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FIRST QUARTER 1994 MONITORING REPORT

UNION PACIFIC RAILROAD

UNION PACIFIC MOTOR FREIGHT FACILITY OAKLAND, CALIFORNIA

USPCI PROJECT No. 96120-844

PREPARED FOR:

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

Prepared by:

USPCI Consulting Services 5665 Flatiron Parkway Boulder, Colorado 80301

April 29, 1994





Consulting Services



May 6, 1994

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

RE: "First Quarter 1994 Monitoring Report", UPMF Facility at 1750 Ferro Street, Oakland, California, USPCI Project No. 96120-844

Dear Mr. Patterson:

Enclosed is the final copy of the "First Quarter 1994 Monitoring Report", dated April 29, 1994 for the Union Pacific Motor Freight (UPMF) Facility at 1750 Ferro Street in Oakland, California.

During the fourth quarter of 1993 monitoring event, analytical results indicated an increase of total petroleum hydrocarbons as gasoline, and benzene, ethylbenzene, and xylenes concentrations in monitoring wells APL/UP-W1 and APL/UP-W2. Analytical results from the first quarter of 1994 indicated levels comparable to the levels observed prior to the fourth quarter of 1993. To confirm the values in the analytical reports, it was requested that the laboratory re-check their calculations. After re-checking, it appeared that the laboratory had made a mathematical error in calculating the analytical results. A facsimile copy of the revised report has been included in Appendix A and the corresponding values have been corrected in Table 1 of the enclosed report. USPCI will re-submit the "Fourth Quarter 1993 Monitoring Report" with the revised analytical information and associated corrections by June 10, 1994.

Mr. Harry Patterson May 6, 1994 Page 2

If you have any questions, please call me at (303) 938-5539.

Sincerely,

Denton Mauldin Engineer III

cc: Rick Pollard, USPCI

Steve Brinkman, USPCI
Jennifer Eberle, ACDEH
John Amdur, Port of Oakland

Philip Herden, APL

Ken Fossey, USPCI (cover letter)

Enclosures

DM/tjh

FIRST QUARTER 1994 MONITORING REPORT UNION PACIFIC RAILROAD UNION PACIFIC MOTOR FREIGHT FACILITY OAKLAND, CALIFORNIA USPCI Project No. 96120-844

Prepared for:
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for submittal to:
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Geologist
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April 29, 1994

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1. INTRODUCTION

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

The quarterly monitoring event involved:

- Measuring the static water levels, purging, and sampling the ten existing monitoring wells;
- Analyzing groundwater samples from the monitoring wells for total petroleum hydrocarbons (TPH, EPA Method 418.1); TPH diesel (TPH/D, EPA Method 8015 Modified), TPH gasoline (TPH/G, EPA Method 8015 Modified); benzene, toluene, ethylbenzene and xylenes (BTEX, EPA Method 8020); and dissolved arsenic (As) and lead (Pb) by EPA Method 6000/7000;
- Analyzing of the data to determine the local groundwater gradient; and
- Preparing a Quarterly Monitoring Report.

Non-aqueous phase liquid petroleum hydrocarbon (product) was not detected in the monitoring wells in the First Quarter 1994 Monitoring Event. However, product was observed in at least one monitoring well during previous monitoring events and product has been observed in the recovery well. Groundwater samples were collected from the ten monitoring wells in February 1994.

1.1 SITE BACKGROUND

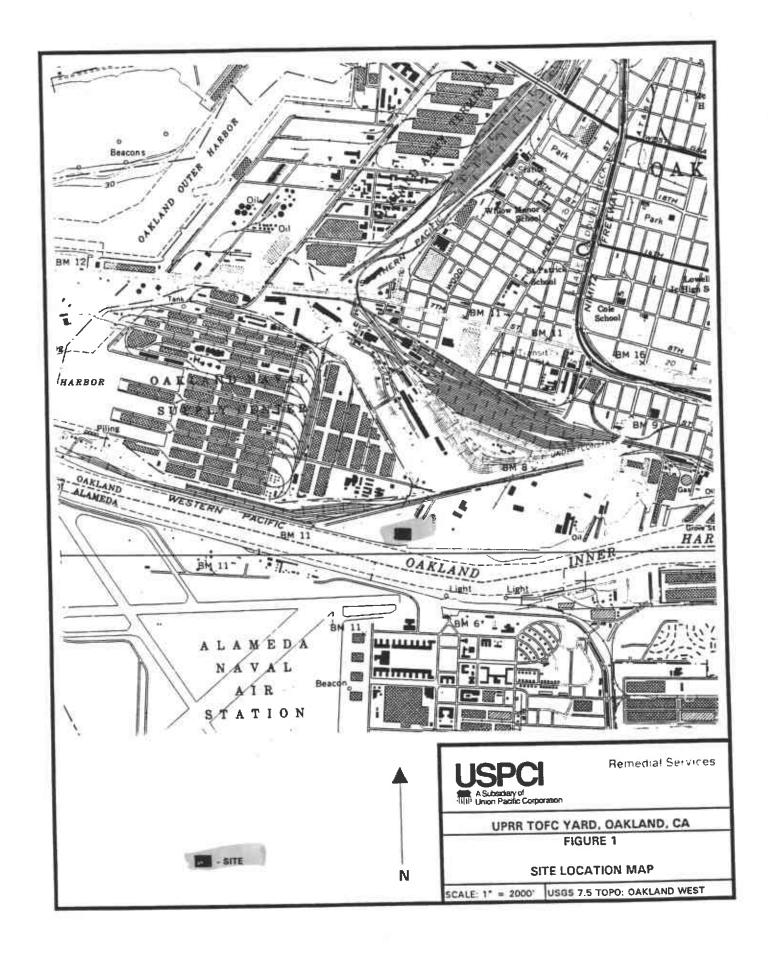
The following subsections describe the historical activities at the railyard and vicinity as well as the location of and access to the site.

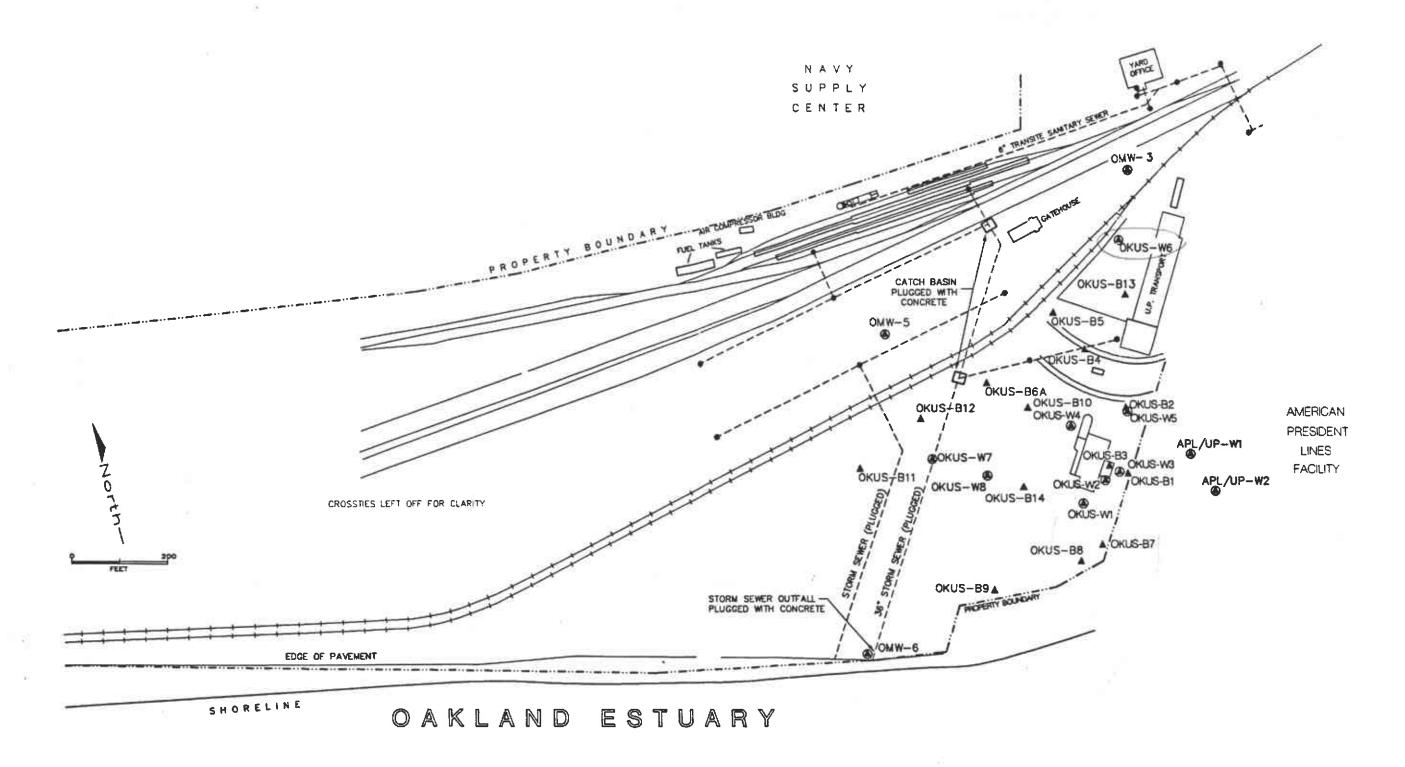
1.1.1 General Description and Previous Activities

The site is located on the southeastern end of the UPRR Trailer-on-flat-car (TOFC) Yard (Figure 2) located adjacent to the Oakland Inner Harbor. The area surrounding the site is used for heavy to light commerce, with residential areas being located inland to the east and west across the Oakland Estuary. Five USTs were removed from the UPMF site from 1987 to 1990. The refueling portion of the TOFC yard, approximately 700 feet northwest of the truck repair shop, is currently undergoing groundwater remediation for recovery of product. The limits of the diesel plume in that portion of the site was defined (USPCI, 1991), and the plume does not extend to the area of impacted groundwater at the truck repair facility in the TOFC Yard refueling area.

1.1.2 Location and Access

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





LEGEND

♠ OKUS-WI MONITORING WELL LOCATION AND NUMBER

▲ OKUS-B1 BORING LOCATION AND NUMBER

CATCH BASIN FOR STORM SEWER

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		A Subsidiary of Union Pacific Corporation

UPM	UPRR TOFC F F REPAIR SHOP, OA	RAILYARD KLAND, CALIFORNIA	
	FIGURI SITE VICINI		
	DATE	DWG NO	

96120-556

9/93

1.2 INVESTIGATIVE PROCEDURES

All USPCI field activities, including data recording procedures, decontamination methods, groundwater sample collection, and purge water disposal, were completed following USPCI's standard procedures previously supplied to the ACDEH.

The quarterly monitoring event was conducted by USPCI Remedial Services personnel under the direct supervision of Christopher Byerman and Richard Pollard (California Registered Geologist #4659).

2. FIELD INVESTIGATION RESULTS

2 company

The field investigation presented in this report was completed on three separate occasions during the quarter. The dates of the field investigation were December 28, 1993, January 31, and February 25, 1994. The following subsections present the findings of and activities completed during the field investigation.

The dates of the field investigation were December 28, 1993, January 31, and February 25, 1994. The following subsections present the findings of and activities completed during the field investigation.

2.1 GROUNDWATER ASSESSMENT DETERMINATIONS

The continued monitoring of wells associated with this investigation and the compilation of the data recovered is geared toward understanding groundwater movement beneath the site. The data recovered from the monitoring and the conclusions drawn from the data will be used to complete the remediation of the site.

2.1.1 Groundwater Characteristics

The UPRR Oakland UPMF Facility is adjacent to the Oakland Estuary, which is located in the eastern portion of the San Francisco Bay (Figure 2). The close proximity of the Estuary to the site suggests that a direct hydrologic connection may exist between the Estuary and the groundwater beneath the site. Tidal influences from the Estuary may influence water levels in the monitoring wells at the site; however, previous studies in the San Francisco Bay Area suggests that tidal influences are generally minimal and are only detectable in monitoring wells in very close proximity to the Bay (usually within 200 feet; USPCI, 1991). The actual degree of influence is dependent on individual site characteristics.

2.1.2 Results of Laboratory Analysis of Groundwater Samples

Analytical results indicate elevated TPH/G and BTEX concentrations in groundwater at the site (Figure 3 and Table 1). Total BTEX concentrations ranged from below the method detection limit (MDL) of 2.0 micrograms per liter (ug/L) in the sample from monitoring well OKUS-W1 to 10,000 ug/L in sample OKUS-W3. TPH/G concentrations ranged from below the MDL of 50 ug/L in samples OKUS-W1 and OKUS-W7 to 17,000 ug/L in sample OKUS-W3. TPH/D concentrations ranged from 92 ug/L in sample OKUS-W1 to 4,400 ug/L in sample OKUS-W3.

Groundwater samples were also analyzed for dissolved arsenic and lead. The analytical results indicated dissolved arsenic in samples from two of the ten monitoring wells. The detected concentrations of dissolved arsenic in groundwater samples were 0.12 mg/L in OKUS-W3 and .55 mg/L in OKUS-W5. Dissolved lead was not detected above the MDL in any of the existing wells.

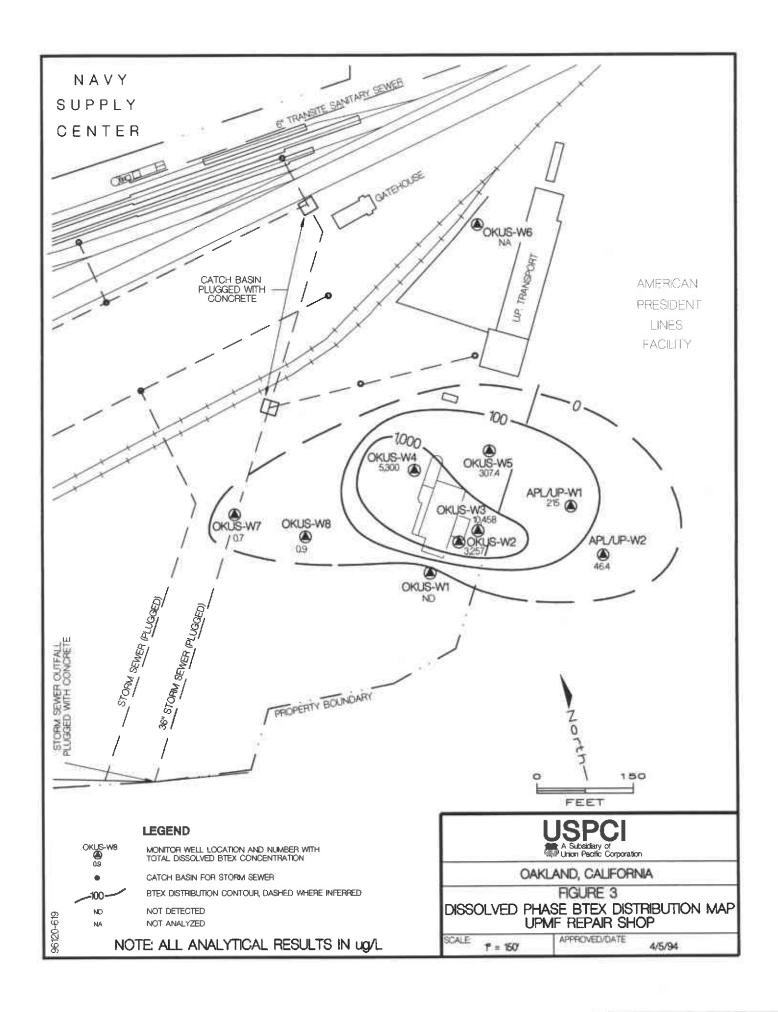


TABLE 1: CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES AT THE UNION PACIFIC MOTOR FREIGHT FACILITY. OAKLAND, CALIFORNIA - USPCI PROJECT NO. 96120-844

SAMPLE LOCATION	SAMPLE ID	DATE SAMPLED	TPH/IR	TPH/D	TPH/G	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL	TOTAL BTEX	As	Pb
200/11/01/			mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L
OKUS-W1	OKUS-W1	01/14/93	ND	ND	410	20	4	220	ND	240	ND	ND
	1	05/12/93	80	120	ND	ND	ND	ND	ND	ND	ND	NC
		08/25/83	ND	100	ND	ND	ND	ND	ND	ND	ND	NE
		11/11/93	ND	160	91	1.1	0.88	21	1.6	24	ND	NO
		02/08/94	NA NA	92	<50	<0.50	<0.50		< 0.50	<0.20	<0.10	< 0.02
01/110 16/0	OKUS-W2	01/14/93	2.5	5400	14000	480	92	8500	ND	9100	0.036	NE
OKUS-W2	UKU3-W2	05/12/93	ND	2800	8800	220	47		100	5000	0.093	N
				6500	22000	420	92		210	11000	0.089	N
		08/25/93	5.8			540	150		280	14000	ND	N
		11/11/93	3.5	7700	24000	540	150		78	3300	<0.10	<0.0
		02/08/94	NA	2300	4900	150	29	3000	/0	3300	<0.10	~0.0 .
OKUS-W3	OKUS-W3	01/14/93	4.5	4200	4900	230	42		44	2900	NA	N
•		05/12/93	1.7	4400	4600	290	60		72	3900	0.14	N
		08/25/93	1.5	2700	9400	280	55	4300	41	4700	0.08	NE
		11/11/93	2.3	5000	9500	390	110	5100	130	5700	0.14	N
		02/05/94	NA NA	4400	17000	420	78	9800	160	10000	0.12	<0.03
OKUS-W4	OKUS-W4	01/15/93	2.5	5400	8900	300	ND	4500	ND	4800	NA	N
01100 114		05/12/93	1.3	2900	6000	320	110	4600	230	5300	0.16	N
		08/26/93	ND	2200	6700	350	72	4800	130	5400	0.098	N
		11/11/93	ND	2400	5500	250	53		140	5000	0.13	N
		02/07/94	- NA	2700 /	9100		< < 0.50		150	5300	<0.10	< 0.0
OKUS-W5	OKUS-W5	01/15/93	ND	2900	550	53	11	180	20	260	NA	N
OKUS-WS	OV02-442	05/12/93	130	2100	550	81	14			380	0.56	NI
		08/25/93	PHASE SEP						-			
		11/11/93	2.7	1600	590		3.1	54	6.2	77	0.53	N
		02/07/94	NA.	1900 1			A		24	310	0.55	< 0.0
OKUS-W6	OKUS-We	07/18/93	BRK	BRK	ND	2.5	NE	ND ND	ND	2,5	0.004	N
OK02-446	OKO3-110	08/25/93	ND	590	ND						0.013	N
			ND	610	ND						ND	N
		11/12/93 02/07/94	PHASE SEP	ARATED HY				APLED T	1.0			
				ND	ND	2.1	NE) ND	ND	2.1	0.009	N
OKUS-W7	OKUS-W7	07/16/93	16 ND	930	58						ND	N
		08/25/93									ND	N
		11/12/93	ND	1100	NO		AV.				<0.10	<0.0
		02/07/94	NA	1100	- ND	0.7	<0,5L	×0.50	<0.00	0.70	₹0,10	~0.0
OKUS-W8	OKUS-Wa	07/16/93	15	ND	ND	NO	NC) NE	ND ND	ND	0.012	0.00
C.100 110	5,100	08/27/93	ND	1100	120	1.3	NC) NC	0.85	2.2	ND	0.00
		11/11/93	ND	1300	190						ND	N
		02/07/94	NA.	1000			L .				<0.10	<0.0
		UZIVI I	1,112	1000	1000	W	V					

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

TPH/IR — analyzed using EPA Method 418.1
TPH/ID — analyzed using EPA Method 8015 Mod.
TPH/IG — analyzed using EPA Method 8015 Mod.
BTEX — analyzed using EPA Method 8020
As — analyzed using EPA Method 7060
Pb — analyzed using EPA Method 7421

TABLE 1: CUMULATIVE ANALYTICAL RESULTS OF GROUNDWATER SAMPLES AT THE UNION PACIFIC MOTOR FREIGHT FACILITY, OAKLAND, CALIFORNIA - USPCI PROJECT NO. 96120-844 TOTAL Pb BENZENE TOLUENE ETHYL-TOTAL As SAMPLE SAMPLE DATE TPH/IR TPH/D TPH/G ID SAMPLED BENZENE XYLENES BTEX LOCATION mg/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L mg/L mg/L ND 3.0 30 0.011 ND APL/UP-W1 APL/UP-W1 07/16/93 700 300 25.4 1.7 11 720 47 1.3 360 14.0 420 0.013 ND 08/26/93 ND 810 ND 260 ND ND 26 220 11.0 11/11/93 ND 530 560 660 1 220 < 0.10 < 0.02 620 25 < 0.50 180 10 02/07/94 NA ND ND 8.0 ND ND ND 8.0 0.016 ND 07/16/93 APL/UP-W2 APL/UP-W2 19 ND ND ND 2.4 37.0 0.023 240 94 35 ND 08/26/93 5.0 ND 38 2.5 46 ND ND 110 11/11/93 ND 190 1.6 46 < 0.10 < 0.02 02/07/94 NA 270 4 120 1 6.6 1 < 0.50 38 250 NA NA ND 2800 510 50 10 170 19 OKUS-W6 01/15/93 OKUS-W5 140 ND ND ND ND ND ND ND ND ND OKUS-W1 OKUS-W6 05/12/93 ND ND ND 2.4 25 0.012 ND 0.21 APL/UP-W1 QA/QC-1 07/16/93 12 22.4 4500 100 5000 0.1 ND 78 OKUS-W4 OKUS-W9 08/26/93 NĐ 2700 6200 340 ND 2.4 ND 1300 120 1.3 ND 4 1.4 6.7 OKUS-W8 OKUS-WB 11/11/93 6100 0.12 0.12 2900 15000 280 64 5800 < 0.50 QA/QC-1 02/06/94 NA OKUS-W3 ND ND NA NA NA ND ND NĐ **UPMF** OAK-FB 1 07/16/93 NA ND NA NA NA ND ND ND ND NA **UPMF** OAK-TB 2 07/16/93 NA ND ND ND ND ND NA NA NA **UPMF** TB-1 08/27/93 NA NA ND ND NA NA ND ND ND NA TB-2 08/27/93 NA NA UPMF

NA

UPMF

TB-1

11/12/93

NA

NA

ND

ND

ND

ND

ND

NA

NA

All of the above described analytical results are summarized in Table 1 and included in Appendix A.

2.1.3 Analytical Results of Non-Aqueous Phase Liquid

On February 8, 1994, a sample of product was collected from recovery well RW and analyzed for volatile organics using EPA Method 8260, poly-chlorinated biphenyls (PCB's) using EPA Method 8080, total metals using EPA Method 6010 and 7471, and specific gravity using Method SM 2710-F. Analytical results for analysis that had results above the detection limits are presented in Table 2. The specific gravity of the product sample is estimated to be 0.89 grams per cubic centimeter. PCBs were not detected in the sample. A sample of the non-aqueous phase liquid that was observed in monitoring well OKUS-W6 was collected and analyzed for a finger print characterization. The results indicate the sample could be weathered crude oil or Bunker C. Analytical reports are included in Appendix A.

2.1.4 Groundwater Gradient

Static water levels measured in February 1994 were used to produce the groundwater elevation map presented as Figure 4. The groundwater gradient beneath the site slopes toward the Oakland Estuary at approximately 0.6 %. The gradient data is consistent with past results and is presented in Table 3. Well stabilization and sampling reports are located in Appendix B.

3. SUMMARY AND CONCLUSIONS

The following subsections present a summary of the nature and extent of the hydrocarbon contamination, and conclusions drawn from the data recovered from the investigation.

3.1 NATURE AND EXTENT OF CONTAMINATION

The analytical results from the 1993 site assessments and groundwater monitoring program indicate a dissolved plume of BTEX and TPH/G which is not limited to the immediate area surrounding the UPMF facility. Other contaminants not clearly associated with the UST system were also detected in groundwater beneath the site. The downgradient lateral extent of groundwater impacted either by hydrocarbons or other contaminants has not yet been defined.

3.2 CONCLUSIONS

TPH/G and BTEX were detected in groundwater samples from wells in the vicinity of the truck repair shop/UST system as well as up and downgradient from the former UST system. TPH/G concentrations in groundwater samples were as high as 17,000 ug/L.

The concentrations of dissolved arsenic exceeded the MDL of 0.050 mg/L in groundwater samples from two of ten wells.



Table 2

Analytical Results, Product From Recovery Well RW
Union Pacific Railroad Motor Freight Facility
Oakland, California
USPCI Project No. 96120-844

Analyte	Sample Results
nylbenzene phthalene Propylbenzene luene 2,4-Trimethylbenzene 3,5-Trimethylbenzene	ug/Kg
	29/119
N-Butylbenzene	5,900
Ethylbenzene	4,700
Naphthalene	7,900
n-Propylbenzene	3,100
Toluene	21,000
1,2,4-Trimethylbenzene	27,000
1,3,5-Trimethylbenzene	8,000
Total Xylenes	28,000

Analyte	Sample Results mg/Kg
Barium	29
Cadmium	1.6
Chromium	3.9
Lead	77
Mercury	0.016
Silver	0.58

NOTES 1) The sample was also analyzed for pesticides and PCBs. Pesticides and PCBs were not detected.

- 2) This table lists only the compounds which were detected. Other organic compounds and metals were analyzed for, but were not detected.
- 3) ug/Kg = micrograms per kilogram
- 4) mg/Kg = miligrams per kilogram

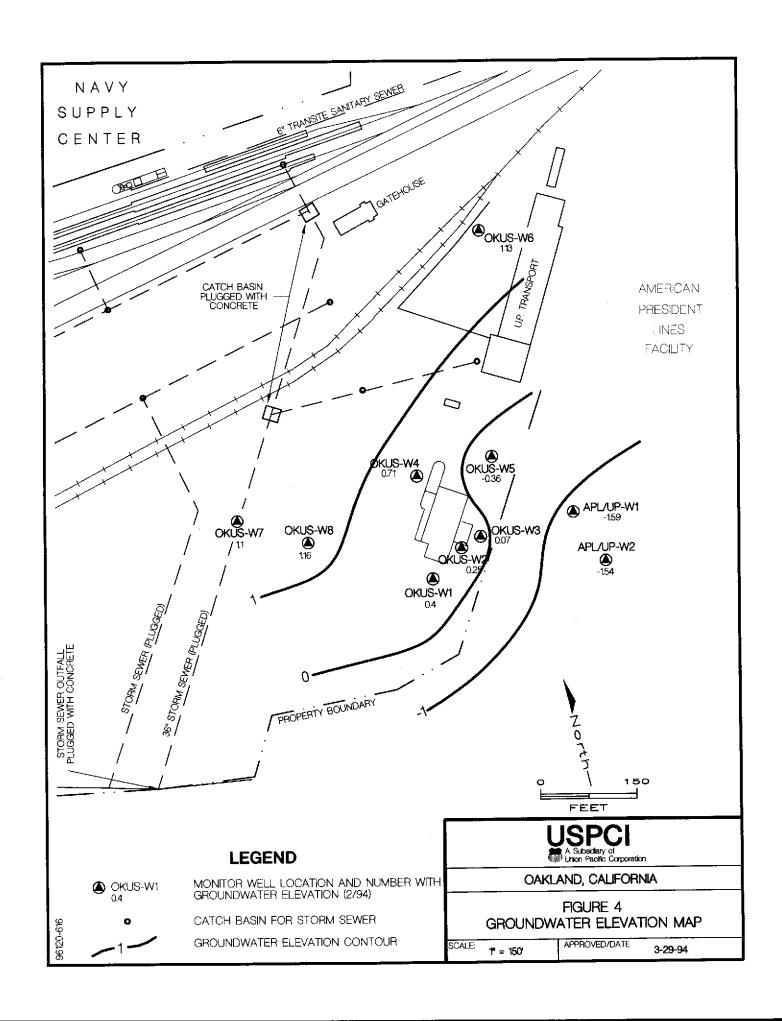


TABLE 3
CUMULATIVE FLUID LEVEL MEASUREMENT DATA
UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY
OAKLAND, CALIFORNIA
USPCI PROJECT NO. 96120-844

WELL	ELEV.*	DATE	DEPTH TO	PRODUCT	PRODUCT	DEPTH TO	WATER ELEV.	WATER ELEV.
NO.	TOC		PRODUCT	ELEVATION	THICKNESS	S WATER	(UNCORRECTED)	(CORRECTED)
								
OKUS-W1	9.17	01/14/93	N/A	N/A	NP	8.42	0.75	0.75
	9.17	01/15/93	N/A	N/A	NP	8,45	0.72	0.72
	9.17	02/18/93	N/A	N/A	NP	7.79	1.38	1.38
	9.17	05/12/93	N/A	N/A	NP	8.04	1.13	1.13
	9.17	08/25/93	N/A	N/A	NP	8.61	0.56	0.56
	9.17	11/11/93	N/A	N/A	NP	9.24	-0.07	-0.07
	9.17	02/08/94	N/A	N/A	NP	8.47	0.40	0.40
OKUS-W2	9.71	01/14/93	N/A	N/A	NP	9.08	0.63	0.63
UNU3-112	9.71	01/15/93	N/A	N/A	NP	9.12	0.59	0.59
	9.71	02/18/93	N/A	N/A	NP	8.70	1.01	1.01
	9.71	05/12/93	N/A	N/A	NP	9.04	0.67	0.67
	9.71	08/25/93	N/A	N/A	NP	9.61	0.10	0.10
	9.71	11/11/93	N/A	N/A	NP	10.20	-0.49	-0.49
	9.71	02/08/94	N/A	N/A	NP	9.46	0.25	0.25
OKUS-W3	9.8	01/14/93	N/A	N/A	NP	9.39	0.41	0.41
OKOS-115	9.8	01/15/93	N/A	N/A	NP	9.33	0.47	0.47
	9.8	02/18/93	N/A	N/A	NP	8.85	0.95	0.95
	9.8	05/12/93	N/A	N/A	NP	9.23	0.57	0.54
	9.8	08/25/93	N/A	N/A	NP	9.82	-0.02	-0.02
	9.8	11/11/93	N/A	N/A	NP	10.30	-0.50	-0.50
	9.8	02/08/94	N/A	N/A	NP	9.73	0.07	0.07
OKUS-W4	7.35	01/14/93	N/A	N/A	NP	6.43	0.92	0.92
OKUS=W4	7.35 7.35	01/15/93	N/A	N/A	NP	6.44	0.91	0.91
	7.35 7.35	01/15/93	N/A	N/A	NP	5,77	1.58	1.58
1	7.35	05/12/93	6.39	•	•	.01 6.40	0.95	0.96
	7.35 7.35	08/25/93	N/A	N/A	NP	6.63	0.72	0.72
	7.35	11/11/93	N/A	N/A	N/A	7.10	0.25	0.25
	7.35	02/07/94	N/A	N/A	NP	6.64	0.71	0.71
	7.33	02/01/94	INA	11/7	171	3.04		<u> </u>

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

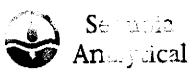
N/A Non Applicable NP - No Product

TABLE 3 cont. CUMULATIVE FLUID LEVEL MEASUREMENT DATA UNION PACIFIC RAILROAD MOTOR FREIGHT FACILITY OAKLAND, CALIFORNIA USPCI PROJECT NO. 96120-844

WELL	ELEV.*	DATE	DEPTH TO	PRODUCT	PRODUCT	DEPTH TO	WATER ELEV.	WATER ELEV.
NO.	TOC	·	PRODUCT	ELEVATION	THICKNESS	WATER	(UNCORRECTED)	(CORRECTED)
		04144100		NIA	NP	9.13	0.12	0.12
OKUS-W5	9.25	01/14/93	N/A	N/A		9.15	0.10	0.10
	9.25	01/15/93	N/A	N/A	NP		0.40	0.40
	9.25	02/18/93	N/A	N/A	NP	8.85	0.40	0.40
	9.25	05/12/93	9.18	0.07	0.02	9.20	0.05	0.16
	9.25	08/25/93	8.82	0.43	0.02	8.84		-0.80
	9.25	11/11/93	N/A	N/A	NP	10.15	-0.80	
	9.25	02/07/94	N/A	N/A	NP	9.61	-0.36	-0.36
OKUS-W6	7.02	07/16/93	N/A	N/A	NP	6,20	0.82	0.82
	7.02	08/25/93	N/A	N/A	NP	6.52	0.50	0.50
	7.02	11/12/93	N/A	N/A	NP	7.22	-0.20	-0.20
	7.02	02/07/94	5.89	N/A	0.01	5.90	1.12	1.13
0440 147	6.04	07/46/02	N/A	N/A	NP	5.72	1.19	1.19
OKUS-W7	6.91	07/16/93	N/A N/A	N/A	NP	5.94	0.97	0.97
	6.91	08/25/93	N/A	N/A	NP	6.50	0.39	0.39
	6.91	11/12/93		N/A	NP	5.81	1,10	1.10
	6.91	02/07/94	N/A	IN/A	INF	5.51	*****	,,,,
OKUS-W8	6.75	07/16/93	N/A	N/A	NP	5,56	1.19	1.19
ORGO WO	6.75	08/27/93	N/A	N/A	NP	5.88	0.87	0.87
	6.75	11/11/93	N/A	N/A	NP	6.43	0,33	0.33
	6.75	02/07/94	•	N/A	NP	5.59	1.16	1.16
4 D) (1 ID) 14/4	8.12	07/16/93	N/A	N/A	ΝP	10.02	-1.90	-1.90
APL/UP-W			-	N/A	NP	9.93	-1.81	-1.81
	8.12	08/26/93	•	N/A	NP	10.25	-2.13	-2.13
	8.12	11/11/93			NP	9.71	-1.59	-1.59
	8.12	02/07/94	N/A	N/A	INF	3.11	1.00	,,,
APL/UP-W	2 7.31	07/16/93		N/A	NP	9.38	-2.07	-2.07
-	7.31	08/26/93	N/A	N/A	NP	9,20	1.89	-1.89
	7.31	11/11/93	N/A	N/A	NP	9.65	-2.34	-2.3
	7.31	02/07/94		N/A	NP	8.85	-1.54	- 1.5

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

APPENDIX A ANALYTICAL REPORTS



680 Chessis & Drive 1900 Bate ue, Suite I 819 Striker ... :nue, Suite ≴ and City, CA 94063 . CA 94510 ಾರ, CA 95834

(415) 364-9600 (510) 686-9600 (916) 921-9600

115) 364-9233 -. (510) 686-9689 FAX (916) 921-0100

U.S.P.C.I.

24125 Aldine Westfield Spring, TX 77373 Attention: Chris Byerman Sample Matrix: Analysis Method:

First Sample #:

Client Project ID: #96120-844/⊔PRR MF Yard - Oakland Sampled:

Water

EPA 5030/8015/8020 311-1019

Received:

Nov 11, 1993 Nov 12, 1993

Reported: Dec 8, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample I.D. 311-1019 APL-W1	Sample I.D. 311-1020 APL-W2	Sample I.D. 311-1021 OKUS-W8	Sample I.D. 311-1022 OKUS-W9	Sample I.D. 311-1023 OKUS-W7	Sample I.D. 311-1024 OKUS-W6
Purgeable Hydrocarbons	50	560	110	190	120	N.D.	N.D.
Benzenê	0.5	26	5.0	3.5	1.3	N.D.	3.6
Toluene	0.5	N.D.	N.D.	1.3	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	220	38	46	4.0	N,D.	3.7
Total Xylenes	0.5	11	2.6	4.9	1.4	N.D.	1.3
Chromatogram Pat	tern:	Gasoline	Gásoline	Gasoline	Gasoline		••

Quality Control Data

Report Limit Multiplication Factor:	4.0	1.0		1.0	1.0	1.0	1.0
Date Analyzed:	11/19/93	11/19,	/93	11/19/93	11/19/93	11/18/93	11/19/93
Instrument Identification:	HP-4	нР⊿	4	HP-2	HP-2	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	94	91		114	106	90	96

Furgeable Hydroparbone are quantitated against a fresh gasoline standard. inglytes reported as N.D. were not detected above the stated reporting limit.

Please Note:

SEQUQIA ANALYTICAL

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Devisor	i Domeni .	A ING IT
Mayisec	Report :	4/20/6



(510) 686-9600 • FAX (510) 686-9689

U.S.P.C.I.

5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

Sample Matrix:

96120-844/UPMF Oakland

Water

Analysis Method: First Sample #:

EPA 5030/8015/8020

402-0431

Sampled:

Feb 7 & 8, 1994

Received: Reported: Feb 8, 1994 Feb 23, 1994

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample I. D. 402-0431 OKU5- W1	Sample I.D. 402-0432 OKU5-W2	Sample I.D. 402-0433 OKU5- W3	Sample I.D. 402-0434 OKU5- W4	Sample I.D. 402-0435 OKU5-W5	Sample I.D. 402-0436 OKU5-W7
Purgeable Hydrocarbons	50	N.D.	4,900	17,000	9,100	760	N.D.
Benzene	0.5	N.D.	150	420	250	54	0.70
Toluene	0.5	N.D.	29	78	N.D.	9.4	N.D.
Ethyl Benzene	0.5	N.D.	3,000	9,800	4,900	220	N.D.
Total Xylenes	0.5	N.D.	78	160	150	24	N.D.
Chromatogram Pa	ttern:		Gasoline	Gasoline	Gasoline	Gasoline	

Quality Control Data

Report Limit Multiplication Factor:	1.0	10	40	100	5.0	1.0
Date Analyzed:	2/16/94	2/16/94	2/16/94	2/16/94	2/16/94	2/16/94
Instrument Identification:	HP-4	HP-4	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	102	106	106	98	97	103

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.

Analytes reported as N.D. were not detected above the stated reporting limit.

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5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

Sample Matrix:

96120-844/UPMF Oakland

Water

Analysis Method: First Sample #:

EPA 5030/8015/8020

402-0437

Sampled: Feb 7 & 8, 1994

Received: Reported:

Feb 8, 1994 Feb 23, 1994

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample I.D. 402-0437 OKU5-W8	Sample I.D. 402-0438 APL- W1	Sample I.D. 402-0439 APL-W2	Sample I.D. 402-0440 QA/QC- 1	
Purgeable Hydrocarbons	50	120	620	120	15,000	
Benzene	0.5	0.90	25	6.6	280	
Toluene	0.5	N.D.	N.D.	N.D.	64	
Ethyl Benzene	0.5	N.D.	180	38	5,800	
Total Xylenes	0.5	N.D.	10	1.8	N.D.	
Chromatogram Pa	ttern:	Unidentified Hydrocarbons (<c6;>C10)</c6;>	Gasoline	Gasoline	Gasoline	
Quality Control D	ata	·		· .		

Report Limit Multiplication Factor:	1.0	4.0	1.0	100
Date Analyzed:	2/17/94	2/17/94	2/17/94	2/17/94
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	94	95	93	96

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

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5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

96120-844/UPMF Oakland

Sample Matrix:

Water

Analysis Method: EPA 5030/8020

First Sample #: 402-0441

Sampled:

Feb 8, 1994

Received: Reported:

Feb 8, 1994 Feb 23, 1994

BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample I.D. 402-0441 Field Blank	
Benzene	0.5	N.D.	
Toluene	0.5	N.D.	
Ethyl Benzene	0.5	N.D.	
Total Xylenes	0.5	N.D.	

Quality Control Data

Report Limit Multiplication Factor: 1.0

Date Analyzed: 2/17/94

Instrument Identification: HP-4

Surrogate Recovery, %: 95

(QC Limits = 70-130%)

Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL



5665 Flatiron Pkwy

Boulder, CO 80301

Client Project ID:

96120-844/UPMF Oakland

Sampled: Feb 7 & 8, 1994

Sample Matrix:

Water

Received:

Feb 8, 1994

Attention: Denton Mauldin

8880.80.088009883088888000008004109004

Analysis Method: First Sample #:

EPA 3510/3520/8015

Reported:

Feb 23, 1994

402-0431

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit $\mu \mathrm{g}/\mathrm{L}$	Sample I.D. 402-0431 OKU5-W1	Sample I.D. 402-0432 OKU5-W2	Sample I.D. 402-0433 OKU5-W3	Sample I.D. 402-0434 OKU5-W4	Sample I.D. 402-0435 OKU5-W5	Sample I.D. 402-0436 OKU5-W7
Extractable Hydrocarbons	50	92	2,300	4,400	2,700	1,900	1,100
Chromatogram Pa	ttern:	Diesel & Unidentified Hydrocarbons (> C20)		•	•	Diesel & Unidentified Hydrocarbons (<c14;>C20)</c14;>	Diesel & Unidentified Hydrocarbons (>C20)

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	10	1.0	1.0	1.0
Date Extracted:	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94	2/11/94
Date Analyzed:	2/18/94	2/18/94	2/18/94	2/18/94	2/18/94	2/18/94
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.

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5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID: 96120-844/UPMF Oakland

Sample Matrix:

Water

Sampled: Received:

Feb 7 & 8, 1994 Feb 8, 1994:

Analysis Method:

EPA 3510/3520/8015

Reported:

Feb 23, 1994

First Sample #: 402-0437

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit μg/L	Sample 1.D. 402-0437 OKU5-W8	Sample I.D. 402-0438 APL- W1	Sample I.D. 402-0439 APL-W2	Sample I.D. 402-0440 QA/QC- 1	
Extractable Hydrocarbons	50	1,000	660	270	2,900	
Chromatogram Pa	attern:	Diesel & Unidentified Hydrocarbons (>C20)	•	-	Diesel & Unidentified Hydrocarbons (<c14;>C20)</c14;>	

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	2/11/94	2/11/94	2/11/94	2/11/94
Date Analyzed:	2/18/94	2/18/94	2/18/94	2/18/94
Instrument Identification:	HP-3B	НР-3В	НР-ЗВ	HP-3B

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

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U.S.P.C.I.

5665 Flatiron Pkwy Boulder, CO 80301 Attention: Denton Mauldin Client Project ID:

96120-844/UPMF Oakland

Sample Descript: Wa Analysis for: AR: First Sample #: 402

Water ARSENIC 402-0431 Sampled: Feb 7 & 8, 1994

Received: Feb 8, 1994 Extracted: Feb 16, 1994 Analyzed: Feb 18, 1994

Reported: Feb 23, 1994

LABORATORY ANALYSIS FOR:

ARSENIC

	2.20		••••	
Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L	
402-0431	OKU5-W1	0.10	N.D.	
402-0432	OKU5-W2	0.10	N.D.	
402-0433	OKU5-W3	0.10	0.12	
402-0434	OKU5-W4	0.10	N.D.	
402-0435	OKU5-W5	0.10	0.55	
402-0436	OKU5-W7	0.10	N.D.	
402-0437	OKU5-W8	0.10	N.D.	
402-0438	APL -W1	0.10	N.D.	
402-0439	APL-W2	0.10	N.D.	
402-0440	QA-QC-1	0.10	0.12	

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

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U.S.P.C.I.

5665 Flatiron Pkwy Boulder, CO 80301 Attention: Denton Mauldin

Client Project ID:

96120-844/UPMF Oakland

Sample Descript: Analysis for: First Sample #:

Water LEAD 402-0431

Sampled: Feb 7 & 8, 1994

Received: Feb 8, 1994 Feb 16, 1994 Extracted: Feb 18, 1994

Analyzed: Reported: Feb 23, 1994

LABORATORY ANALYSIS FOR:

LEAD

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L
402-0431	OKU5-W1	0.020	N.D.
402-0432	OKU5-W2	0.020	N.D.
402-0433	OKU5-W3	0.020	N.D.
402-0434	OKU5-W4	0.020	N.D.
402-0435	OKU5-W5	0.020	N.D.
402-0436	OKU5-W7	0.020	N.D.
402-0437	OKU5-W8	0.020	N.D.
402-0438	APL -W1	0.020	N.D.
402-0439	APL-W2	0.020	N.D.
402-0440	QA-QC-1	0.020	0.12

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

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U.S.P.C.I. 5665 Flatiron Pkwy

Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

Lab Number:

96120-844/UPMF Oakland

Oil, RW-1 Sample Descript:

402-0442

Sampled: Received: Feb 8, 1994 Feb 8, 1994

Extracted: Feb 14-15, 1994 Analyzed: Feb 14-16, 1994

Reported:

Feb 23, 1994.

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg		Sample Results mg/kg
Arsenic	5.0	***************************************	N.D.
Barium	0.50	********************	. 29
Cadmium	0.50	**************	1.6
Chromium	0.50		. 3.9
Lead	1.0	************************	. 77
Mercury	and the first of the control of the	**************************	. 0.016
Selenium	5.0		N.D.
Silver	0.50	*******************************	0.58

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

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

Attention: Denton Mauldin

Client Project ID:

96120-844/UPMF Oakland

Sample Descript: O

Analysis for: Specific Gravity First Sample #: 402-0442

Sampled:

Feb 8, 1994

Received: Feb 8, 1994 Extracted: Feb 22, 1994 Analyzed: Feb 22, 1994

Reported: Feb 23, 1994

LABORATORY ANALYSIS FOR:

Specific Gravity

Sample Number	Sample Description	Detection Limit	Sample Result g/cm3
402-0442	RW-1	N/A	0.89

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

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U.S.P.C.I.

5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

96120-844/UPMF Oakland

Sample Descript: Oil, RW-1 Analysis Method:

Lab Number:

EPA 8260 402-0442

Sampled: Received: Feb 8, 1994 Feb 8, 1994

Analyzed: Reported:

Feb 15, 1994 Feb 23, 1994

VOLATILE ORGANICS by GC/MS (EPA 8260)

Analyte	Detection Limit µg/Kg		Sample Results µg/Kg
Benzene	2,500		N.D.
Bromobenzene	2,500	***************************************	N.D.
Bromochloromethane	2,500		N.D.
Bromodichloromethane	2,500		N.D.
Bromoform	2,500	4	N.D.
Bromomethane	2,500		N.D.
N-Butylbenzene.	2,500	***************	5,900
sec-Butylbenzene	2,500		N.D.
tert-Butylbenzene	2,500		N.D.
Carbon tetrachloride	2,500	***************************************	N.D.
Chloroethane	2,500	***************************************	N.D.
Chloroform	2,500	***************************************	N.D.
Chloromethane	2,500		N.D.
2-Chlorotoluene	2,500		N.D.
4-Chlorotoluene	2,500		N.D.
Dibromochloromethane	2,500		N.D.
1,2-Dibromo-3-chloropropane	2,500		N.D.
Dibromoethane	2,500		N.D.
Dibromomethane	2,500		N.D.
1,2-Dichlorobenzene	2,500		N.D.
1,3-Dichlorobenzene			N.D.
1,4-Dichlorobenzene			N.D.
Dichlorodifluoromethane	2,500		N.D.
1,1-Dichloroethane	2,500		N.D.
1,2-Dichloroethane	2,500		N.D.
1,1-Dichloroethene	2,500		N.D.
Total 1,2-Dichloroethene	2,500		N.D.
Monochlorobenzene	2,500	***************************************	N.D.
1,2-Dichloropropane	2,500	***************************************	N.D.
1,3-Dichloropropane	2,500		
2,2-Dichloropropane	2,500		N.D.
1,1-Dichloropropene			N.D.
Ethylbenzene	2,500	******************	
Hexachlorobutadiene	2,500	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Isopropylbenzene		***************************************	
p-lsopropyltoluene		***************************************	M.D.
Methylene chloride	. 2,500	***************************************	, N.D.



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

Client Project ID:
Pkwy Sample Descript:
80301 Analysis Method:

Lab Number:

96120-844/UPMF Oakland Oil, RW-1

Oil, RW-1 EPA 8260 402-0442 Sampled: Received: Feb 8, 1994 Feb 8, 1994

Analyzed: Feb Reported: Feb

Feb 15, 1994 Feb 23, 1994

VOLATILE ORGANICS by GC/MS (EPA 8260)

Analyte	Detection Limit µg/Kg		Sample Results µg/Kg
Naphthalene	2,500		7,900
n-Propylbenzene	2,500	**************************	3,100
Styrene	2,500		N.D.
1,1,1,2-Tetrachloroethane	2,500		N.D.
1,1,2,2-Tetrachloroethane	2,500	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Tetrachloroethene	2,500		N.D.
Toluene	2,500		. 21,000
1,2,3 Trichlorobenzene	2,500		N.D.
1,2,4 Trichlorobenzene	2,500		N.D.
1,1,1-Trichloroethane	2,500		N.D.
1,1,2-Trichloroethane.	2,500		N.D.
Trichloroethene	2,500	***************************************	N.D.
Trichlorofluoromethane	2,500	492449342274274274274274474474474474	N.D.
1,2,3-Trichloropropane	2,500	***************************************	N.D
1,2,4-Trimethylbenzene	2,500		. 27,000
1,3,5-Trimethylbenzene			. 8,000
Vinyl chloride.	2,500		N.D.
Total Xylenes	2,500		. 28,000

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL

Karen L. Enstrom Project Manager

Page 2 of 2



SEQUOIA ANALYTICA

1900 Bates Avenue • Suite LM • Concord, California 94520 (510) 686-9600 • FAX (510) 686-9689 Client Project ID:

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

Attention: Denton Mauldin

Lab Number:

96120-844/UPMF Oakland

Sample Descript: Oil, RW-1 Analysis Method: EPA 8080

402-0442

Sampled:

Feb 8, 1994

Feb 8, 1994 Received: Feb 14, 1994 Extracted:

Analyzed: Feb 18, 1994 Feb 23, 1994 Reported:

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit µg/kg		Sample Results µg/kg
Aldrin	20		, N.D.
alpha-BHC		<pre><pre><pre></pre></pre></pre>	N.D.
beta-BHC		***************************************	N.D.
delta-BHC			N.D.
gamma-BHC (Lindane)			N.D.
Chlordane		***************************************	N.D.
4.4'-DDD.		4404498778874874874874874874874874874874	N.D.
4,4'-DDE			N.D.
4,4'-DDT			N.D.
Dieldrin		_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	N.D.
Endosulfan I			N.D.
Endosulfan II		***************************************	N.D.
Endosulfan sulfate	. 120	,	N.D.
Endrin	40	***************************************	N.D.
Endrin aldehyde		4934493445445577777777777777777777777777	N.D.
Heptachlor		44554444444444444444444444444444	N.D.
Heptachlor expoxide		************************	N.D.
Methoxychlor		******************************	N.D.
Toxaphene		***************************************	N.D.
PCB-1016		***************************************	N.D.
PCB-1221		[445]545,	N.D.
PCB-1232		***************************************	N.D.
PCB-1242	. 400		N.D.
PCB-1248		494449414933411333333333333333333333333	N.D.
PCB-1254			N.D.
PCB-1260			N.D.

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

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U.S.P.C.I.

5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

oject ID: 96120-844/UPMF Oakland

Matrix: Liquid

QC Sample Group: 4020431-441

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	
Method: Analyst:	EPA 8020 A.T.	EPA 8020 A.T.	EPA 8020 A.T.	EPA 8020 A.T.	EPA 8015 Mod K.W.	
MS/MSD Batch#:	B LK021894	BLK021894	BLK021894	BLK021894	BLK021194	
Date Prepared: Date Analyzed: Instrument I.D.#: Conc. Spiked:	2/18/94 2/18/94 HP-2 20 µg/L	2/18/94 2/18/94 HP-2 20 µg/L	2/18/94 2/18/94 HP-2 20 µg/L	2/18/94 2/18/94 HP-2 60 µg/L	2/11/94 2/18/94 HP-3A 300 µg/L	
Matrix Spike % Recovery:	100	100	100	100	109	
Matrix Spike Duplicate % Recovery:	100	100	100	103	94	
Relative % Difference:	0.0	0.0	0.0	2.9	15.4	

LCS Batch#:	1LCS021894	1LCS021894	1LCS021894	1LCS021894	BLK021194		
Date Prepared:	2/18/94	2/18/94	2/18/94	2/18/94	2/11/94		
Date Analyzed:	2/18/94	2/18/94	2/18/94	2/18/94	2/17/94		
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A		
LCS %							
Recovery:	97	96	96	98	109		
% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122		
Como Emilio.	7.100	72 120					

SEQUOIA ANALYTICAL

Karen L. Enstrom Project Manager Please Note:

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



.....

Client Project ID:

96120-844/UPMF Oakland

5665 Flatiron Pkwy

Boulder, CO 80301

Attention: Denton Mauldin

Matrix: Liquid

QC Sample Group: 4020431-441

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl	Xylenes	
			Benzene		
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	
Analyst:	J.F./A.T.	J.F./A.T.	J.F./A.T.	J.F./A.T.	
MS/MSD					
Batch#:	4020572	4020572	4020572	4020572	
Date Prepared:	2/17/94	2/17/94	2/17/94	2/17/94	
Date Analyzed:	2/17/94	2/17/94	2/17/94	2/17/94	
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	
Conc. Spiked:	20 µg/L	20 μg/L	$20\mu\mathrm{g/L}$	60 μg/L	
Matrix Spike					
% Recovery:	95	90	100	93	
Matrix Spike Duplicate %					
Recovery:	9 5	95	100	93	
Relative %					
Difference:	0.0	5.4	0.0	0.0	

LCS Batch#:	2LCS021794	2LCS021794	2LCS021794	2LCS021794		
Date Prepared:	2/17/94	2/17/94	2/17/94	2/17/94		
Date Analyzed: Instrument I.D.#:	2/17/94 HP-4	2/17/94 HP-4	2/17/94 HP-4	2/17/94 HP-4		
LCS % Recovery:	84	86	87	88		
% Recovery Control Limits:	71-133	72-128	72-130	71-120	 	

SEQUOIA ANALYTICAL

Karen L. Enstrom Project Manager Please Note:

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SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520 (510) 686-9600 • FAX (510) 686-9689

U.S.P.C.I.

5665 Flatiron Pkwy Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

96120-844/UPMF Oakland

Oil Matrix:

QC Sample Group: 402-0442

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Cadmium	Chromium	Lead	Copper	Silver	Mercury	-
Method:	EPA 6010	EPA 7471					
Analyst:	K.A.	K.A.	K.A.	K.A.	K.A.	K.V.S.	
MS/MSD			•				
Batch#:	4020648	4020648	4020648	4020648	4020648	4011259	
Date Prepared:	2/15/94	2/15/94	2/15/94	2/15/94	2/15/94	2/14/94	
Date Analyzed:	2/16/94	2/16/94	2/16/94	2/16/94	2/16/94	2/14/94	
nstrument l.D.#:	Liberty 100	SpectrAA-20/					
						VGA-76	
Conc. Spiked:	50 mg/Kg	0.10 mg/Kg					
Matrix Spike							
% Recovery:	89	96	89	82	80	108	
Matrix Spike			•				
Duplicate %					•		
Recovery:	93	108	93	94	84	112	
Relative %							
Difference:	4.4	12	4.4	14	4.9	3.6	88002030

LCS Batch#:	BLK021594	BLK021594	BLK021594	BLK021594	BLK021594	BLK021494	
Date Prepared:	2/15/94	2/15/94	2/15/94	2/15/94	2/15/94	2/14/94	
Date Analyzed:	2/16/94	2/16/94	2/16/94	2/16/94	2/16/94	2/14/94	
nstrument l.D.#:	Liberty 100	SpectrAA-20/ VGA-76					
LCS %							
Recovery:	98	101	101	98	96	124	

75-125

SEQUOIA ANALYTICAL

Control Limits:

Karen L. Enstrom Project Manager

Please Note:

75-125

75-125

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75-125

75-125

75-125



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520 (510) 686-9600 • FAX (510) 686-9689

U.S.P.C.I.

5665 Flatiron Pkwy

Boulder, CO 80301

Attention: Denton Mauldin

Client Project ID:

96120-844/UPMF Oakland

Matrix:

Water

QC Sample Group: 4020431-441

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

Method: EPA 200.7 EPA 200.7 EPA 200.7
Anaiyst: J.D. J.D. J.D.
MS/MSD
Batch#: 4020439 4020439 4020439
5
Date Prepared : 2/16/94 2/16/94 2/16/94
Date Analyzed: 2/18/94 2/18/94 2/18/94
Instrument I.D.#: Liberty 100 Liberty 100 Liberty 100
Conc. Spiked: 1.0 mg/L 1.0 mg/L 1.0 mg/L
Matrix Spike
% Recovery: 118 106 7 3
Matrix Spike
Duplicate %
Recovery: 109 97 75
Relative %
Difference: 7.9 8.9 2.7

LCS Batch#:	BLK021694	BLK021694	B LK021694
Date Prepared:	2/16/94	2/16/94	2/16/94
Date Analyzed:	2/18/94	2/18/94	2/18/94
Instrument i.D.#:	Liberty 100	Liberty 100	Liberty 100
LCS %			
Recovery:	104	103	105

% Recovery					
Control Limits:	75-125	75-125	75-125		

SEQUOIA ANALYTICAL

Karen L. Enstrom Project Manager

Please Note:

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



5665 Flatiron Pkwy

Boulder, CO 80301

Client Project ID:

96120-844/UPMF Oakland

Oil

Attention: Denton Mauldin

QC Sample Group: 402-0442

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Dieldrin	Aldrin	Heptachlor	
Method: Analyst:	EPA 8080	EPA 8080	EPA 8080	
MS/MSD Batch#:	BLK021494	BLK021494	BLK021494	
Date Prepared: Date Analyzed: Instrument I.D.#: Conc. Spiked:	2/14/94 2/16/94 GC/PE-5 20 mg/Kg	2/14/94 2/16/94 GC/PE-5 20 mg/Kg	2/14/94 2/16/94 GC/PE-5 20 mg/Kg	
Matrix Spike % Recovery:	74	85	90	
Matrix Spike Duplicate % Recovery:	106	110	125	
Relative % Difference:	36	26	32	
LCS Batch#:			••	
Date Prepared: Date Analyzed:		 		
Instrument I.D.#:	••			
LCS % Recovery:	••			
% Recovery Control Limits:	36-146	42-122	34-111	

Please Note:

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SEQUOIA ANALYTICAL



U.S.P.C.I.

Client Project ID:

96120-844/UPMF Oakland

5665 Flatiron Pkwy

Matrix:

Boulder, CO 80301

Attention: Denton Mauldin

QC Sample Group: 402-0442

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

Oil

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chloro- benzene	
Method:	EPA 8260	EPA 8260	EPA 8260	EPA 8260	EPA 8260	
Analyst:	S.H.	S.H.	S.H	S.H.	S.H.	
MS/MSD						
Batch#:	940272702	940272702	940272702	940272702	940272702	
Date Prepared:	2/15/94	2/15/94	2/15/94	2/15/94	2/15/94	
Date Analyzed:	2/15/94	2/15/94	2/15/94	2/15/94	2/15/94	
Instrument I.D.#:	MS-F2	MS-F2	MS-F2	MS-F2	MS-F2	
Conc. Spiked:	2500 mg/Kg	2500 mg/Kg	2500 mg/Kg	2500 mg/Kg	2500 mg/Kg	
Matrix Spike						
% Recovery:	84	92	96	92	100	
Matrix Spike						
Duplicate %						
Recovery:	100	104	108	104	112	
Relative %						
Difference:	17	8.3	12	12	11	
LCS Batch#:	••			••		
Date Prepared:	•-					
Date Analyzed:						
Instrument I.D.#:		••		- -		
LCS %						
Recovery:		••				
% Recovery		71-157	37-151	47-150	37-160	<u> </u>

SEQUOIA ANALYTICAL

Karen L. Enstrom Project Manager Please Note:

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U.S.P.C.I.

Client Project ID:

5665 Flatiron Pkwy

Boulder, CO 80301

Attention: Denton Mauldin

96120-844/UPMF Oakland

Matrix:

QC Sample Group: 4020442

Reported:

Feb 23, 1994

QUALITY CONTROL DATA REPORT

ANALYTE

Specific Gravity

Method:

SM 2710-F

Analyst:

M.N.

Date Analyzed:

Feb 22, 1994

Sample #:

4020442

Sample

Concentration:

0.89

Sample

Duplicate

Concentration:

0.89

% RPD:

0.0

% RPD:

Control Limits:

0-30

SEQUOIA ANALYTICAL

Karen L. Enstrom Project Manager

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282 3008-B 16th Avenue West Seattle, WA 98119 FAX: (206) 283-5044

March 10, 1994

Mike Sulka, Project Manager Riedel Environmental Services, Inc. 4138 Lakeside Drive Richmond, CA 94806

Dear Mr. Sulka:

Enclosed are the results from the testing of material submitted on March 4, 1994 from Project 4117, UPRR UPMF, PO# 24266.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Singerely,

Bradley T. Benson

Chemist

BTB/sao

Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: March 10, 1994 Date Received: March 4, 1994

Project: 4117, UPRR UPMF, PO# 24266 Date Samples Extracted: March 4, 1994

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE
FOR FINGERPRINT CHARACTERIZATION
BY CAPILLARY GAS CHROMATOGRAPHY
USING A FLAME IONIZATION DETECTOR (FID)
AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID

OKUS-WG-OIL

GC Characterization

The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of weathered crude oil or Bunker C. The high boiling compounds appeared as an irregular pattern of peaks. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

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Sample ID	Lob ®	Date	lime	Matere	Preserv	6.0	P.S	146	30	30	38	83	P.O	o x	U	210	9.0	3,2	40			_		ź
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SPECIAL INSTRUCTIONS:	00 00	SAMP	E RECEIP	1	MULA	HED B	y (So	Pley's			REL	PIOUS	HED B	Yr:				REL	NOUS	HED BY	ė.			
SAMPLE 15	PRODUC	Total No. C	ontainers		(Styrature)	ig	re El		-72-11	II-nex	(54)	seture)		-	-		(thrue)	(S)p	where a b			-7.7	- (1	lter e)
NOT PRESERV	CV	lead Space		YN	(Signatura) ALIXE (Printed Har R)E0	1.	aL.	. 1174	Can	(Quie)	(Prin	ted Hor)		_		(00is)	(Point	ted flor	na)			én	lata)
		Rec'd Good		d Y M	(Cambonh)	- N	esci	5 1	A/C	v1./c	(Con	ne-ina)					-	(Car	φα-1)		=			
		Conforms to	Record	И Ч	RECEIVED	BY:		1			REC	EIVED	BY:		* + ***	-		REC	EIVEO	EY (Lo	borote			
COMMENTS:				1	- Q	1		-		/linux	ie	uture)		_	-		(Ilms		lay		2		95	2_ ine)
					(Shrubur)	nel -		c	3-M	(Dole)		led No	ne)				(Dofe)	0.1	plune) har led the	15	Kun	000	304	· 9
				- 1	(Printed Mar (Corregory)	FE	0-	EX		10000	1000	v=1)	100	_	_	_			ded the	L			-	
								-		_		-	_	_				_	-	-			-	

APPENDIX B

WELL STABILIZATION AND SAMPLING REPORTS

ICDCL B	Name of	UPMF Oakland I	acility Quarterly	Monitoring	USPCI Project Number:	96120-844
ISPCI Project			Comity Courtonly		Well No.	OKUS-W1
Aeasuring Poir		Top of casing		<u>, , , , , , , , , , , , , , , , , , , </u>	1	
Vell Depth: (E	Below MP):	22.05	Feet		Caralina Date:	2/8/94
Cesing diamete	er:	2	Inches		Sampling Date:	OKUS-W1
epth To Grou	ind Water (Below f	MP): 8.47	Feet		Sample ID No.	
Nethod Of We	Il Development			Time	: 0753	0.47
] Тар	[] Submersible f	ump	[] Inertia Pump		Riser Elevation (MP):	9.17 Feet
X) Bailer	[] Centrifugal Pu	ımp	[] Other	Top of Screen Elevation:	6.85	reet
ampling Colle	ction Method:			Sample Appearance:	turbid	
! Тар	[] Submersible f	Pump	[] Inertia Pump:	Odor:	modorate petroleum odo	<u> </u>
X] Bailer	Type:	[] Teflon	[] Stainless Steel	Sampling Problems (if an	y):	
	(X) HDPE Plastic		[] PVC	(X) Disposable		
Pump Intake C	r Bailer Set At:		Feet Below MP	Decontamination Perform	ned:	
Tubing Type (i		[SamulaCallastics	[] Well Developme	nt/Field Tests	Samples Collected:	BTEX,TPH/G, TPH/D,
Tubing Used f	or:	(12 ambieconection	1) Troil Dottolopine			As, and Pb
	1	T _			Cumulative Volume	Pumping Rate
		Temperature		Water Level	of Water	in
Time	pН	Corrected	Temperature	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minute
	(Units)	Conductance	(Centigrade)	(INEGIOS) U.VI Ft.)	(Gallons)	(GPM)
	 	(umho/cm)	20.5		2.5	
0756	7.4	1000	21.0		5.0	
0812 0822	7.1	1200	20.6		7.5	
U822 samples collec		1200				
PRUMIES CORE	CIEU EL 0049		<u> </u>			
						<u> </u>
						
		-		 		
						· · · · · · · · · · · · · · · · · · ·
				<u></u>		
				ol Discharge Bate -	GPM x 0.00223 #	cfs
At Least	3	Well Bare Volumes W	Vere Purged Before Sam	pi Discharge nate =	21 III V 2124222	
Comments:						

JSPCI Project	Name:	UPMF Oakland F	acility Quarterly	Monitoring	USPCI Project Number:	96120-844
Measuring Poi		Top of casing			Well No.	OKUS-W2
Vell Depth: (22.50	Feet			
Casing diamet		2	Inches		Sampling Date:	2/8/94
	und Water (Below I	MP); 9.46	Feet		Sample ID No.	OKUS-W2
•	luct (Below MP): N					·
	all Development			Time	: 0800	
] Tap	[] Submersible f	ump	[] Inertia Pump		Riser Elevation (MP):	9.71 Feet
X] Bailer	[] Centrifugal Pu	ımp	1 Other	Top of Screen Elevation:	7.05	reet
ampling Colle	ection Method:			Sample Appearance:	slightly turbid	
] Tap	[] Submersible F	ump	[] Inertia Pump:	Odor:	modorate petroleum ode	or
X] Bailer	Туре:	[] Teflon	[] Stainless Steel	Sampling Problems (if an	γ):	
	(X) HDPE Plastic	·	[] PVC	[X] Disposable		
ump Intake C	Or Bailer Set At:		Feet Below MP	Decontamination Perform	red:	
Tubing Type (
ubing Used f	<u> </u>	[SampleCollection	[] Well Developme	nt/Field Tests	Samples Collected:	BTEX.TPH/Q, TPH/D,
						As, and Po
· ·	1	Temperature	1		Cumulative Volume	Pumping Rate
Time	pH	Corrected	Temperature	Water Level	of Water	in
1 Hille	(Units)	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minut
	(55)	(umho/cm)			(Gallons)	(GPM)
0805	6.7	4100	17.0		2.0	ļ
0811	6.9	4300	17.5		4.0	
0820	6.7	4300	17.0		6.0	
samples collec	cted at 0855		ļ	 		<u> </u>
			<u> </u>	<u> </u>	<u> </u>	
	 	-				
· · · · · · · · · · · · · · · · · · ·		<u> </u>	<u> </u>			
		 	 			
	-					
						<u> </u>
						<u> </u>
						
						
			<u></u>	<u></u>		
				A Di shaara D Si	GPM x 0.00223 =	c1 s
At Least	3	Well Bore Volumes W	ere Purged Before Sam	pi Discharge Hate =	GT W X 0.00223 -	
Comments:						
				Witnessed By:	W. Freeman	

100015	Name at	UPMF Oakland I	acility Quarterly	Monitoring	USPCI Project Number:	96120-844
JSPCI Project			Some Court		Well No.	OKUS-W3
Measuring Poir		Top of casing	F 4	<u> </u>	-1	
Well Depth: (B	Below MP):	22.38	Feet		Sampling Date:	2/8/94
Casing diamete		2	Inches		Sampling Date:	OKUS-W3
•	ind Water (Below N		Feet		Sample ID NO.	QA/QC-1
	uct (Below MP): N	I/A			9: 0920	
Method Of We	il Development			111116	Riser Elevation (MP):	9.80
] Tap	[] Submersible F	Pump	[] Inertia Pump	T C		
X) Bailer	[] Centrifugal Pu	ımp	[] Other	Top of Screen Elevation:		
Sampling Colle	ction Method:			Sample Appearance:	turbid	
] Tap	[] Submersible f	Pump	[] Inertia Pump:	Odor:	modorate petroleum odo	or
X] Bailer	Type:	[] Teflon	[] Stainless Steel	Sampling Problems (if an	y):	<u> </u>
	[X] HDPE Plastic		[] PVC	(X) Disposable		
n lakiti n			Feet Below MP	Decontamination Perform	ned:	
	or Bailer Set At:		. 300 20.30			
Tubing Type (i				-+(Ciald Tosts	Samples Collected:	BTEX,TPH/Q, TPH/D,
Tubing Used fo	or:	[]SampleCollection	[] Well Developme	intriela Tests	Gompion Gomesta.	As, and Pb
<u>,</u>			T		T - 1/2 Y/1	T
		Temperature			Cumulative Volume	Pumping Rate
Time	pН	Corrected	Temperature	Water Level	of Water	Gallons/Minut
	(Units)	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	(GPM)
		(umho/cm)			(Gallons)	(GPW)
0922	6.7	3400	18.0		2.0	
0926	6.7	3500	18.5		4.0	
0932	6.7	3700	18.0		6.0	
samples collec	cted at 1018	ļ. <u> </u>		 		
						
		<u> </u>		 		
					 	+
		 			 	
						
			 			
						
	 					
	 					
		<u> </u>	-		 	
			<u> </u>	<u> </u>		
	_		/ B	al Discharge Rate =	GPM x 0.00223 =	cfs
At Least	3		/ere Purged Before Sam			
Comments:	Duplicate samp	les collected at this v	vell and labled UA/U	G-1.		
		 				
		0.0		Witnessed By:	W. Freeman	
Form Comple	ted By:	C. Byerman		Withough Dy.		

JSPCI Project	Nome:	UPMF Oakland F	acility Quarterly	Monitoring	USPCI Project Number:	96120-844
					Well No.	OKUS-W4
Aeasuring Poir		Top of casing	Feet		1	
Vell Depth: (E					Sampling Date:	2/7/94
asing diamete		2	Inches		Sample ID No.	OKUS-W4
•	nd Water (Below		Feet		,	
	uct (Below MP):	N/A		Time	: 1552	
	Il Development		[] Inertia Pump		Riser Elevation (MP):	7.35
] Tap	[] Submarsible		[] Other	Top of Screen Elevation:	6.08	Feet
X] Bailer	[] Centrifugal Po	ump	1100,00	Sample Appearance:	turbid	
Sampling Colle	ction Method:				strong petroleum odor	
] Tap	[] Submersible	Pump	[] Inertia Pump:	Odor:		
X) Bailer	Type:	[] Teflon	[] Stainless Steel	Sampling Problems (if an	у)	
	[X] HDPE Plastic	t	[] PVC	(X) Disposable		
Pump Intake C	r Bailer Set At:		Feet Below MP	Decontamination Perform	ned:	
Tubing Type (i						. <u></u>
		1 ISampleCollection	[] Well Developme	nt/Field Tests	Samples Collected:	BTEX,TPH/G. TPH/D.
Tubing Used f	or:	1 Togriffic Conection				As, and Po
 	т		Τ		Cumulative Volume	Pumping Rate
		Temperature		NAT and and	of Water	in
Time	рН	Corrected	Temperature	Water Level	Removed From Well	Gallons/Minute
	(Units)	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	(Gallons)	(GPM)
		(umho/cm)	40.5		2.5	
1610	7.4	3200	16.5		5.0	
1614	7.3	3200	16.0 16.5		7.5	
1619	7.3	3200	16.8			
samples colle	cted at 1625					
	_					
						
	- 					
-	 					
<u> </u>						
	1	_				
						
						<u> 1</u>
At Least	3	Well Bore Volumes W	ere Purged Before San	npl Discharge Rate =	GPM x 0.00223 =	cfs
Comments:						
			<u></u>			
Form Comple		C. Byerman		Witnessed By:	W. Freeman	

X) Bailer [Sampling Collection Tap [X] Bailer T	Wester (Below Model): Water (Below Model): Note that the second of the	ump mp ump	Feet Inches Feet [] Inertia Pump [] Other [] Inertia Pump: 1] Stainless Steel 1] PVC Feet Below MP	Time Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if and [X] Disposable Decontamination Perform		96120-844 OKUS-W5 2/7/94 OKUS-W5 9.25 Feet
Vell Depth: (Belo Casing diameter: Depth To Ground Depth To Product Method Of Well D Tap [] X] Bailer [] X] Bailer [] X] Bailer [] Cump Intake Or Bi Tubing Type (if Use	w MP): Water (Below M (Below MP): N evelopment Submersible P Centrifugal Pu on Method: Submersible P YPE: () HDPE Plastic	20.68 2 /P): 9.61 /A ump mp	Feet [] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if am [X] Disposable Decontamination Perform	Sampling Date: Sample ID No. : 1640 Riser Elevation (MP): 5.95 turbid petroleum odor ():	2/7/94 OKUS-W5 9.25
Casing diameter: Depth To Ground Depth To Product Method Of Well D Tap [X] Bailer [X] Bailer [X] Bailer [X] Bailer [X] Bailer [D Pump Intake Or Bi Tubing Type (if Us	Water (Below M) (Below MP): N evelopment Submersible P Centrifugal Pu on Method: Submersible P Ype: () HDPE Plastic eiler Set At:	2 AP): 9.61 A ump mp ump 1 Teflon	Feet [] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if am [X] Disposable Decontamination Perform	Sample ID No. : 1640 Riser Elevation (MP): 5.95 turbid petroleum odor ():	OKUS-W5
Depth To Ground Depth To Product Method Of Well D Tap [X] Bailer	(Below MP): Nevelopment Submersible P Centrifugal Puen Method: Submersible P Ype: HDPE Plastic	MP); 9.61 /A ump mp ump [] Teflon	[] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if am [X] Disposable Decontamination Perform	Sample ID No. : 1640 Riser Elevation (MP): 5.95 turbid petroleum odor ():	OKUS-W5
Depth To Product Method Of Well D Tep [X] Bailer Tap [X] Bailer [X] Bailer [D Pump Intake Or Bi Tubing Type (if Us Tubing Used for:	(Below MP): Nevelopment Submersible P Centrifugal Puen Method: Submersible P Ype: HDPE Plastic	ump mp ump 1 } Teflon	[] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if am [X] Disposable Decontamination Perform	: 1640 Riser Elevation (MP): 5.95 turbid petroleum odor	9.25
Depth To Product Method Of Well D Tep [X] Bailer Tap [X] Bailer [X] Bailer [D Pump Intake Or Bi Tubing Type (if Us Tubing Used for:	(Below MP): Nevelopment Submersible P Centrifugal Puen Method: Submersible P Ype: HDPE Plastic	ump mp ump 1 } Teflon	[] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if am [X] Disposable Decontamination Perform	Riser Elevation (MP): 5.95 turbid petroleum odor /):	
Method Of Well D Tap [X) Bailer [Tap [X] Bailer T X] Bailer T () Pump Intake Or Bi Tubing Type (if Us Tubing Used for:	evelopment Submersible P Centrifugal Pu on Method: Submersible P ype: HDPE Plastic	ump ump { } Teflon	[] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if am [X] Disposable Decontamination Perform	Riser Elevation (MP): 5.95 turbid petroleum odor /):	
Tap [] X] Bailer [] Sampling Collection I Tap [] X] Bailer T D Pump Intake Or Bit Tubing Type (if Used for:	Submersible P Centrifugal Pu on Method: Submersible P ype: HDPE Plastic ailer Set At:	ump { } Teflon	[] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Sample Appearance: Odor: Sampling Problems (if and [X] Disposable Decontamination Perform	5.95 turbid petroleum odor ():	
X) Bailer [] Sampling Collection Tap	Centrifugal Pu on Method: Submersible P ype: () HDPE Plastic ailer Set At:	ump { } Teflon	[] Inertia Pump: 1] Stainless Steel 1] PVC Feet Below MP	Sample Appearance: Odor: Sampling Problems (if and [X] Disposable Decontamination Perform	turbid petroleum odor /):	Feet
Exampling Collection I Tap [] X] Bailer Ty Pump Intake Or Br Tubing Type (if Used for:	on Method: Submersible P ype: () HDPE Plastic ailer Set At:	ump []Teflon	1 Stainless Steel 1 PVC Feet Below MP	Odor: Sampling Problems (if and [X] Disposable Decontamination Perform	petroleum odor ():	
Tap [X] Bailer T () Pump Intake Or Bi Tubing Type (if Us Tubing Used for:	Submersible P <u>ype:</u> () HDPE Plastic ailer Set At:	[] Teflon	1 Stainless Steel 1 PVC Feet Below MP	Sampling Problems (if and [X] Disposable Decontamination Perform	y):	
X) Bailer T () Pump Intake Or Br Tubing Type (if Us Tubing Used for:	ype: () HDPE Plastic ailer Set At:	[] Teflon	I I PVC Feet Below MP	[X] Disposable Decontamination Perform		
() Pump Intake Or Bi Tubing Type (if Us Tubing Used for:	() HDPE Plastic ailer Set At:		I I PVC Feet Below MP	[X] Disposable Decontamination Perform		
Pump Intake Or Br Tubing Type (if Us Tubing Used for:	ailer Set At:		Feet Below MP	Decontamination Perform	ed:	
Tubing Type (if Us Tubing Used for:		[]SampleCollection				
Tubing Used for:	sed):	[]SampleCollection	[] Well Developme			
		E Joannpie Conection	I TAGII MOADIONIIIG	nt/Field Tests	Samples Collected:	BTEX,TPH/G, TPH/D,
Time						As, and Pb
Time		T			Cumulative Volume	Pumping Rat
Time		Temperature	•	Water Level	of Water	in
	pН	Corrected	Temperature	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minu
	(Units)	Conductance (umho/cm)	(Centigrade)	(Nearest O.O.) FL-1	(Gallons)	(GPM)
1545	7.1	3500	18.0		2.0	
1645 1650	6.9	3500	18.5		4.0	
1658	7.0	3600	18.0		6.0	
samples collected		<u> </u>				
						<u> </u>
			†			
	<u> </u>					
		-				
		 	 	 		
At Least Comments:	3	Well Bore Volumes W.	ere Purged Before Sam	pl Discharge Rate =	GPM x 0.00223 =	cfs
						
					W. Freeman	

Veter (Below M Below MP): 5. Velopment Submersible Pur Centrifugal Pur Method: Submersible Pu	2 MP): 5.90 .90 ump mp	Feet Inches Feet [] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP			OKUS-W6 2/7/94 OKUS-W6 7.29 Feet
V MP): Vater (Below M Below MP): 5. velopment Submersible Pt Centrifugal Pur n Method: Submersible Pt pe: HDPE Pleatic	2 MP): 5.90 .90 ump mp	Inches Feet [] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if any	Sample ID No. : 1526 Riser Elevation (MP): 2.29 petroleum odor y):	7.29
Below MP): 5. velopment Submersible Pu Centrifugal Pur n Method: Submersible Pu pe: HDPE Plestic iler Set At:	1P): 5.90 .90 ump mp ump [] Teflon	[] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if any	Sample ID No. : 1526 Riser Elevation (MP): 2.29 petroleum odor y):	7.29
Below MP): 5. velopment Submersible Pu Centrifugal Pur n Method: Submersible Pu pe: HDPE Plestic iler Set At:	ump mp ump	[] Inertia Pump [] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if any	: 1526 Riser Elevation (MP): 2.29 petroleum odor y):	7.29
velopment Submersible Pu Centrifugal Pur n Method: Submersible Pu pe: HDPE Plestic	ump ump []Teflon	[] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if any	Riser Elevation (MP): 2.29 petroleum odor y):	
Submersible Purcentrifugal Purcentri	mp Ump	[] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Top of Screen Elevation: Sample Appearance: Odor: Sampling Problems (if any	Riser Elevation (MP): 2.29 petroleum odor y):	
Centrifugal Pur Method: Submersible Pu pe: HDPE Plestic iler Set At:	mp Ump	[] Other [] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Sample Appearance: Odor: Sampling Problems (if any [] Disposable	2.29 petroleum odor y):	
n Method: Submersible Pope: HDPE Plestic iler Set At:	ump []Teflon	[] Inertia Pump: [] Stainless Steel [] PVC Feet Below MP	Sample Appearance: Odor: Sampling Problems (if any [] Disposable	petroleum odor y):	Feet
Submersible Pope: HDPE Pleatic iler Set At:	[] Teflon	[] Stainless Steel [] PVC Feet Below MP	Odor: Sampling Problems (if any	y):	
pe: HDPE Plestic iler Set At:	[] Teflon	[] Stainless Steel [] PVC Feet Below MP	Sampling Problems (if and	y):	
HDPE Plestic		[] PVC Feet Below MP	[] Disposable		
iler Set At:		Feet Below MP		ed:	
<u> </u>	[]SampleCollection		Decontamination Perform	ed:	
ed):	[]SampleCollection	Li Wali Davidanesen			
	[]SampleCollection	[] Wall Davidson			
		[] Aven Davajohitjet	t/Field Tests	Samples Collected:	BTEX.TPH/G, TPH/D,
			T		As, and Pb
	Temperature			Cumulative Volume	Pumping Rate
ρН	Corrected	Temperature	Water Level	of Water	in
(Units)	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minute
	(umho/cm)			(Gallons)	(GPM)
				 	
		<u> </u>			
					
				<u></u>	
		<u> </u>			
3	Well Bore Volumes We	re Purged Before Samp	1 Discharge Rate =	GPM x 0.00223 =	cfs
	m product noted on t	he top and sides of t	the bailer when it was rem		···
ie water/oil into	erphase probe did not	t pick up the petrolet	ım product when the wate	r level was	
easured.	· · · · · · · · · · · · · · · · · · ·	<u> </u>		<u> </u>	
			Milana and Pro-	W 5	
	3 thick petroleuse water/oil int	Well Bore Volumes We thick petroleum product noted on the water/oil interphase probe did no easured.	(Units) Conductance (Centigrade) (umho/cm) Well Bore Volumes Were Purged Before Samp thick petroleum product noted on the top and sides of the water/oil interphase probe did not pick up the petroleum easured.	(Units) Conductance (Centigrade) (Nearest 0.01 Ft.) (umho/cm) (Nearest 0.01 Ft.) (umho/cm) (Nearest 0.01 Ft.) (umho/cm) (Nearest 0.01 Ft.)	{Unite} Conductance {Centigrade} (Nearest 0.01 Ft.) Removed From Well (Gallons) Conductance (umho/cm) (Gallons) (Gallon

l Project Na	me:	UPMF Oakland I	Facility Quarterly	Monitoring	USPCI Project Number:	96120-844
uring Point (Top of casing			Well No.	OKUS-W7
Depth: (Belo		20.50	Feet			
g diameter:		2	Inches		Sampling Date:	2/7/94
Depth To Ground Water (Below MP): 5.81			Feet		Sample ID No.	OKUS-W7
	(Below MP): N					
)evelopment			Time:	1440	· ···
p [] Submersible P	ump	[] Inertia Pump		Riser Elevation (MP):	7.4
ailer [] Centrifugal Pu	imp	[] Other	Top of Screen Elevation:	2.4	Feet
ling Collection	on Method:			Sample Appearance:	clear	
p [) Submersible F	ump	[] Inertia Pump:	Odor:	no odor	
	ype;	[] Teflon	[] Stainless Steel	Sampling Problems (if any	ሳ፡	
	X] HDPE Plastic		[] PVC	[X] Disposable		
	Sailer Set At:	· · · · · · · · · · · · · · · · · · ·	Feet Below MP	Decontamination Perform	ed:	
g Type (if U	sea):	(IC ample Callegation	(X) Well Developme	nt/Field Tests	Samples Collected:	BTEX,TPH/G, TPH/D.
g Used for:		[SampleCollection	(V) AABII DeABIODUK	SULVINIO Lesta	Bampios Gonocias:	As, and Pb
		T	I	T	A state Males	1
1		Temperature			Cumulative Volume	Pumping Rate
Time	pН	Corrected	Temperature	Water Level	of Water	in
	(Units)	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minute (GPM)
		(umho/cm)		<u> </u>	(Gallona)	(GPM)
1449	7.2	2900	18.0		2.5 5.0	
1453	6.9	3000	18.0		7.5	
1458	6.9	3100	18.0	 	7.0	
les collected	1 at 15 IU			-		
		<u> </u>	 			
			1			
		 				
				<u> </u>	<u> </u>	
					<u> </u>	
					 	
			<u> </u>	<u> </u>	1	<u> </u>
						-4-
ast	3	Well Bore Volumes W	ere Purged Before Sami	pl Discharge Rate =	GPM x 0.00223 =	cls
ments:		· · · · · · · · · · · · · · · · · · ·				
						· · · · · · · · · · · · · · · · · · ·
	<u>-</u> -					·····
				Milana and Davi	W France	
Completed	Ву:	C. Byerman		Witnessed By:	W. Freeman	

JSPCI Project	Nama:	UPMF Oakland	Facility Quarterly	Monitoring	USPCI Project Number:	96120-844
					Well No.	OKUS-W8
Measuring Poir		Top of casing	Feet		1	
Well Depth: (6		15.30			Sampling Date:	2/7/94
Casing diamete		2	Inches		Sample ID No.	OKUS-W8
- ·	ind Water (Below		Feet			
	uct (Below MP):	N/A		Time	: 1335	
	Development	S	[] Inertia Pump		Riser Elevation (MP):	7.11
] Tap X] Bailer	[] Submersible [] Centrifugal P		[] Other	Top of Screen Elevation:	2.11	Feet
		ump	() 0	Sample Appearance:	slightly turbid	
	ection Method:		() A	Odor:	very slight petroleum od	or
Tap	[] Submersible		[] Inertia Pump:			<u> </u>
X] Bailer	Type:	[] Teflon	[] Stainless Steel	Sampling Problems (if an	γι.	
	[X] HDPE Plasti	c	[] PVC	[X] Disposable		
omp intake C	or Bailer Set At:		Feet Below MP	Decontamination Perform	ned:	· · · · · · · · · · · · · · · · · · ·
Tubing Type (i	if Used):					
Tubing Used f	<u> </u>	[]SampleCollection	(X) Well Developme	ent/Field Tests	Samples Collected:	BTEX,TPH/Q, TPH/D,
		*				As, and Po
	<u> </u>	Temperature			Cumulative Volume	Pumping Rate
Time	рН	Corrected	Temperature	Water Level	of Water	in
11110	(Units)	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minute
	(5/11/6)	(umho/cm)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		(Gallons)	(GPM)
1340	6.9	4500	18.5		2.0	
1347	7.1	4600	18.5		4.0	
1352	6.9	4600	18.5		6.0	
samples colle						
	1					ļ
						ļ
						<u> </u>
				<u> </u>		
				 		
						
						
				<u> </u>		<u> </u>
						.a.
At Least	3	Well Bore Volumes \	Were Purged Before Sam	pl Discharge Rate =	GPM x 0.00223 =	
Comments:						
						. <u> </u>
		_				
				Witnessed By:	W. Freeman	

onol budget	llome:	UPME Oakland i	acility Quarterly	Monitoring	USPCI Project Number:	96120-844
SPCI Project !		Top of casing			Well No.	APL/UP-W1
easuring Poin		22,00	Feet			
eli Depth: (B			Inches		Sampling Date:	2/7/94
sing diamete		2	···		Sample ID No.	APL/UP-W1
-	nd Water (Below N		Feet		•	
	uct (Below MP): N	I/A		Time:	1740	
	Development Submersible F	Pump.	[] Inertia Pump		Riser Elevation (MP):	7.11
Tap X] Bailer	[] Centrifugal Pu		[] Other	Top of Screen Elevation:	2.11	Feet
	ction Method:	*		Sample Appearance:	clear	
	[] Submersible F	Pump	[] Inertia Pump:	Odor:	very slight petroleum od	or
Tap		[] Teflon	[] Stainless Steel	Sampling Problems (if any):	
() Bailer	Type:		[] PVC	[X] Disposable		
	[X] HDPE Plastic		Feet Below MP	Decontamination Performed:		
	r Bailer Set At:		Leef Dology (4)			
ubing Type (i			[X] Well Developm	ent/Field Tests	Samples Collected:	BTEX,TPH/G, TPH/D,
ubing Used f	or:	[SampleCollection	(V) AASH DAABIODUR	Onto total	T., T.	As, and Pb
		T	T		Cumulative Volume	Pumping Rate
		Temperature		Water Level	of Water	in
Time	pΗ	Corrected	Temperature (Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minute
	(Units)	Conductance (umho/cm)	(Centificace)	(140aros sistematical)	(Gallons)	(GPM)
1751	7.1	2500	15.0		1.5	
1751	7.0	2400	15.0		3.0	
1805	7.0	2400	16.0		4.5	
amples colle	cted at 1825					
			ļ			
		<u> </u>			 	
	_					
		 				
			 			
						
					-	
				 	 	
	<u></u>					
			_		GPM x 0.00223 =	cfs
At Least	3	Well Bore Volumes \	Were Purged Before San	npi Discharge nate =	VI III X 0.00000 -	
Comments:						
<u> </u>						
				Witnessed By:	W. Freeman	

CDCI Decises	Name:	UPMF Oakland F	acility Quarterly	Monitoring	USPCI Project Number:	96120-844	
USPCI Project Name: UPMF Oakland F. Measuring Point (MP) Top of casing				Well No.	APL/UP-W2		
		17.30	Feet				
Vell Depth: (E	· · · · · · · · · · · · · · · · · · ·		Inches		Sampling Date:	2/7/94	
asing diamete		40), 0.20			Sample ID No.	APL/UP-W2	
) e pth To Grou	ind Water (Below N	Ar): 9.2U	Feet			·	
Nethod Of We	II Development			Time:	1745	162	
] Тар	[] Submersible P	ump	[] Inertia Pump		Riser Elevation (MP):	7.62 Feet	
X] Bailer	[] Centrifugal Pu	mp	[] Other	Top of Screen Elevation:	2.62	Feet	
	ection Method:			Sample Appearance:	elightly turbid		
) Tap	[] Submersible F	Pump	[] Inertia Pump:	Odor:	very slight petroleum odor		
X] Bailer	Туре:	[] Teflon	[] Stainless Steel	Sampling Problems (if any	/):		
	[X] HDPE Plastic		[] PVC	[X] Disposable			
Pump Inteka C	or Bailer Set At:		Feet Below MP	Decontamination Perform	ed:		
Tubing Type (i				<u> </u>			
		I SampleCollection	[X] Well Developme	ent/Field Tests	Samples Collected:	BTEX.TPH/G, TPH/D,	
Tubing Used f	01.	() Sample Sales ()				As, and Po	
		Temperature			Cumulative Volume	Pumping Rate	
_			Temperature	Water Level	of Water	in	
Time	pH	Conductance	(Centigrade)	(Nearest 0.01 Ft.)	Removed From Well	Gallons/Minute	
	(Units)	Conductance (umho/cm)	(Centificate)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(Gallons)	(GPM)	
4355	7.5	2600	16.0		2.0		
1755 1757	7.6	2500	17.0		4.0	ļ	
1806	7.6	2300	18.0		6.0		
	cted at 1808					<u> </u>	
						 	
				<u> </u>		+	
			<u> </u>				
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			- 			<u> </u>	
At Least	3	Well Bore Volumes V	Vere Purged Before Sam	pl Discharge Rate =	GPM x 0.00223 =	cís	
Comments:				<u> </u>			
		<u> </u>					
		0.0		Witnessed By:	W. Freeman		
Form Comple	eted By:	C. Byermen		Milliossen DA:			