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QUARTERLY MONITORING REPORT
HYDROCARBON RECOVERY SYSTEM
UNION PACIFIC RAILROAD YARD
OAKLAND, CALIFORNIA
SECOND QUARTER, 1994

gw analyzed 5-94

Prepared for
Union Pacific Railroad
by

USPCI
Remedial Services
5665 Flatiron Parkway
Boulder, Colorado 80301
Project Number 96199
July 14, 1994

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File: Oakland, Ca.
Environmental

July 25, 1994

Mr. Safa Toma
East Bay Municipal Utility District
Source Control Division, Mail Slot 702
Post Office Box 24055
Oakland, Ca. 94623-1056

Dear Mr. Toma:

QUARTERLY REPORT for Groundwater Discharge Permit account number 502-51231, for Union Pacific Railroad's Hydrocarbon Recovery System in Oakland, Ca.

Attached is the Second Quarter 1994 "Quarterly Monitoring Report" for our Hydrocarbon Recovery System in Oakland.

If you have any questions on the report, please call me at (402) 271-4078.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true , accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Yours truly,

Harry P. Patterson, P.E.
Manager Environmental Site Remediation

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CONTENTS

1. INTRODUCTION

In accordance to the East Bay Municipal Utility District (EBMUD) permit number 502-51231, this report was prepared by USPCI to provide quarterly monitoring information pertaining to the hydrocarbon recovery and treatment system, and the groundwater monitoring wells located at the fueling area of the Union Pacific Railroad (UPRR) Oakland Trailer on Flat Car (TOFC) rail yard at 1717 Middle Harbor Road in Oakland, California. Background information about the site was presented in the report, "**Hydrocarbon Investigation and Remedial Design**", dated June 10, 1991. The results of the hydrocarbon investigation and a conceptual design of the hydrocarbon recovery and treatment system were also presented in the report. The system design was outlined in the, "**Preliminary Design Report**", dated September 5, 1991. As-built information for the groundwater recovery and treatment system has been presented in the "**Hydrocarbon Recovery System, As-Built Construction Report**", dated July 20, 1992. Any process changes in the hydrocarbon recovery and treatment system were presented in the letter from UPRR dated March 22, 1993, which represented the permit renewal document.

2. GROUNDWATER RECOVERY AND TREATMENT SYSTEM MONITORING

The recovery of floating non aqueous-phase liquid hydrocarbons as diesel (diesel) is accomplished by depressing the groundwater table with total fluids pumps and creating a cone of depression surrounding the recovery wells. The recovered groundwater is treated and discharged to the EBMUD sanitary sewer. The recovery and treatment system consists of three recovery wells, a diesel/water separator, a recovered diesel storage tank, and an activated carbon treatment system. The location of the three recovery wells and the water treatment facility are indicated on Figure 1.

2.1 SYSTEM OPERATION

During the operating period of May 3 to June 30, 1994, the groundwater recovery and treatment system treated approximately 94,000 gallons of groundwater. Since start-up on May 12, 1992 until June 30, 1994, the system has recovered approximately 4,900 gallons of diesel. Copies of the field log for the Hydrocarbon Recovery System have been included as Appendix A.

2.2 SYSTEM SAMPLING

On March 30, May 3, and June 1, 1994, water samples were collected from sampling ports located before, between, and after the granular activated carbon vessels. The samples were analyzed for total petroleum hydrocarbons as diesel (TPHd) using EPA method 8015 modified, and EPA method 8020

for benzene, toluene, ethylbenzene, and xylenes (BTEX). The water samples, collected from between the two granular activated carbon vessels, were used to monitor the breakthrough of organics on the first of two vessels. All analytical results are included as Appendix B.

2.3 ANALYTICAL RESULTS

Analytical results of BTEX and TPHd from the influent to the activated carbon system are indicated in Table 1. The EBMUD discharge limits for BTEX, as well as the analytical results from the sampling of the effluent from the water treatment system are listed in Table 2. A summary of the between carbon results has been included as Table 3.

2.3.1 INFLUENT WATER STREAM TO CARBON UNITS

Influent benzene concentrations of the water stream to the carbon units ranged from 0.0044 to 0.012 milligrams per liter (mg/L). Influent toluene concentrations ranged from below the detection limit of 0.0005 to 0.0018 mg/L. Ethylbenzene ranged from below the detection limit of 0.0005 to 0.0097 mg/L. Xylenes ranged from 0.0094 to 0.028 mg/L. Influent TPHd concentrations ranged from 2.7 to 67 mg/L.

2.3.2 EFFLUENT WATER STREAM FROM CARBON UNITS

Analytical results indicate that BTEX concentrations were below the method detection limit of 0.0005 mg/L for all the sampling events. All TPHd concentrations were below the method detection limit of 0.050 mg/L. The effluent was below the discharge limits in all cases. The discharge limits for BTEX are included in Table 2 with a summary of the analytical results. good

2.3.3 WATER STREAM BETWEEN CARBON UNITS

BTEX results ranged from below the method detection limit of 0.0005 to 0.0033 mg/L for xylenes in the sample collected on May 3, 1994. During the subsequent sampling event, all analytes indicated concentrations below the method detection limit of 0.0005 mg/L. The detection of ethylbenzene and xylenes during the May 3, 1994 sampling event may be due to the backwashing of the lead carbon vessel prior to sampling.

2.4 GRANULAR ACTIVATED CARBON USAGE

This section provides an estimate of carbon usage for the first or "lead" vessel. Two 2,000 pound granular activated carbon vessels are connected in series to remove organic compounds dissolved in the recovered groundwater. The second vessel prevents a release of water above the discharge limits once the first carbon vessel is loaded with organics or "breakthrough" occurs.

Table 4 presents the estimated amount of spent carbon (adsorption sites loaded with contaminants) and the expected life of the vessel. The estimate in Table 4 indicates that breakthrough should occur in December 1995. As discussed above, future sampling results will confirm the breakthrough of the lead vessel. Sample calculations, that are represented in Table 4, were presented with the **"Hydrocarbon Recovery System Quarterly Monitoring Report, Second Quarter, 1992".**

3. GROUNDWATER MONITORING

As requested by EBMUD, groundwater monitoring information has been included as part of the quarterly report. The water levels in the monitor wells and recovery wells were measured on January 24, 1994. Results of groundwater elevation measuring activities are presented in Table 5.

4. CONCLUSIONS

Water discharge from the Hydrocarbon Recovery System did not exceed the EBMUD discharge limits during the second quarter of 1994.

FIGURE

NAVY
SUPPLY
CENTER

WATER TREATMENT FACILITY

YARD OFFICE

OMW-1

6" TRANSITE SANITARY SEWER

EXIST. SUMP

EXIST. OIL/WATER SEPERATOR

EXIST. DISCHARGE

OMW-8

OMW-4

B-4

OMW-3

OMW-7

ORW-2

ORW-3

ORW-1

AIR COMPRESSOR BLDG

FUEL TANKS

B-7

B-8

OMW-9

B-1

PROPERTY BOUNDARY

OWM-10

B-9

CATCH BASIN PLUGGED WITH CONCRETE

GATEHOUSE

U.P. TRANSPORT

B-6

OMW-5

B-2

OMW-2

B-3

CROSSTIES LEFT OFF FOR CLARITY

TRUCK REPAIR SHOP

STORM SEWER

36" STORM SEWER

PROPERTY BOUNDARY

LEGEND

- RECOVERY WELL
- OMW-1 — MONITORING WELL LOCATION AND NUMBER
- B-1 — BORING LOCATION AND NUMBER
- MANHOLES FOR STORM SEWER

North

0 120

FEET

BY	DATE
DRAWN CJL	12-92
CHECKED	
APPROVED	
APPROVED	
APPROVED	

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UPRR TOFC RAILYARD - OAKLAND, CALIFORNIA

FIGURE 1
SITE MAP

SCALE 1" = 120'

DWG NO 96199-23

TABLES

TABLE 1

Analytical Results
Influent Water Stream to Carbon Units
Hydrocarbon Treatment System
Oakland TOFC

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
05/12/92	0.023	0.022	0.029	0.200	45
05/19/92	<0.002	0.007	0.003	0.064	59
05/27/92	<0.005	<0.005	0.006	0.059	61
06/02/92	<0.005	<0.005	<0.005	0.025	100
07/07/92	<0.005	<0.005	0.005	0.026	200
08/11/92	0.0091	<0.003	0.013	0.051	6.1
09/25/92	0.0085	<0.003	0.0055	0.024	17
11/16/92	<0.050	<0.050	<0.050	<0.050	100
12/04/92	0.0042	<0.001	<0.001	0.009	8.7
02/02/93	0.0083	<0.001	<0.001	0.0012	6.9
03/30/93	0.0095	0.0015	0.0087	0.030	44
04/30/93	0.0007	0.0012	0.001	0.0069	14
05/27/93	0.0054	0.019	0.0092	0.040	120
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009	1.2
07/28/93	0.014	0.0006	0.0054	0.025	2.2
08/31/93	0.012	0.0007	0.0041	0.023	3.2
09/30/93	0.011	0.0007	0.013	0.035	20
10/28/93	0.010	0.0006	0.0098	0.026	6.1
11/30/93	0.0092	<0.0005	0.0012	0.013	31
12/28/93	0.011	<0.0005	0.0041	0.016	10
01/31/94	<0.0005	<0.0005	<0.0005	<0.0005	3.3
02/25/94	0.013	0.0013	0.0077	0.021	9.3
03/30/94	0.012	<0.0005	0.0027	0.018	2.7
05/03/94	0.0044	0.0018	0.0097	0.028	67
06/01/94	0.0065	<0.0005	<0.0005	0.0094	3.5

TABLE 2

Analytical Results
Effluent Water Stream from Carbon Units
Hydrocarbon Treatment System
Oakland TOFC

Date Collected	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Total Petroleum Hydrocarbons as Diesel (mg/L)
EDMUD Discharge Limit*	0.005	0.005	0.005	0.005	N/A
05/12/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/19/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/27/92	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
06/02/92	<0.0005	<0.0005	<0.0005	<0.0005	0.12
07/07/92	<0.0005	<0.0005	<0.0005	0.0011	18
08/11/92	<0.0005	<0.0005	<0.0005	<0.0005	1.3
09/25/92	<0.001	<0.001	<0.001	0.0014	9.7
11/16/92	<0.0005	<0.0005	<0.0005	<0.0005	0.53
12/04/92	<0.0005	<0.0005	<0.0005	<0.0005	0.24
02/02/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
03/30/93	<0.0005	<0.0005	<0.0005	<0.0005	0.074
04/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
05/27/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
07/28/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.100
08/31/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
09/30/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
10/28/93	<0.0003	<0.0003	<0.0003	<0.0009	<0.050
11/30/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
12/28/93	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
01/31/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
02/25/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
03/30/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
05/03/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050
06/01/94	<0.0005	<0.0005	<0.0005	<0.0005	<0.050

* – Discharge limits updated on May 4, 1994.
N/A – Not Applicable

oak\tab2

TABLE 3

Analytical Results
Water Stream Between Carbon Units
Hydrocarbon Treatment System
Oakland TOFC

Date Collected	Benzene *(mg/L)*	Toluene *(mg/L)*	Ethylbenzene *(mg/L)*	Xylenes *(mg/L)*
08/11/92	<0.0005	<0.0005	<0.0005	<0.0005
09/14/92	<0.003	<0.003	<0.003	<0.003
11/06/92	<0.0005	<0.001	<0.0005	<0.0005
12/04/92	<0.003	<0.003	<0.003	<0.003
12/18/92	<0.005	<0.005	<0.005	<0.005
01/20/93	0.0012	0.0005	<0.0005	0.0015
02/02/93	0.00077	<0.0005	<0.0005	<0.0005
02/16/93	0.0043	<0.0005	0.0012	0.0038
03/30/93	<0.0005	<0.0005	<0.0005	<0.0005
04/22/93	<0.0005	<0.0005	<0.0005	<0.0005
04/30/93	<0.0003	<0.0003	<0.0003	<0.0009
05/27/93	<0.003	<0.003	<0.003	<0.009
06/14/93	0.0004	0.0004	0.0004	0.0023
06/30/93	<0.0003	<0.0003	<0.0003	<0.0009
07/13/93	0.0007	0.0004	<0.0003	<0.0009
07/28/93	<0.0003	<0.0003	<0.0003	<0.0009
08/31/93	<0.0003	<0.0003	<0.0003	<0.0009
09/30/93	<0.0003	<0.0003	<0.0003	<0.0009
10/28/93	<0.0003	<0.0003	<0.0003	<0.0009
11/30/93	0.0006	<0.0005	<0.0005	<0.0005
12/28/93	0.0017	<0.0005	<0.0005	0.0007
01/31/94	0.0001	<0.0005	<0.0005	0.0005
02/25/94	<0.0005	<0.0005	<0.0005	<0.0005
03/30/94	<0.0005	<0.0005	<0.0005	<0.0005
05/03/94	<0.0005	<0.0005	0.0013	0.0033
06/01/94	<0.0005	<0.0005	<0.0005	<0.0005

TABLE 4 (cont)

Hydrocarbon Treatment System
Granular Activated Carbon Usage
Oakland TOFC

Date	Time	Volume *(gallons)*	Periodic Flowrate *(gpm)*	Average Flowrate *(gpm)*	Influent Conc–TPH *(mg/l)*	Carbon Used *(pounds)*	Spent Carbon Estimate *(pounds)*	Remaining Pumpable *(gallons)*	Remaining Pumpable *(days)*	Projected Breakthru Date
05/07/92	11:35 PM	2020	1.74	1.74	45.00 *	7.57	7.57	531663	213	12/05/92
05/12/92	08:30 AM	12980	1.74	1.74	45.00	41.07	48.64	520703	208	12/05/92
05/19/92	01:30 PM	24990	1.16	1.55	59.00	49.68	98.32	387036	174	11/08/92
05/27/92	10:50 AM	45350	1.79	1.61	61.00	89.02	187.34	356823	154	10/28/92
06/02/92	03:00 PM	73150	3.13	1.91	100.00	143.54	330.87	200426	73	08/13/92
07/07/92	05:35 PM	166500	1.85	1.90	200.00	660.80	991.67	60539	22	07/29/92
08/11/92	11:56 AM	232370	1.32	1.32	6.10	0.00 +	0.00	1771651	935	03/04/95
09/25/92	09:55 AM	388390	2.41	1.86	17.00	333.49	333.49	529708	197	04/10/93
11/16/92	09:55 AM	484380	1.28	1.67	100.00	728.93	1062.42	50663	21	12/07/92
12/04/92	09:55 AM	518160	1.30	1.58	8.70	205.99	1268.40	454391	200	06/21/93
02/02/93	02:30 PM	673180	1.79	1.62	6.90	795.82	2064.23	−50298	−22	01/11/93
03/10/93	03:00 PM	741070	1.31	1.31	30.00 *	0.00 +	0.00	316207	168	08/24/93
03/30/93	09:00 AM	743950	0.10	1.61	44.00	18.45	18.45	213607	92	06/30/93
04/30/93	04:00 PM	755900	0.27	1.51	14.00	71.39	89.84	647147	297	02/21/94
05/27/93	01:40 PM	854610	2.55	1.58	120.00	801.70	891.54	43813	19	06/15/93
06/30/93	07:30 AM	1007200	3.14	1.68	1.20	1119.23	2010.77	−42559	−18	06/12/93
07/21/93	07:30 AM	1094630	2.89	2.89	2.20 *	0.00 +	0.00	5785604	1390	05/10/97
07/28/93	08:30 AM	1125630	3.06	2.97	2.20	143.01	143.01	5371919	1254	01/02/97
08/31/93	01:55 PM	1256910	2.66	2.87	3.20	564.10	707.10	2571318	622	05/15/95
09/30/93	04:00 PM	1333050	1.76	2.59	20.00	320.89	1027.99	309302	83	12/21/93
10/28/93	05:50 PM	1411050	1.93	2.46	6.10	311.80	1339.79	688806	194	05/10/94
11/30/93	08:00 PM	1475300	1.35	2.27	31.00	260.34	1600.13	82093	25	12/25/93

TABLE 4 (cont)

Hydrocarbon Treatment System
Granular Activated Carbon Usage
Oakland TOFC

Date	Time	Volume *(gallons)*	Periodic Flowrate *(gpm)*	Average Flowrate *(gpm)*	Influent Conc–TPH *(mg/l)*	Carbon Used *(pounds)*	Spent Carbon Estimate *(pounds)*	Remaining Pumpable *(gallons)*	Remaining Pumpable *(days)*	Projected Breakthru Date
12/28/93	12:00 PM	1526880	1.29	2.13	10.00	201.47	1801.60	126265	41	02/07/94
01/31/94	03:00 PM	1584340	1.17	2.01	3.30	213.63	2015.23	−29369	−10	01/20/94
02/07/94	12:00 PM	1595300	1.11	1.11	8.00 *	0.00 +	0.00	1500982	942	09/05/96
02/25/94	04:00 PM	1658010	2.04	1.58	9.30	231.46	231.46	1141742	503	07/13/95
03/30/94	11:00 AM	1785000	2.59	1.91	2.70	449.11	680.57	2933994	1066	02/27/97
05/03/94	05:00 PM	1841190	1.90	1.91	67.00	218.19	898.76	98683	36	06/07/94
06/01/94	04:00 PM	1909040	1.36	1.80	3.50	253.73	1152.49	1453831	561	12/14/95

* – Concentration estimate
+ – Changed carbon vessel on this date.

TABLE 5

Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-1	04/09/91	8.79		5.54	3.25		3.25
	06/19/91			6.89	1.90		1.90
	05/11/92			6.34	2.45		2.45
	06/09/92			6.91	1.88		1.88
	07/07/92			7.21	1.58		1.58
	08/11/92			7.55	1.24		1.24
	09/04/92			7.82	0.97		0.97
	10/13/92			7.96	0.83		0.83
	11/12/92			7.64	1.15		1.15
	12/17/92			6.64	2.15		2.15
	03/18/93			5.98	2.81		2.81
	05/14/93			6.39	2.40		2.40
	07/13/93			7.12	1.67		1.67
	09/30/93			7.84	0.95		0.95
	11/10/93			8.08	0.71		0.71
	01/24/94			7.54	1.25		1.25
	03/23/94			6.69	2.10		2.10
	05/02/94			6.61	2.18		2.18
OMW-2	04/09/91	5.88		2.10	3.78		3.78
	06/19/91			3.59	2.29		2.29
	05/11/92			3.22	2.66		2.66
	06/09/92			3.97	1.91		1.91
	07/07/92			4.21	1.67		1.67
	08/11/92			4.46	1.42		1.42
	09/04/92			4.77	1.11		1.11
	10/13/92			4.96	0.92		0.92
	11/12/92			4.08	1.80		1.80
	12/17/92			1.70	4.18		4.18
	03/18/93			1.94	3.94		3.94
	05/14/93			3.29	2.59		2.59
	07/13/93			4.28	1.60		1.60
	09/30/93			4.99	0.89		0.89
	11/10/93			5.23	0.65		0.65
	01/24/94			3.30	2.58		2.58
	03/23/94			3.55	2.33		2.33
	05/02/94			4.95	0.93		0.93
OMW-3	04/09/91	7.16		3.93	3.23		3.23
	06/19/91			5.33	1.83		1.83
	05/11/92			5.92	1.24		1.24
	06/09/92			5.48	1.68		1.68
	07/07/92			5.78	1.38		1.38
	08/11/92			6.09	1.07		1.07
	09/04/92			6.33	0.83		0.83
	10/13/92			6.55	0.61		0.61
	11/12/92			6.16	1.00		1.00
	12/17/92			5.15	2.01		2.01
	03/18/93			2.58	4.58		4.58
	05/14/93			4.91	2.25		2.25
	07/13/93			5.70	1.46		1.46
	09/30/93			6.43	0.73		0.73
	11/10/93			6.92	0.24		0.24
	01/24/94			3.50	3.66		3.66
	03/23/94			5.90	1.26		1.26
	05/02/94			5.84	1.32		1.32

TABLE 5 (cont.)

Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-4	04/09/91	7.41	3.79	6.23	1.18	2.44	3.23
	06/19/91		4.44	8.68	-1.27	4.24	2.29
	05/11/92						not available
	06/09/92		5.88	9.81	-2.40	3.93	0.90
	07/07/92		6.00	9.88	-2.47	3.88	0.79
	08/11/92		6.13	8.23	-0.82	2.10	0.94
	09/04/92		6.78	8.37	-0.96	1.59	0.38
	10/13/92**			6.58	0.83		0.83
	11/12/92		5.74	7.33	0.08	1.59	1.42
	12/17/92		5.77	7.28	0.13	1.51	1.40
	03/18/93		3.82	5.73	1.68	1.91	3.28
	05/14/93		5.76	8.45	-1.04	2.69	1.22
	07/13/93		5.94	7.78	-0.37	1.84	1.18
	09/30/93		6.85	8.17	-0.76	1.32	0.35
	11/10/93		7.03	7.59	-0.18	0.56	0.29
	01/24/94		6.15	6.76	0.65	0.61	1.16
	03/23/94		6.09	6.80	0.61	0.71	1.21
	05/02/94		5.25	5.54	1.87	0.29	2.11
OMW-5	04/09/91	7.62		4.64	2.98		2.98
	06/19/91			5.35	2.27		2.27
	05/11/92			5.18	2.44		2.44
	06/09/92			5.85	1.77		1.77
	07/07/92			6.02	1.60		1.60
	08/11/92			6.18	1.44		1.44
	09/04/92			6.59	1.03		1.03
	10/13/92			6.54	1.08		1.08
	11/12/92			6.23	1.39		1.39
	12/17/92			5.23	2.39		2.39
	03/18/93			3.33	4.29		4.29
	05/14/93			5.06	2.56		2.56
	07/13/93			5.96	1.66		1.66
	09/30/93			6.70	0.92		0.92
	11/10/93			5.92	1.70		1.70
	01/24/94			NA	7.62		7.62
	03/23/94			5.74	1.88		1.88
	05/02/94			5.71	1.91		1.91
OMW-6	04/09/91	5.78		7.60	-1.82		-1.82
	06/19/91			6.98	-1.20		-1.20
	05/11/92			7.41	-1.63		-1.63
	06/09/92			7.18	-1.40		-1.40
	07/07/92			6.61	-0.83		-0.83
	08/11/92			7.14	-1.36		-1.36
	09/04/92			6.58	-0.80		-0.80
	10/13/92**			6.16	-0.38		-0.38
	11/12/92			6.91	-1.13		-1.13
	12/17/92			6.16	-0.38		-0.38
	03/18/93			7.31	-1.53		-1.53
	05/14/93			6.59	-0.81		-0.81
	07/13/93			6.58	-0.80		-0.80
	09/30/93			5.49	0.29		0.29
	11/10/93			5.08	0.70		0.70
	01/24/94			5.40	0.38		0.38
	03/23/94			6.90	-1.12		-1.12
	05/02/94			7.44	-1.66		-1.66

TABLE 5 (cont.)

Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-7	04/09/91	7.03	3.26	7.48	-0.45	4.22	3.09
	06/19/91		4.13	7.66	-0.63	3.53	2.34
	05/11/92		3.70	7.32	-0.29	3.62	2.75
	06/09/92		5.79	7.78	-0.75	1.99	0.92
	07/07/92		5.98	7.88	-0.85	1.90	0.75
	08/11/92		6.01	9.22	-2.19	3.21	0.51
	09/04/92		6.53	8.92	-1.89	2.39	0.12
	10/13/92		5.97	8.00	-0.97	2.03	0.74
	11/12/92		5.29	8.69	-1.66	3.40	1.20
	12/17/92		5.60	8.66	-1.63	3.06	0.94
	03/18/93		3.93	7.97	-0.94	4.04	2.45
	05/14/93		5.34	8.21	-1.18	2.87	1.23
	07/13/93		5.95	7.49	-0.46	1.54	0.83
	09/30/93		6.65	9.75	-2.72	3.10	-0.12
	11/10/93		6.75	9.12	-2.09	2.37	-0.10
	01/24/94		6.00	7.87	-0.84	1.87	0.73
	03/23/94		5.79	8.56	-1.53	2.77	0.80
	05/02/94		4.79	6.64	0.39	1.85	1.94
OMW-8	04/09/91	7.52		4.25	3.27		3.27
	06/19/91			5.27	2.25		2.25
	05/11/92			5.05	2.47		2.47
	06/09/92			6.25	1.27		1.27
	07/07/92			6.33	1.19		1.19
	08/11/92			6.48	1.04		1.04
	09/04/92			7.00	0.52		0.52
	10/13/92			6.23	1.29		1.29
	11/12/92			6.34	1.18		1.18
	12/17/92			6.10	1.42		1.42
	03/18/93			4.51	3.01		3.01
	05/14/93			5.78	1.74		1.74
	07/13/93			6.26	1.26		1.26
	09/30/93			7.06	0.46		0.46
	11/10/93			7.12	0.40		0.40
	01/24/94			6.58	0.94		0.94
	03/23/94			6.15	1.37		1.37
	05/02/94			6.06	1.46		1.46
OMW-9	05/11/92	6.64	3.41	7.65	-1.01	4.24	2.55
	06/09/92		5.09	8.17	-1.53	3.08	1.06
	07/07/92		5.28	8.42	-1.78	3.14	0.86
	08/11/92		5.29	9.45	-2.81	4.16	0.68
	09/04/92		5.70	9.56	-2.92	3.86	0.32
	10/13/92		5.70	6.88	-0.24	1.18	0.75
	11/12/92		5.23	6.44	0.20	1.21	1.22
	12/17/92		5.08	6.40	0.24	1.32	1.35
	03/18/93		3.01	6.69	-0.05	3.68	3.04
	05/14/93		4.38	10.37	-3.73	5.99	1.30
	07/13/93		5.57	6.79	-0.15	1.22	0.87
	09/30/93		5.86	9.81	-3.17	3.95	0.15
	11/10/93		6.06	9.61	-2.97	3.55	0.01
	01/24/94		5.41	7.71	-1.07	2.30	0.86
	03/23/94		4.91	9.10	-2.46	4.19	1.06
	05/02/94		4.52	4.54	2.10	0.02	2.12

TABLE 5 (cont.)

Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
OMW-10	05/11/92	7.56		4.76	2.80		2.80
	06/09/92			5.42	2.14		2.14
	07/07/92			5.58	1.98		1.98
	08/11/92			5.83	1.73		1.73
	09/04/92			6.18	1.38		1.38
	10/13/92**			5.30	2.26		2.26
	11/12/92			5.41	2.15		2.15
	12/17/92			4.20	3.36		3.36
	03/18/93		3.93	4.00	3.56	0.07	3.62
	05/14/93		4.83	4.92	2.64	0.09	2.72
	07/13/93		5.64	5.67	1.89	0.03	1.92
	09/30/93		6.36	6.38	1.18	0.02	1.20
	11/10/93			6.55	1.01		1.01
	01/24/94			5.55	2.01		2.01
	03/23/94			4.81	2.75		2.75
	05/02/94			5.06	2.50		2.50
ORW-1	06/19/91	6.59	3.91	9.36	-2.77	5.45	1.81
	05/11/92		NOT GAUGED				
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			8.39	-1.80		-1.80
	09/04/92			8.35	-1.76		-1.76
	10/13/92		6.95	8.15	-1.56	1.20	-0.55
	11/12/92		NOT GAUGED				
	12/17/92		8.30	8.35	-1.76	0.05	-1.72
	03/18/93		3.60	7.39	-0.80	3.79	2.38
	05/14/93			8.63	-2.04		-2.04
	07/13/93			8.60	-2.01		-2.01
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				
ORW-2	06/19/91	6.79	4.36	4.38	2.41	0.02	2.43
	05/11/92		3.55	6.34	0.45	2.79	2.79
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			9.30	-2.51		-2.51
	09/04/92			9.31	-2.52		-2.52
	10/13/92		8.20	9.20	-2.41	1.00	-1.57
	11/12/92		NOT GAUGED				
	12/17/92			9.45	-2.66		-2.66
	03/18/93		2.94	7.48	-0.69	4.54	3.12
	05/14/93			8.21	-1.42		-1.42
	07/13/93		9.30	9.41	-2.62	0.11	-2.53
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				

TABLE 5 (cont.)

Water Level Data
Union Pacific Railroad
Oakland Fueling Area

Well No.	Date	Well Elev. Above M.S.L. (FT)	Depth to Product (FT)	Depth to Water (FT)	Water Level Elevation (FT)	Product Thickness (FT)	Corr Water Level Elevation* (FT)
ORW--3	06/19/91	6.30	4.07	4.10	2.20	0.03	2.23
	05/11/92		3.24	5.31	0.99	2.07	2.73
	06/09/92		NOT GAUGED				
	07/07/92		NOT GAUGED				
	08/11/92			8.90	−2.60		−2.60
	09/04/92			8.75	−2.45		−2.45
	10/13/92			8.59	−2.29		−2.29
	11/12/92		NOT GAUGED				
	12/17/92			8.35	−2.05		−2.05
	03/18/93		2.90	5.71	0.59	2.81	2.95
	05/14/93			8.16	−1.86		−1.86
	07/13/93		9.08	9.46	−3.16	0.38	−2.84
	09/30/93		NOT GAUGED				
	11/10/93		NOT GAUGED				
	01/24/94		NOT GAUGED				
	03/23/94		NOT GAUGED				
	05/02/94		NOT GAUGED				

* Corrected water level elevation assumes product density of 0.84 g/cm3
** Guaging data for these may have been switched.
M.S.L. = Mean Sea Level

TABLE 6

Analytical Results
Groundwater Monitoring Wells
Union Pacific Railroad
Oakland Fueling Area

Well Number	Date Sampled	Total Petroleum Hydrocarbons (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-1	05/11/92	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	0.060	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	0.067	<0.0005	0.00061*	<0.0005	<0.0005
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	.074 <0.050 74	<0.0005	<0.0005	<0.0005	<0.0005
OMW-2	05/11/92	4.5	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	2.7	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	3.4	<0.0005	0.00057*	0.0011	0.0033
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	.290 <0.050 290	<0.0005	<0.0005	<0.0005	<0.0005
OMW-3	05/11/92	2.3	.0003J	0.0013	.0003J	0.0034
	08/11/92	5.8	<0.0005	0.00071	<0.0005	.0017
	11/13/92	110	<0.0005	0.00089*	0.0015	.0084
	05/14/93	0.180	<0.0003	0.036	<0.0003	.0027
	11/10/93	1.80	<0.0003	0.0005	<0.0003	<0.0009
	05/02/94	2.0 [illegible]	<0.0005	0.0023	<0.0005	0.00059
OMW-5	05/11/92	2.1	<0.0005	.0004J	<0.0005	0.0003
	08/11/92	2.1	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	4.4	<0.0005	0.00078*	<0.0005	<0.0005
	05/14/93	11	<0.0003	0.0018	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	0.0006	<0.0003	<0.0009
	05/02/94	1.4 <0.050 1,400	<0.0005	<0.0005	<0.0005	<0.0005
OMW-6	05/11/92	0.52	<0.0005	<0.0005	<0.0005	0.0016
	08/11/92	0.55	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	6.0	<0.0005	0.00077*	<0.0005	<0.0005
	05/14/93	0.18	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	.420 <0.050 420	<0.0005	<0.0005	<0.0005	<0.0005
OMW-8	05/11/92	0.24	<0.0005	<0.0005	<0.0005	<0.0005
	08/11/92	0.22	<0.0005	<0.0005	<0.0005	<0.0005
	11/13/92	0.26	<0.0005	0.00058*	<0.0005	<0.0005
	05/14/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	11/10/93	<0.050	<0.0003	<0.0003	<0.0003	<0.0009
	05/02/94	.250 <0.050 250	<0.0005	<0.0005	<0.0005	<0.0005

TABLE 6 (cont.)

Analytical Results
Groundwater Monitoring Wells
Union Pacific Railroad
Oakland Fueling Area

Well Number	Date Sampled	Total Petroleum Hydrocarbons (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-10	05/11/92	2.1	0.033	<0.0005	<0.0005	0.0027
	08/11/92	1.3	0.0096	<0.0005	<0.0005	.00062
	11/13/92	2.8	0.0066	0.00084*	<0.0005	.00062
	05/14/93	****** NOT SAMPLED – Well Contained Product**********				
	11/10/93	ppm 2.6 ppb	0.0043	0.0011	<0.0003	.00012
	05/02/94	6.0 2.6 6600	0.00052 J	<0.0005	<0.0005	<0.0005

NOTES J = Estimated value below reporting limit.

Due to the presence of product, recovery wells ORW-1, ORW-2, ORW-3, and monitoring wells OMW-4, OMW-7, and OMW-9 are not sampled.

* 0.00062 mg/L was detected in the Trip Blank.

APPENDIX A

FIELD LOGS
GROUNDWATER RECOVERY
AND TREATMENT SYSTEM

PROJECT # 96199 **RES JOB # 4117**

GROUNDWATER TREATMENT SYSTEM FIELD LOG

UNION PACIFIC RAILROAD - OAKLAND TOFC
1717 MIDDLE HARBOR ROAD

OFFICE COPY

DATE	TIME	FLOW RATE	TOTALIZER SIGNET : NEPTUNE	PRODUCT LEVEL	FILTER INLET	PRESS. OUTLET	PUMP ORW-1	CYCLE ORW-2	COUNT ORW-3	CHLORINE FREE:TOTAL	pH	HARDNESS as $CaCO_3$
[D-M-Y]	[24:00]	[GPM]	[GALLONS:GALLONS]	[INCHES]	[PSIG]	[PSIG]	[CYCLES]	[CYCLES]	[CYCLES]	[PPM]:[PPM]	[pH]	[PPM]
11-MAY-94	12:02	3.6		38	10	4.5	SYSTEM	UP				
10-MAY-94	17:05	4.2		38	9	5	SYSTEM	DOWN		0.0 : 0.0		
02-MAY-94	15:30	3.8	183823 : 1566300	31	10	4				0. : 0.5		
29-APR-94							SPILL	CLEAN	UP			
27-APR-94	11:15	5.5	183159 : 1557900	28	10	4						
18-APR-94	11:30	5.0	182794 : 1553200	27.	10.0	4.0						
12-APR-94	12:08	12	181100 : 1533300	25	4.5	5.0						
30-MAR-94	11:30	14.5	178500 : 1481200	19.5	?	?						
23-MAR-94	1300	6.3	176227 : 1453600	16.5	10.0	4.0						
15-MAR-94	15:40	OFF	172833 : 1413200	11.5	OFF	OFF						
~~15-MAR-94~~	~~15:40~~	~~OFF~~	~~165801 : 1326500~~	~~?~~	~~4~~	~~5~~						
01-MAR-94	1300	13.7	166337 : 1335000	?	4	5				0.5 : 3.0		
25-FEB-94	16:30	OFF	165801 : 1326500	?						>?? 3.0		
22-FEB-94	1200	14.6	163997 : 1303900	42 F	4	5				≥0.4 : ≥0.4		
17-FEB-94	1200	10.3			8	4.5				<0.4 : 0.5		
17-FEB-94	0900	OFF	163084 1290700	31.5	OFF	OFF						

MAIL COPIES MONTHLY TO: USPCI: 5665 FLATIRON PARKWAY: BOULDER, COLORADO 80301: ATTENTION MR. DENTON MAULDIN

PROJECT # 96199 **RES JOB # 4117**

GROUNDWATER TREATMENT SYSTEM FIELD LOG

UNION PACIFIC RAILROAD - OAKLAND TOFC
1717 MIDDLE HARBOR ROAD

OFFICE COPY

DATE	TIME	FLOW RATE	TOTALIZER SIGNET : NEPTUNE	PRODUCT LEVEL	FILTER INLET	PRESS. OUTLET	COMMENTS MAINTENANCE, ADJUSTMENTS	CHLORINE FREE:TOTAL	pH	HARDNESS as $CaCO_3$
[D-M-Y]	[24:00]	[GPM]	[GALLONS:GALLONS]	[INCHES]	[PSIG]	[PSIG]	NOTES, OBSERVATIONS	[PPM]:[PPM]	[pH]	[PPM]
27 Jun 94	10:00	0.5 / 11.0	192693 : 1753175	45.0 / 0.0	10.0	8.0	Shipped Fuel / Changed Bags	0.0 : 0.0		790 gallons Fuel shipped
23 Jun-94	14:00	off	1 X : X	38.5	X	X	Pulled #1 + 3 pumps Cleaned Bubbler	0.0 : 0.0	Harry Patterson on Site	
20-JUN-94	08:35	OFF	192549 : 1733900	38.5	OFF	OFF	CLEAN UP, HAUL TRASH, NEW Sock	BAGS		
07-JUN-94	13:10	16.1	192157 : 1701100	39	10	6	NEW BAG IN L.H. ONLY	0.0 : 0.0		
06-JUN-94	09:40	18.3	191907 : 1696500	39	9.5	9.0	NEW 10µm BAGS	—		
01-JUN-94	16:30	OFF		39	OFF	OFF	SAMPLE C D E	—		
26-MAY-94	13:30	6.4	190806 : 167820	39.0	10.0	4.5	NEED MORE CHLORINE	0.0 0.0		
17-MAY-94	15:40	11.4	187403 : 1638500	38+	9	7	USPCI CALLOUT Re POWER OFF ALL UP ON ARRIVAL	3.0 : —		
13-MAY-94	12:39		185539 : 1615920	38.5	10.0	7.5	ALL LOOKS VERY GOOD	0.6 : 1.0		
12-MY-94	15:23	14	185161 : 1611330	38	9.0	8.0	BACKWASHED 1ST CANISTER	0.6 : 1.0		

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APPENDIX B

ANALYTICAL RESULTS

Superior Precision Analytical, Inc.
P.O. Box 1545 • Martinez, California 94553 • (510) 229-1590 / fax (510) 229-0916

Riedel Environmental Services, Inc.
Attn: MIKE SULKA

Reported 04/07/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
91388- 1	STATION C INFLUENT	03/30/94	04/06/94	Water
91388- 2	STATION D MIDFLUENT	03/30/94	04/02/94	Water
91388- 3	STATION E EFFLUENTT	03/30/94	04/02/94	Water

RESULTS OF ANALYSIS

Laboratory Number:	91388- 1	91388- 2	91388- 3
Benzene:	12	ND<0.5	ND<0.5
Toluene:	ND<0.5	ND<0.5	ND<0.5
Ethyl Benzene:	2.7	ND<0.5	ND<0.5
Total Xylenes:	18	ND<0.5	ND<0.5
Diesel:	2700	NA	ND<50
Concentration:	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
P.O. Box 1545 • Martinez, California 94553 • (510) 229-1590 / fax (510) 229-0916

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 91388

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Benzene:	81/82	1%	75-125
Toluene:	84/89	6%	75-125
Ethyl Benzene:	79/82	4%	75-125
Total Xylenes:	91/95	4%	75-125
Diesel:	111/111	0%	75-125

Afsaneh Salimpour
Senior Chemist

91388

RIEDEL ENVIRONMENTAL SERVICES, INC
4138 Lakeside Drive, Richmond, California 94806
Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: SUPERIOR Date: 30-MAR-94
Contact: AFSANEH Page: 1
Phone: 229 1512 Of: 1

PROJECT INFORMATION

Project Manager: SULKA
Fax Results to: ~~SAIT~~ At: NO FAX
Also to: NO FAX At: ~~NECESSARY~~
Send Report to: SULKA
Sample Team (print): MIKE SULKA
(signatures): Mike Sulka
Turn Around Time: 10 Day 5 Day 48 Hr. 24 Hr. Other 48HRS

Project Name: UPRR TOFC
Project #: 4117
P.O.#: SF2-00127
LEN NILES
FOR

Sample ID	Lab ID	Date	Time	Matrix	Preserv.	TPH – Gasoline (EPA 5030, 8015)	TPH – Diesel (EPA 3510/3550, 8015)	TEPH – Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015)	Purgeable Aromatics BTEX (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240, 524.2)	SemiVolatile Organics (EPA 625/627, 8270, 525)	Total Oil & Grease (EPA 5520, B+F, E+F)	Total Recoverable Petroleum Hydrocarbons (EPA 418.1)		Metals: Cd, Cr, Pb, Zn, Ni Total or Soluble	CAM Metals (17) Total or Soluble	Lead (Pb) Total, Soluble, or Organic	Extraction TCLP or STLC (Wet)			Number of Containers
STATION 'C' INFLUENT		30-MAR 1994	11:00	W	HCl/NO		X		X													4
STATION 'D' MIDFLUENT		30-MAR 1994	11:00	W	HCl				X													3
STATION 'E' EFFLUENT		30-MAR 1994	11:00	W	HCl/NO		X		X													4

SPECIAL INSTRUCTIONS:
NO FAX NECESSARY

SAMPLE RECEIPT
Total No. Containers
Head Space Y N
Rec'd Good Cond/Cold Y N
Conforms to Record Y N

COMMENTS:
NOTE: 1 BAD VOA (LABELED) ON EFFLUENT

RELINQUISHED BY (Sampler): Mike Sulka 17:45
(Signature) (Time)
MIKE SULKA 30-MAR-94
(Printed Name) (Date)
(Company)

RECEIVED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RELINQUISHED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RELINQUISHED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY (Laboratory):
(Signature) (Time)
Afsaneh Salimpour
(Printed Name) (Date)
Afsaneh Salimpour
(Company)
Superior 3/30/94 545

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FA
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FA
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FA

U.S.P.C.I.
5665 Flat Iron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: #96199/UPRR Oakland TOFC Yard
Sample Matrix: Water
Analysis Method: EPA 5030/8020
First Sample #: 405-0137

Sampled:
Received: , 1994
Reported: May 19, 1994

BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 405-0137 OMW-1	Sample I.D. 405-0138 OMW-3	Sample I.D. 405-0139 OMW-6	Sample I.D. 405-0140 OMW-8	Sample I.D. 405-0141 OMW-10	Sample I.D. 405-0142 OQC-1
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	0.52	N.D.
Toluene	0.5	N.D.	2.3	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	0.89	N.D.	N.D.	N.D.	N.D.

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	5/15/94	5/16/94	5/15/94	5/13/94	5/16/94	5/13/94
Instrument Identification:	HP-4	HP-4	HP-4	HP-2	HP-4	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	99	94	98	102	88	101

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

SEQUOIA ANALYTICAL, #1271

Karen L. Enstrom
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

U.S.P.C.I.
5665 Flat Iron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: #96199/UPRR Oakland TOFC Yard
Sample Matrix: Water
Analysis Method: EPA 5030/8020
First Sample #: 405-0143

Sampled: May 3, 1994
Received: May 4, 1994
Reported: May 19, 1994

BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 405-0143 OMW-2	Sample I.D. 405-0144 OMW-5	Sample I.D. 405-0145 FB-01
Benzene	0.5	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.

Field Blank

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Analyzed:	5/13/94	5/13/94	5/13/94
Instrument Identification:	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	96	94	98

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

SEQUOIA ANALYTICAL, #1271

Karen L. Enstrom
Project Manager

4050137.USP <2>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

U.S.P.C.I.
5665 Flat Iron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: #96199/UPRR Oakland TOFC Yard
Sample Matrix: Water
Analysis Method: EPA 3510/3520/8015
First Sample #: 405-0137

Sampled: May 2, 1994
Received: May 4, 1994
Reported: May 19, 1994

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 405-0137 OMW-1	Sample I.D. 405-0138 OMW-3	Sample I.D. 405-0139 OMW-6	Sample I.D. 405-0140 OMW-8	Sample I.D. 405-0141 OMW-10	Sample I.D. 405-0142 OQC-1
Extractable Hydrocarbons	50	74	2,000	420	250	6,000	96
Chromatogram Pattern:		Diesel	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20	Diesel	Diesel and Unidentified Hydrocarbons >C20

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	10	1.0
Date Extracted:	5/9/94	5/9/94	5/9/94	5/9/94	5/9/94	5/9/94
Date Analyzed:	5/10/94	5/10/94	5/10/94	5/10/94	5/11/94	5/10/94
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Karen L. Enstrom
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

U.S.P.C.I.
5665 Flat Iron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: #96199/UPRR Oakland TOFC Yard
Sample Matrix: Water
Analysis Method: EPA 3510/3520/8015
First Sample #: 405-0143

Sampled: May 3, 1994
Received: May 4, 1994
Reported: May 19, 1994

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 405-0143 OMW-2	Sample I.D. 405-0144 OMW-5
Extractable Hydrocarbons	50	290	1,400
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons >C20

Quality Control Data

Report Limit Multiplication Factor:	1.0	10
Date Extracted:	5/9/94	5/9/94
Date Analyzed:	5/10/94	5/10/94
Instrument Identification:	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Karen L. Enstrom
Project Manager

Sequoia Analytical

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

U.S.P.C.I.
5665 Flat Iron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: #96199/UPRR Oakland TOFC Yard
Matrix: Liquid

QC Sample Group: 4050137-45

Reported: May 31, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015 Mod.
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer
MS/MSD Batch#:	4050329	4050329	4050329	4050329	BLK050994
Date Prepared:	5/13/94	5/13/94	5/13/94	5/13/94	5/9/94
Date Analyzed:	5/13/94	5/13/94	5/13/94	5/13/94	5/10/94
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
Matrix Spike % Recovery:	100	100	100	100	88
Matrix Spike Duplicate % Recovery:	105	100	100	102	91
Relative % Difference:	4.9	0.0	0.0	2.0	3.7
LCS Batch#:	1LCS051394	1LCS051394	1LCS051394	1LCS051394	BLK050994
Date Prepared:	5/13/94	5/13/94	5/13/94	5/13/94	5/9/94
Date Analyzed:	5/13/94	5/13/94	5/13/94	5/13/94	5/10/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A
LCS % Recovery:	105	100	100	100	88
% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122

SEQUOIA ANALYTICAL, #1271

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.

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

U.S.P.C.I.
5665 Flat Iron Parkway
Boulder, CO 80301
Attention: Denton Mauldin

Client Project ID: #96199/UPRR Oakland TOFC Yard
Matrix: Liquid
QC Sample Group: 4050137-45
Reported: May 31, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha
MS/MSD Batch#:	4050379	4050379	4050379	4050379
Date Prepared:	5/16/94	5/16/94	5/16/94	5/16/94
Date Analyzed:	5/16/94	5/16/94	5/16/94	5/16/94
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
Matrix Spike % Recovery:	90	95	90	93
Matrix Spike Duplicate % Recovery:	90	90	90	92
Relative % Difference:	0.0	5.9	0.0	1.1
LCS Batch#:	2LCS051694	2LCS051694	2LCS051694	2LCS051694
Date Prepared:	5/16/94	5/16/94	5/16/94	5/16/94
Date Analyzed:	5/16/94	5/16/94	5/16/94	5/16/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4
LCS % Recovery:	92	92	92	94
% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL, #1271

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.

USPCI
A Subsidiary of Union Pacific Corporation

Ship To: USPCI Analytical Services
4322 South 49th West Avenue
Tulsa, OK 74107
(918) 446-1162

003400

REPORT TO
CONTACT Denton Muldoon
COMPANY USPCI
ADDRESS 5665 Flatiron Pkwy
CITY Boulder ST. CO ZIP 80301
PHONE 303-938-5539 FAX 303-938-5520

BILL TO
CONTACT SAME
COMPANY
ADDRESS
CITY ST. ZIP
PHONE PO #

CHAIN OF CUSTODY RECORD

PROJ. NO. UPRR OAKLND TOFC YARD
PROJECT NAME 96199
SAMPLERS (SIGNATURE) Christopher Bye

STANDARD TURNAROUND X
RUSH TURNAROUND (specify required date)
1 of 2

CUSTOMER SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS	BTEX 8021	TPH-D 8015	LABORATORY SAMPLE I.D.	REMARKS
OMW-1	5-2-94	1410	H_2O	2	X		405013-1	A-C
OMW-1		1410		1		X		
OMW-3		1725		2	X		0138	A-C
OMW-3		1725		1		X		
OMW-6		1640		2	X		0139	A-C
OMW-6		1640		1		X		
OMW-8		1510		2	X		0140	A C
OMW-8		1510		1		X		
OMW-10		1555		2	X		0141	A-C
OMW-10		1555		1		X		
OQC-1		1200		2	X		0142	A C
OQC-1		1200		1		X		

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME	COURIER
Christopher Bye	5-4-94 0929	Melissa Crenshaw	5/4/94 9:30am	AIRBILL NO
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME	

USPCI
A Subsidiary of Union Pacific Corporation
Ship To: USPCI Analytical Services
4322 South 49th West Avenue
Tulsa, OK 74107
(918) 446-1162

REPORT TO
CONTACT Clinton Maulon
COMPANY USPCI
ADDRESS 5665 Flatiron Pkwy
CITY Boulder ST. Co ZIP 80301
PHONE 303-938-5539 FAX 303-938-5520

BILL TO
CONTACT ~~Boulder~~ SAME
COMPANY
ADDRESS
CITY ST. ZIP
PHONE PO #

001171

CHAIN OF CUSTODY RECORD

PROJ. NO. 96199
PROJECT NAME UPRR OAKLAND TOFC YARD
SAMPLERS (SIGNATURE)

STANDARD TURNAROUND X
RUSH TURNAROUND
(specify required date)
2 of 2

CUSTOMER SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS	BTEX 8020	5015 8-HR	LABORATORY SAMPLE I.D.	REMARKS
OMW-2	5-3-94	0815	H_2O	2	X		405014.3	A.C. ORANGE COOLER
OMW-2		0815		1		X		
OMW-5		0745		2	X		0144	A.C.
OMW-5		0795		1		X		
~~OMW-6~~								
FB-01	NA	—	H_2O	1	X		0145	

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME	COURIER
	5-9-94 0930	Melinda Chavez	5/4/94 930am	
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME	AIRBILL NO

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

Riedel Environmental Services, Inc.
Attn: MIKE SULKA

Project NO: 4117
Reported 05/11/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
91593- 1	STATION C INFLUENT	05/03/94	05/11/94	Water
91593- 2	STATION D MIDFLUENT	05/03/94	05/09/94	Water
91593- 3	STATION E EFFLUENT	05/03/94	05/09/94	Water

RESULTS OF ANALYSIS

Laboratory Number:	91593- 1	91593- 2	91593- 3
Benzene:	4.4	ND<0.5	ND<0.5
Toluene:	1.8	ND<0.5	ND<0.5
Ethyl Benzene:	9.7	1.3	ND<0.5
Total Xylenes:	28	3.3	ND<0.5
Diesel:	67000	NA	ND<50
Concentration:	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 91593

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

'A SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Benzene:	83/84	1%	75-125
Toluene:	111/112	1%	75-125
Ethyl Benzene:	90/91	1%	75-125
Total Xylenes:	101/102	1%	75-125
Diesel:	114/113	1%	75-125

Michael R Vanos
Senior Chemist

91593

RIEDEL ENVIRONMENTAL SERVICES, INC
4138 Lakeside Drive, Richmond, California 94806
Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: SUPERIOR Date: 03-MAY-94
Contact: AFSANEH Page: 1
Phone: 229 1512 Of: 1

PROJECT INFORMATION

Project Manager: SULKA
Fax Results to: NOFAX Al: ~~2226868~~
Also to: Al:
Send Report to: SULKA
Sample Team (print): MIKE SULKA
(signatures):
Turn Around Time: 10 Day | 5 Day | 48 Hr. | 24 Hr. Other NORM

Project Name: UPRR TOFC
Project #: 4117
P.O.#:

ANALYSES

Sample ID	Lab ID	Date	Time	Matrix	Preserv.	TPH - Gasoline (EPA 5030, 8015)	TPH - Diesel (EPA 3510/3550, 8015)	TEPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015)	Purgeable Aromatics BTEX (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240, 524.2)	Semivolatile Organics (EPA 625/627, 8270, 525)	Total Oil & Grease (EPA 5520, B+F, E+F)	Total Recoverable Petroleum Hydrocarbons (EPA 418.1)		Metals: Cd, Cr, Pb, Zn, Ni Total or Soluble	CAM Metals (17) Total or Soluble	Lead (Pb) Total, Soluble, or Organic	Extraction TCLP or STLC (wet)			Number of Containers
STATION 'C' INFLUENT		03 MAY 1994	~~17:45~~ 17:54	W	HCl / NONE		X		X													4
STATION 'D' MIDFLUENT		03-MAY 1994	17:50	W	HCl				X													3
STATION 'E' EFFLUENT		03-MAY 1994	17:45	W	HCl / NONE		X		X										ASV	4	4	4

SPECIAL INSTRUCTIONS:

SAMPLE RECEIPT

Total No. Containers	—	
Head Space	Y	N
Rec'd Good Cond/Cold	Y	N
Conforms to Record	Y	N

COMMENTS: PRICES ARE $55 AND $70 AS PER QUOTE #93000127 (UPRR QUOTE)

RELINQUISHED BY (Sampler):
(Signature) 19:31 (Time)
ARP SULKA 03 MAY 94 (Printed Name) (Date)
(Company)

RECEIVED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RELINQUISHED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RELINQUISHED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY (Laboratory):
(Signature) (Time)
(Printed Name) (Date)
(Company) 5/3/94

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

Riedel Environmental Services, Inc.
Attn: MIKE SULKA

Reported 06/08/94

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
91777- 1	STATION-C INFLUENT	06/01/94	06/08/94	Water
91777- 2	STATION-D MIDFLUENT	06/01/94	06/06/94	Water
91777- 3	STATION-E EFFLUENT	06/01/94	06/07/94	Water

RESULTS OF ANALYSIS

Laboratory Number:	91777- 1	91777- 2	91777- 3
Benzene:	6.5	ND<0.5	ND<0.5
Toluene:	ND<0.5	ND<0.5	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5
Total Xylenes:	9.4	ND<0.5	ND<0.5
Diesel:	3500	NA	ND<50
Concentration:	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 91777

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Benzene:	110/111	1%	75-125
Toluene:	91/94	3%	75-125
Ethyl Benzene:	81/83	2%	75-125
Total Xylenes:	98/99	1%	75-125
Diesel:	84/87	4%	75-125

Michael R. Veron
Senior Chemist

91777

RIEDEL ENVIRONMENTAL SERVICES, INC
4138 Lakeside Drive, Richmond, California 94806
Phone: (510) 222-7810 Fax: (510) 222-6868

Chain of Custody Request for Analysis

Laboratory: SUPERIOR Date: 01-JUN-94
Contact: _____ Page: 1
Phone: 229 1512 Of: 1

PROJECT INFORMATION

Project Manager: SULKA
Fax Results to: DO NOT At: no
Also to: — At: _____
Send Report to: SULKA
Sample Team (print): MIKE SULKA
(signatures): Mike Sulka
Turn Around Time: 10 Day (5 Day) 48 Hr. 24 Hr. Other _____

Project Name: UPRR TOFC
Project #: 4117
P.O.#: _____

Sample ID	Lab ID	Date	Time	Matrix	Preserv.	TPH - Gasoline (EPA 5030, 8015)	TPH - Diesel (EPA 3510/3550, 8015)	TEPH - Kerosene, Diesel, Motor Oil (EPA 3510/3550, 8015)	Purgeable Aromatics BTEX (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240, 524.2)	Semi-Volatile Organics (EPA 625/627, 8270, 525)	Total Oil & Grease (EPA 5520, B+F, E+F)	Total Recoverable Petroleum Hydrocarbons (EPA 418.1)		Metals: Cd, Cr, Pb, Zn, Ni Total or Soluble	CAM Metals (17) Total or Soluble	Lead (Pb) Total, Soluble, or Organic	Extraction TCLP or STLC (Wet)			Number of Containers
STATION 'C' INFLUENT		01-JUN 1994	16:15	W	HCl/ice		X		X													4
STATION 'D' MIDFLUENT		01-JUN 1994	16:15	W	HCl				X													3
STATION 'E' EFFLUENT		01-JUN 1994	16:15	W	HCl/ice		X		X													4

Please Initial:
Samples Stored in ice. yes
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

SPECIAL INSTRUCTIONS:

SAMPLE RECEIPT
Total No. Containers: ____
Head Space: Y N
Rec'd Good Cond/Cold: Y N
Conforms to Record: Y N

COMMENTS:

RELINQUISHED BY (Sampler): 17:20
(Signature) (Time)
MIKE SULKA 01-JUN
(Printed Name) (Date)
RIEDEL
(Company)

RECEIVED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RELINQUISHED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RELINQUISHED BY:
(Signature) (Time)
(Printed Name) (Date)
(Company)

RECEIVED BY (Laboratory):
(Signature) 7:25pm (Time)
Vanegas 6-1-94
(Printed Name) (Date)
(Company)