
14:18	Begin well					
14:22	7.0	3.800	18.5		2.25	
14:28	7.0	4.000	18.6		4.50	
14:34	6.9	3.900	19.1		6.75	
14:45	Sample well					

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

Comments: (22.34 - 8.43) * 0.16 = 2.226 or about 2.25 gallons per volume

[Comments may continue on back]

Form Completed By: Mark McCormick Witnessed By: _____

USPCI SAMPLING AND WELL STABILIZATION 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): **22.05 Feet**

Casing diameter: **2 Inches** Sampling Date: **2/18/97**

Depth To Ground Water (Below MP): **8.70 Feet** Sample ID No. **OKUS-W3**

Method Of Well Development: Time: **15:25**

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: **Clear**

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**

Tubing Type (if Used):

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

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)
15:00	Begin well					
15:08	7.0	3.300	19.5		2.25	
15:12	7.0	3.900	18.9		4.50	
15:16	7.0	3.900	19.4		6.50	
15:25	Sample well					

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

Comments: $(22.05 - 8.70) * 0.16 = 2.136$ or about 2.00 - 2.25 gallons per volume

[Comments may continue on back]

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

USPCI SAMPLING AND WELL STABILIZATION 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): 19.88 Feet			
Casing diameter: 2 Inches		Sampling Date: 2/18/97	
Depth To Ground Water (Below MP): 4.89 Feet		Sample ID No. OKUS-W7	
Method Of Well Development:		Time: 13:10	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump		Riser Elevation (MP): 7.4 Feet	
<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Centrifugal Pump <input type="checkbox"/> Other		Top of Screen Elevation: 2.4 Feet	
Sampling Collection Method:		Sample Appearance: Clear	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump Sample		Odor: Light	
<input checked="" type="checkbox"/> Bailer Type: <input type="radio"/> Teflon <input type="radio"/> Stainless Steel		Sampling Problems (if any):	
<input type="radio"/> ABS Plastic <input type="radio"/> PVC <input checked="" type="radio"/> HDPE plastic disposable			
Pump Intake Or Bailer Set At _____ Feet Below MP		Decontamination Performed: Probe	
Tubing Type (if Used):			
Tubing Used for: <input type="checkbox"/> Sample Collection <input type="checkbox"/> Well Development/Field Tests		Samples Collected: TPH-Gasoline, TPH-Diesel, 8020 BTEX	

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)
12:43	Begin well					
12:48	7.1	3.400	18.9		2.5	
12:53	7.2	3.100	19.1		5.0	
12:59	7.2	3.400	18.9		7.5	
13:10	Sample well					

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

Comments: (19.88 - 4.89) * 0.16 = 2.398 or about 2.5 gallons per volume

TPH-Diesel sample X 3 for MS/MSD

[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): 21.86 Feet			
Casing diameter: 2 Inches		Sampling Date: 2/18/97	
Depth To Ground Water (Below MP): 10.01 Feet		Sample ID No. APL/UP-W1	
Method Of Well Development:		Time: 10:50	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump		Riser Elevation (MP): 7.11 Feet	
<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Centrifugal Pump <input type="checkbox"/> Other		Top of Screen Elevation: 2.11 Feet	
Sampling Collection Method:		Sample Appearance: Clear/very slightly turbid	
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump Sample		Odor: Light	
Bailer Type: <input type="radio"/> Teflon <input type="radio"/> Stainless Steel		Sampling Problems (if any):	
<input type="radio"/> ABS Plastic <input type="radio"/> PVC <input checked="" type="radio"/> HDPE disposable			
Pump Intake Or Bailer Set At _____ Feet Below MP		Decontamination Performed: Probe	
Tubing Type (if Used):			
Tubing Used for: <input type="checkbox"/> Sample Collection <input type="checkbox"/> Well Development/Field Tests		Samples Collected: TPH-Gasoline, TPH-Diesel, 8020 BTEX	

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)
10:27	Begin Well					
10:31	6.9	3.000	17.9		2.0	
10:37	7.0	2.900	17.2		4.0	
10:42	7.0	2.900	17.6		6.0	
10:50	Sample Well					

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

Comments: Well was sampled for the first time since 11/95. Stacked containers have been removed.

(21.86 - 10.01) * 0.16 = 1.896 or about 2.0 gallons per volume.

Duplicate sample = APL/UP-W11 at 11:00

[Comments may continue on back]

Form Completed By: Mark McCormick Witnessed By:

USPCI SAMPLING AND WELL STABILIZATION 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): 17.00 Feet						
Casing diameter: 2 Inches			Sampling Date: 2/18/97			
Depth To Ground Water (Below MP): 9.10 Feet			Sample ID No. APL/UP-W2			
Method Of Well Development:			Time: 11:35			
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump			Riser Elevation (MP): 7.62 Feet			
<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Centrifugal Pump <input type="checkbox"/> Other			Top of Screen Elevation: 2.62 Feet			
Sampling Collection Method:			Sample Appearance: Clear			
<input type="checkbox"/> Tap <input type="checkbox"/> Submersible Pump <input type="checkbox"/> Bladder Pump Sample			Odor: Slight			
<input checked="" type="checkbox"/> Bailer Type: <input type="radio"/> Teflon <input type="radio"/> Stainless Steel			Sampling Problems (if any):			
<input type="radio"/> ABS Plastic <input type="radio"/> PVC <input checked="" type="radio"/> HDPE disposable						
Pump Intake Or Bailer Set At _____ Feet Below MP			Decontamination Performed: Probe			
Tubing Type (if Used):						
Tubing Used for: <input type="checkbox"/> Sample Collection <input type="checkbox"/> Well Development/Field Tests			Samples Collected: TPH-Gasoline, TPH-Diesel, 8020 BTEX			

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)
11:15	Begin well					
11:18	7.1	2.800	17.1		1.25	
11:22	7.2	3.000	17.5		2.75	
11:25	7.2	2.900	17.2		4.00	
11:35	Sample well					

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

Comments: (17.00 - 9.10) * 0.16 = 1.264 or about 1.25 gallons per volume

[Comments may continue on back]

Form Completed By: Mark McCormick Witnessed By: _____

APPENDIX B
ANALYTICAL REPORTS



U.S.P.C.I. / Laidlaw Client Project ID: UP Motor Freight Sampled: Feb 18, 1997
 5665 Flatiron Pkwy Sample Matrix: Water Received: Feb 18, 1997
 Boulder, CO 80301 Analysis Method: EPA 5030/8015 Mod./8020 Reported: Mar 4, 1997
 Attention: Denton Mauldin First Sample #: 702-1021

QC Batch Number: GC022197 GC022497 GC022497 GC022497 GC022497 GC022497 GC022497
 802009A 802002A 802002A 802002A 802002A 802004A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 702-1021 APL/UP-W1	Sample I.D. 702-1022 APL/UP-W11	Sample I.D. 702-1023 APL/UP-W2	Sample I.D. 702-1024 OKUS-W8	Sample I.D. 702-1025 OKUS-W7	Sample I.D. 702-1026 OKUS-W1
Purgeable Hydrocarbons	50	620	370	170	140	N.D.	N.D.
Benzene	0.50	43	42	12	N.D.	0.75	N.D.
Toluene	0.50	3.3	1.4	0.77	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	130	140	81	N.D.	N.D.	N.D.
Total Xylenes	0.50	20	18	9.4	1.3	N.D.	N.D.

Chromatogram Pattern: Gasoline & Unidentified Hydrocarbons > C8 Gasoline & Discrete Peaks Gasoline & Discrete Peaks Gasoline & Unidentified Hydrocarbons > C8 -- --

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	2/21/97	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97
Instrument Identification:	HP-9	HP-2	HP-2	HP-2	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	96	83	88	87	90	102

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





Sequoia Analytical

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

Client Project ID: UP Motor Freight
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 702-1027

Sampled: Feb 18, 1997
Received: Feb 18, 1997
Reported: Mar 4, 1997

QC Batch Number: GC022497 GC022497 GC022197 GC022197 GC022497 GC022497
802004A 802004A 802009A 802009A 802002A 802004A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 702-1027 OKUS-W2	Sample I.D. 702-1028 OKUS-W3	Sample I.D. 702-1029 Trip Blank	Sample I.D. Method Blank	Sample I.D. Method Blank	Sample I.D. Method Blank
Purgeable Hydrocarbons	50	7,800	9,300	N.D.	N.D.	N.D.	N.D.
Benzene	0.50	190	260	N.D.	N.D.	N.D.	N.D.
Toluene	0.50	44	62	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	4,000	5,800	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	150	85	N.D.	N.D.	N.D.	N.D.

Chromatogram Pattern:

Discrete Peaks	Discrete Peaks	--	--	--	--
> Gasoline	> Gasoline				

Quality Control Data

Report Limit Multiplication Factor:	50	100	1.0	1.0	1.0	1.0
Date Analyzed:	2/24/97	2/24/97	2/21/97	2/21/97	2/24/97	2/24/97
Instrument Identification:	HP-4	HP-4	HP-9	HP-9	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	113	113	88	87	92	100

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative

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Sequoia Analytical

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 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: UP Motor Freight Sample Matrix: Water Analysis Method: EPA 3510/8015 Mod. First Sample #: 702-1021	Sampled: Feb 18, 1997 Received: Feb 18, 1997 Reported: Mar 4, 1997
--	--	--

QC Batch Number:	SP022497	SP022497	SP022497	SP022497	SP022497	SP022497
	8015EXA	8015EXA	8015EXA	8015EXA	8015EXA	8015EXA

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 702-1021 APL/UP-W1	Sample I.D. 702-1022 APL/UP-W11	Sample I.D. 702-1023 APL/UP-W2	Sample I.D. 702-1024 OKUS-W8	Sample I.D. 702-1025 OKUS-W7	Sample I.D. 702-1026 OKUS-W1
Extractable Hydrocarbons	50	1,800	1,800	770	1,900	2,000	400
Chromatogram Pattern:		Diesel & Unidentified Hydrocarbons <C15 >C20	Diesel & Unidentified Hydrocarbons <C15 >C20	Diesel & Unidentified Hydrocarbons <C15 >C20	Diesel & Unidentified Hydrocarbons >C20	Diesel	Diesel & Unidentified Hydrocarbons >C20

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97
Date Analyzed:	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97	2/25/97
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

Melissa A. Brewer

Melissa A. Brewer
 Client Services Representative





Sequoia Analytical

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

Client Project ID: UP Motor Freight
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 702-1027

Sampled: Feb 18, 1997
Received: Feb 18, 1997
Reported: Mar 4, 1997

QC Batch Number: SP022497 SP022497 SP022497
8015EXA 8015EXA 8015EXA

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 702-1027 OKUS-W2	Sample I.D. 702-1028 OKUS-W3	Sample I.D. Method Blank
Extractable Hydrocarbons	50	3,000	4,600	N.D.
Chromatogram Pattern:		Diesel & Unidentified Hydrocarbons < C15	Diesel & Unidentified Hydrocarbons < C15	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Extracted:	2/24/97	2/24/97	2/24/97
Date Analyzed:	2/25/97	2/25/97	2/25/97
Instrument Identification:	HP-3B	HP-3B	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

Melissa A. Brewer
Client Services Representative





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

Client Project ID: UP Motor Freight
Matrix: Liquid

QC Sample Group: 7021021-029

Reported: Mar 4, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
QC Batch#:	GC022497 802002A	GC022497 802002A	GC022497 802002A	GC022497 802002A	SP022497 8015EXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3510
Analyst:	K. Nill	K. Nill	K. Nill	K. Nill	D. Sharma
MS/MSD #:	7021025	7021025	7021025	7021025	7021025
Sample Conc.:	0.75 µg/L	N.D.	N.D.	N.D.	2000 µg/L
Prepared Date:	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97
Analyzed Date:	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3B
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Result:	20	23	22	64	2400
MS % Recovery:	96	115	110	107	133
Dup. Result:	20	23	22	65	2300
MSD % Recov.:	96	115	110	108	100
RPD:	0.0	0.0	0.0	1.6	4.3
RPD Limit:	0-25	0-25	0-25	0-25	0-50

LCS #:	2LCS022497	2LCS022497	2LCS022497	2LCS022497	LCS022497
Prepared Date:	2/24/97	2/24/97	2/24/97	2/24/97	2/24/97
Analyzed Date:	2/24/97	2/24/97	2/24/97	2/24/97	2/25/97
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
LCS Result:	21	25	23	71	290
LCS % Recov.:	105	125	115	118	97

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative





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

Client Project ID: UP Motor Freight
Matrix: Liquid

QC Sample Group: 7021021-029

Reported: Mar 4, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC022197	GC022197	GC022197	GC022197
	802009A	802009A	802009A	802009A
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 #:	7021006	7021006	7021006	7021006
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	2/21/97	2/21/97	2/21/97	2/21/97
Analyzed Date:	2/21/97	2/21/97	2/21/97	2/21/97
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	23	24	17	74
MS % Recovery:	115	120	85	123
Dup. Result:	23	24	17	73
MSD % Recov.:	115	120	85	122
RPD:	0.0	0.0	0.0	1.4
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	9LCS022197	9LCS022197	9LCS022197	9LCS022197
Prepared Date:	2/21/97	2/21/97	2/21/97	2/21/97
Analyzed Date:	2/21/97	2/21/97	2/21/97	2/21/97
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	24	25	17	75
LCS % Recov.:	120	125	85	125

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130
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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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Melissa A. Brewer
Client Services Representative





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

Client Project ID: UP Motor Freight
Matrix: Liquid

QC Sample Group: 7021021-029

Reported: Mar 4, 1997

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC022497 802004A	GC022497 802004A	GC022497 802004A	GC022497 802004A
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 #:	7021025	7021025	7021025	7021025
Sample Conc.:	1.7 µg/L	N.D.	N.D.	N.D.
Prepared Date:	2/24/97	2/24/97	2/24/97	2/24/97
Analyzed Date:	2/24/97	2/24/97	2/24/97	2/24/97
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:	22	21	20	62
MS % Recovery:	102	105	100	103
Dup. Result:	17	19	18	54
MSD % Recov.:	77	95	90	90
RPD:	28	10	11	14
RPD Limit:	0-25	0-25	0-25	0-25

LCS #:	4LCS022497	4LCS022497	4LCS022497	4LCS022497
Prepared Date:	2/24/97	2/24/97	2/24/97	2/24/97
Analyzed Date:	2/24/97	2/24/97	2/24/97	2/24/97
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:	18	18	18	55
LCS % Recov.:	90	90	90	92

MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130
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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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative





Sequoia
Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Walnut Creek, CA 94598
Sacramento, CA 95834

(415) 364-9600
(510) 988-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 988-9673
FAX (916) 921-0100

U.S.P.C.I. / Laidlaw
5665 Flatiron Pkwy
Boulder, CO 80301

Client Project ID: UP Motor Freight

Received: Feb 18, 1997

Attention: Denton Mauldin

Lab Number: 702-1021 thru 1029

Reported: Mar 4, 1997

LABORATORY NARRATIVE

EPA 5030/8015 Mod./8020: Total Purgeable Petroleum Hydrocarbons Quality Control

Q.C. Batch #: GC022497802004A

Date Analyzed: February 24, 1997

RPD was above the upper control limit. This appears to be due to underspiking the Matrix Spike Duplicate and/or matrix interference from the spiked sample.

All other quality control measures were within criteria.

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Client Services Representative

7021021.UUU <8>





SEQUIOA ANALYTICAL

CHAIN OF CUSTODY

500 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: <u>USPCI/LAIDLAW</u>		Project Name: <u>UP MOTOR FREIGHT</u>	
Address: <u>5665 FLATIRON PKWY</u>		Billing Address (if different):	
City: <u>BOULDER</u> State: <u>CO</u> Zip Code: <u>80301</u>	P.O. #: <u>SAME</u>		
Telephone: <u>303 938 5500</u> FAX #: <u>303 938 5520</u>	QC Data: <input type="checkbox"/> Level D (Standard) <input checked="" type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A		
Report To: <u>DENTON MAULDIN</u> Sampler: <u>MARK MCCORMICK</u>			

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

Drinking Water
 Waste Water
 Other GW

Analyses Requested
8020 BTEX * MOD BTEX * TPH-GASOLINE MOD BTEX * TPH-DIESEL

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested				Comments
1. APL/UP-W1	2/18/97 1050	AQU	3	VDA		X		7021021	A-D	
2.			1	AMBER		X				
3. APL/UP-W11	1100		3	VDA		X		7021022		
4.			1	AMBER		X				
5. APL/UP-WZ	1135		3	VDA		X		7021023		
6.			1	AMBER		X				
7. DKUS-WB	1225		3	VDA		X		7021024		
8.			1	AMBER		X				
9. DKUS-WZ	1310		3	VDA		X		7021025	A-F	
10.			3	AMBER		X				USE FOR MS/MSD

Relinquished By: <u>Mark McCormick</u>	Date: <u>2/18/97</u>	Time: <u>1700</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <u>J. H. Smith</u>	Date: <u>2/18/97</u>	Time: <u>1700</u>

Were Samples Received in Good Condition? Yes No

Samples on Ice? Yes No Method of Shipment

Pink - Client

Yellow - Sequoia

White - Sequoia



SEQUOIA ANALYTICAL CHAIN OF CUSTODY

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
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Company Name: <u>USPCI / LAIDLAW</u>		Project Name: <u>UP MOTOR FREIGHT</u>	
Address: <u>5665 FLATIRON PKWY</u>		Billing Address (if different):	
City: <u>BOULDER</u>	State: <u>CO</u>	Zip Code: <u>80301</u>	<u>SAME</u>
Telephone:	FAX #:	P.O. #:	
Report To: <u>DENTON MAULDIN</u>		Sampler: <u>MARK MCCORMICK</u>	
		QC Data: <input type="checkbox"/> Level D (Standard) <input checked="" type="checkbox"/> Level C <input type="checkbox"/> Level B <input type="checkbox"/> Level A	

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

Analyses Requested
 Drinking Water
 Waste Water
 Other GW

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Analyses Requested				Comments	
1. <u>OKUS-W1</u>	<u>2/18/97 1410</u>	<u>AQU</u>	<u>3</u>	<u>VOA</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7021026 A-D</u>	
2. <u>I</u>	<u>I</u>	<u>I</u>	<u>1</u>	<u>AMBER</u>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. <u>OKUS-W2</u>	<u>1445</u>	<u>I</u>	<u>3</u>	<u>VOA</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7021027</u>	
4. <u>I</u>	<u>I</u>	<u>I</u>	<u>1</u>	<u>AMBER</u>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. <u>OKUS-W3</u>	<u>1525</u>	<u>I</u>	<u>3</u>	<u>VOA</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7021028</u>	
6. <u>I</u>	<u>I</u>	<u>I</u>	<u>1</u>	<u>AMBER</u>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7. <u>TRIP BLANK</u>	<u>I</u>	<u>I</u>	<u>1</u>	<u>VOA</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>7021029</u>	
8.											
9.											
10.											

Relinquished By: <u>[Signature]</u>	Date: <u>2/18/97</u>	Time: <u>1700</u>	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: <u>[Signature]</u>	Date: <u>2/19/97</u>	Time: <u>1700</u>

Were Samples Received in Good Condition? Yes No

Samples on Ice? Yes No

Method of Shipment Airt

Pink - Client

Yellow - Sequoia

White - Sequoia