SEMI-ANNUAL MONITORING REPORT
HYDROCARBON RECOVERY SYSTEM
(JULY 1, 1998 TO NOVEMBER 30, 1998)
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD YARD
1717 MIDDLE HARBOR ROAD
OAKLAND, CALIFORNIA

DECEMBER 28, 1998

PREPARED FOR:
UNION PACIFIC RAILROAD
OMAHA, NEBRASKA

ENVIRONMENTAL
DECISION GROUP, INC.

Innovative Services • Advanced Technology

Prepared By:
Environmental Decision Group, Inc.
5665 Flatiron Parkway
Boulder, Colorado 80301

A Safety-Kleen Company

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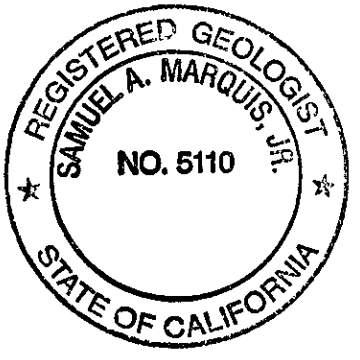

December 28, 1998

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1. INTRODUCTION

This report presents the results from the semi-annual monitoring program conducted at the fueling area of the Union Pacific Railroad Oakland trailer-on-flat-car (TOFC) railyard at 1717 Middle Harbor Road in Oakland, California for the period of July 1, 1998 to November 30, 1998. This report was prepared by Environmental Decision Group, Inc. (EDG) for Union Pacific Railroad (UPRR) in accordance with the East Bay Municipal Utility District (EBMUD) permit number 502-51231 and in fulfillment of the requirements cited in the September 21, 1994 letter prepared by the Alameda County Department of Environmental Health (ACDEH). The objectives of the monitoring program are to evaluate changes in the distribution of petroleum hydrocarbons in groundwater and to assess the effectiveness of the hydrocarbon recovery system.

The purpose of this report is to provide semi-annual monitoring information pertaining to the hydrocarbon recovery and groundwater treatment system at the fueling area, in addition to results of fluid-level measurements collected in November 1997, February 1998, and March 1998, and analytical results for groundwater samples obtained on August 13, 1998. In accordance with a letter from ACDEH dated March 21, 1997, and submitted to UPRR, groundwater sampling is performed semi-annually (during the first and third quarters of the year) to account for seasonal groundwater fluctuations. In a letter dated August 14, 1998, the ACDEH approved changing the semi-annual report submittal dates from April and October to July and January of each year.

2. BACKGROUND INFORMATION

The fueling area is located in the northern portion of the UPRR Oakland TOFC Yard, which is adjacent to the Oakland Inner Harbor or Oakland Estuary (Figures 1 and 2). The motor freight portion of the TOFC yard, approximately 700 feet southeast and downgradient of the fueling area is currently undergoing groundwater remediation for recovery of non-aqueous phase liquid as diesel. (The motor freight area is a separate project and is not the subject of this report.) The area surrounding the site is used for heavy to light commerce. Residential areas are located approximately one-half mile north of the site and across the Oakland Estuary one-half mile south of the site.

Previous investigations indicated the presence of light non-aqueous-phase liquid petroleum hydrocarbons (diesel) floating on the groundwater near the fueling area. A hydrocarbon recovery and groundwater treatment system (system) was installed to remove diesel on the groundwater near the fueling area.

The results from prior investigations and environmental engineering activities conducted by EDG (formerly Laidlaw Environmental Services) have been documented in previous reports. The results of the initial site investigation were presented in the *Hydrocarbon Investigation and Remediation Design*

report dated June 10, 1991, which also presented a conceptual design of the system. The system design was outlined in the Preliminary Design Report, dated September 5, 1991. As-built information for the system has been presented in the *Hydrocarbon Recovery System, As-Built Construction Report*, dated July 20, 1992. Process changes to the system were presented in the permit renewal application letter prepared by EDG for UPRR, dated March 22 1993.

An Additional Remediation Workplan was submitted by EDG and approved by ACDEH, on March 21, 1997. The workplan proposed:

- The recovery of total fluids (water and diesel) from groundwater monitoring well OMW-9 and piezometer OP-4; and

- Treatment of these fluids with the existing system.

The workplan was implemented on June 24 and 25, 1997, by Burns & McDonnell, a subconsultant to EDG. New recovery pumps were installed in wells OMW-9 and OP-4 and became operational on June 26, 1997. Due to an operational problem with the air compressor, the system was inoperable from September 1997 to June 1998. A new air compressor has been installed and the system was restarted on June 22, 1998.

3. CURRENT ACTIVITIES

The current activities at the site consist of performing system maintenance and groundwater monitoring activities described in the following sections.

3.1. System Monitoring

Water samples are collected from the water stream of the treatment system periodically to assess the performance of the system and to compare the concentrations of the discharge with limits established by the EBMUD.

The samples are collected from sampling ports located before (influent) , between (midfluent), and after (effluent) the two granular activated carbon vessels at varying frequencies.

- On a monthly basis, water samples are collected from the midfluent stream. These samples are analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8020.

- In addition to the above monthly water samples influent and effluent samples are collected on a quarterly basis. These samples are analyzed for BTEX using EPA method 8020, and total petroleum hydrocarbons as diesel (TPH-D) using EPA method 8015 modified

However, due to the inoperable status of the system, no sampling or weekly system maintenance occurred from September 26, 1997 to June 21, 1998. When the system was restarted in June 1998, Burns and McDonnell resumed their weekly system maintenance and monthly sampling activities.

System maintenance consists of backwashing the carbon vessels weekly, changing particulate filters, and checking the chlorine feed system. Operational readings (cumulative flow, hydrocarbon storage volume, and pressure drop across the particle filters) are collected during each site visit.

3.2. Groundwater Monitoring

Groundwater monitoring activities consist of collecting fluid-level measurements in the groundwater monitoring wells on a bi-monthly basis and during a sampling event. Groundwater samples are collected on a semi-annual basis in February and August. In accordance with a letter dated March 21, 1997, groundwater sampling activities are performed during the first and third quarters of each year. During the inoperable period of the recovery system (September 1997 through June 1998) site visits were conducted on a quarterly basis by EDG personnel and fluid level measurements were taken then. Beginning June 22, 1998, the recovery system was restarted and Burns and McDonnell resumed their monthly well gauging activities.

Fluid-level measurements are used to generate potentiometric surface maps, which provide information about the groundwater gradient and the operation of the recovery wells. The data used in these maps include measurements obtained from monitoring wells and piezometers in which diesel is found. Whenever possible the fluid-level measurements from the adjacent Motor Freight site were used to generate the potentiometric surface maps. The groundwater elevations in all monitoring wells are corrected to account for the diesel overlying the water column in the well. The correction is performed by multiplying the specific gravity of the diesel by the diesel layer thickness and adding this value to the water elevation measurement from the well..

During a sampling event, groundwater samples are collected from wells in which diesel is absent. The samples are submitted to a certified laboratory and analyzed for BTEX and TPH-D. For wells that indicate the presence of diesel, the diesel is recovered by hand using disposable bailers.

4. SYSTEM MONITORING

The recovery of diesel is accomplished by depressing the groundwater table with total-fluid pumps to recover diesel and water and create a cone of depression surrounding the recovery wells. The recovery and treatment system consists of five recovery wells, a diesel/water separator, a recovered diesel storage tank, and an activated carbon treatment system. The recovered groundwater is treated and discharged to the EBMUD sanitary sewer. The locations of the five recovery wells (ORW-1, ORW-2, ORW-3, OMW-9, and OP-4) and the water treatment facility are indicated on Figure 2

4.1. System Operation

During the operating period of July 1, 1998 to November 30, 1998, the groundwater recovery and treatment system treated approximately 541,000 gallons of groundwater. Since start-up on May 12, 1992, until November 30, 1998, the system has recovered approximately 6,477,700 gallons of water (Table 4) and 10,900 gallons of diesel (Table 7).

The system has operated continuously since being restarted on June 22, 1998 with minor down time due to required maintenance with the exception of recovery well OMW-4. This well was taken out of service on August 21, 1998 due to a malfunctioning pump. The pump was repaired and the well was brought back into service in September 1998.

Combined pumping rates for ORW-1, ORW-2, ORW-3, OMW-9, and OP-4 averaged approximately 2.5 gallons per minute (gpm). This is based on the operating period of July 1 to November 30, 1998. Copies of the field logs for the hydrocarbon recovery system are included in Appendix A.

4.2. Analytical Results

Influent and effluent samples are collected quarterly and were obtained on July 9 and October 2, 1998. A resample for TPH-D from the effluent stream was collected on July 28, 1998 to confirm breakthrough of the second carbon vessel. Analytical results of BTEX and TPH-D from the influent to the activated carbon system are presented 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. Midfluent samples are collected monthly to determine if breakthrough of the lead carbon vessel has occurred. A summary of results from the midfluent samples collected between carbon vessels are included as Table 3. Laboratory analytical reports from the system sampling are included in Appendix B.

4.2.1. Influent Water Stream To Carbon Units

For the July 9, 1998 sampling event the analytical results for BTEX from the influent water stream to the carbon units indicated the presence of benzene at a concentration of 0.0015 milligrams per liter (mg/l), and xylenes at 0.01 mg/l. Toluene and ethylbenzene were not detected above the method detection limit (MDL) of 0.0005 mg/l.

For the October 2 1998 sampling event the analytical results for BTEX from the influent water stream to the carbon units indicated the presence of benzene at a concentration of 0.00054 milligrams per liter (mg/l). Toluene and ethylbenzene were not detected above the method detection limit (MDL) of 0.0005 mg/l, and, and xylenes were not detected above the MDL of 0.01 mg/l. Influent TPH-D concentrations for this semi-annual period ranged from 0.00054 to 0.0015 mg/l.

4.2.2. Effluent Water Stream From Carbon Units

Analytical results indicate that all BTEX concentrations in the effluent samples were below the MDLs of 0.0005 mg/l for benzene, toluene, and ethylbenzene and below 0.001 mg/l for xylenes during the July 1998 sampling event.

Analytical results indicate that all BTEX concentrations in the effluent samples were below the MDLs of 0.0005 mg/l for benzene, toluene, and ethylbenzene and below 0.001 mg/l for xylenes during the October 1998 sampling event.

The effluent TPH-D concentration ranged from below the MDL of 0.05 mg/l to 0.066 mg/l in July 1998. The effluent was resampled on July 28, 1998 with a confirmation detection of 0.058 mg/ indicating that breakthrough of the second carbon vessel.

4.2.3. Water Stream Between Carbon Units

Analytical results indicate that all BTEX concentrations in the midfluent samples were below the MDLs of 0.0005 mg/l for benzene, toluene, and ethylbenzene and 0.001 mg/l for xylenes for all samples in this semi-annual period.

4.3. 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 July 9, 1998 analytical results showed the presence of TPH-D in the effluent sample indicating carbon breakthrough in both vessels. Resampling of the effluent stream on July 28, 1998, confirmed that breakthrough had occurred in both carbon vessels and, on August 17, 1998 the spent granular activated carbon in both vessels was replaced with fresh granular activated carbon. The methodologies for performing calculations (represented in Table 4) were originally presented in the *Hydrocarbon Recovery System Quarterly Monitoring Report*, Second Quarter, 1992.

5. GROUNDWATER MONITORING

The following sections present information that has been collected since the most recent ACDEH submittal on July 28, 1998. Historical fluid levels and groundwater sampling results are presented in Tables 5 and 6, respectively

.

5.1. Fluid-level Measurements

Overall, the monitoring wells and piezometers at the site showed a decrease in corrected groundwater elevations between July and November 1998, except for OMW-4, OMW-6, and OP-1 which showed slight increases. The average correction in groundwater elevations for this semi-annual period was an increase of approximately 2.37 feet with the maximum increase being 8.61 feet in piezometer OP-1 on August 12, 1998. Measurements from well OMW-3 could not be collected due to damage at the top of the casing. Fluid-level measurements in recovery wells OMW-9 and OP-4 were not collected in August due to the presence of pumping components in the well casing. Pumping components were

removed in July, September and November to obtain the readings. The increase of groundwater elevations between July and November is consistent with previous site data. Historical fluid-levels for each well are provided in Table 1.

Fluid-level measurements obtained in July, September, and November, 1998, were used to create potentiometric surface maps of the site. Fluid-level measurements obtained from the adjacent motor freight area were used to generate the potentiometric maps whenever the data was available.

The potentiometric surface results for July, September, and November 1998 indicate that groundwater flow outside the influence of the recovery wells is to the south-southeast at a hydraulic gradient that ranges from 0.001 to 0.007 feet/foot (5 to 37 feet/mile). A groundwater depression created by the five recovery wells (ORW-1, ORW-2, ORW-3, OMW-9, and OP-4) is evident on the potentiometric surface maps (Figures 3, 4, and 5). The figures show a decrease in groundwater elevations in the area of the recovery system (wells ORW-1, ORW-2, ORW-3, OMW-9, and OP-4) that is due to the restarting of the recovery system on June 22 1998. The contour lines show an increased hydraulic gradient or convergent flow towards the entire well network in the portion of the site containing diesel. The hydraulic gradients in the immediate area of the recovery wells range from approximately 0.02 to 0.08 feet/foot (106 to 422 feet/mile), which is nearly an order of magnitude greater than the natural gradient outside of the recovery well zone of influence.

During the July 1998, September, and November 1998 monitoring events, diesel was observed in two groundwater monitoring wells (OMW-4, and OMW-7) and three piezometers (OP-1, OP-2, and OP-3. Figures 6, 7 and 8 illustrate the diesel thicknesses as measured in the monitoring wells and piezometers during the July, September, and November 1998 monitoring events.

5.2. Groundwater Sampling

The most recent semi-annual groundwater sampling event was conducted on August 13, 1998. Groundwater samples were obtained from monitoring wells OMW-1, OMW-2, OMW-3, OMW-5, OMW-6, OMW-8 and OMW-10.

Analytical results indicate that BTEX concentrations in all monitoring wells sampled are below the method detection limit (MDL) of 0.0005 mg/l except for OMW-10. OMW-10 had a benzene concentration of 0.21 mg/l and a toluene concentration of 0.0005 mg/l. These results are consistent with previous sampling data. TPH-D concentrations range from 0.17 mg/l in OMW-1 to 4.5 mg/l in OMW-10. The TPH-D concentrations in wells OMW-1, OMW-2, OMW-3 and OMW-5 show an increase from the previous sampling event, but remain within historic ranges. TPH-D concentrations in wells OMW-8, and OMW-10 show a slight decrease where well OMW-6 did not show a change. Historical analytical results are presented in Table 6. Laboratory analytical reports for the August 1997 sampling event are included in Appendix A. Sampling and well stabilization forms are included as Appendix B. The next sampling event is scheduled for February 1999.

6. CONCLUSIONS

The following conclusions have been drawn from the system and groundwater monitoring data collected from December 1, 1997 to June 30, 1998:

- Water discharge from the system did not exceed the EBMUD discharge limits during this semi-annual monitoring period.

- An overall decrease in groundwater elevations was observed between the July and November events. This decrease is consistent with data for the same period in the previous year.

- The groundwater gradient outside the zone of influence of the recovery system is consistent with previous monitoring events.

- Groundwater depressions created by the recovery pumps noted in the July 1 to November 30, 1998 semi-annual report are evident.

- The system has removed 541,000 gallons of water and recovered 300 gallons of diesel since it was restarted in June 1998.

- The system has removed a total of 10,900 gallons of diesel between the start-up on May 12, 1992 and November 30, 1998.

- The approximate extent of the diesel plume has not changed significantly and is consistent with previous monitoring events.

- BTEX concentrations were below the MDL for all wells sampled with one exception. Monitoring well OMW-10, indicated a benzene concentration of 0.21 mg/l.

- TPH-D concentrations show an increase from the previous sampling event, but remain within historic ranges.

7. LIMITATIONS

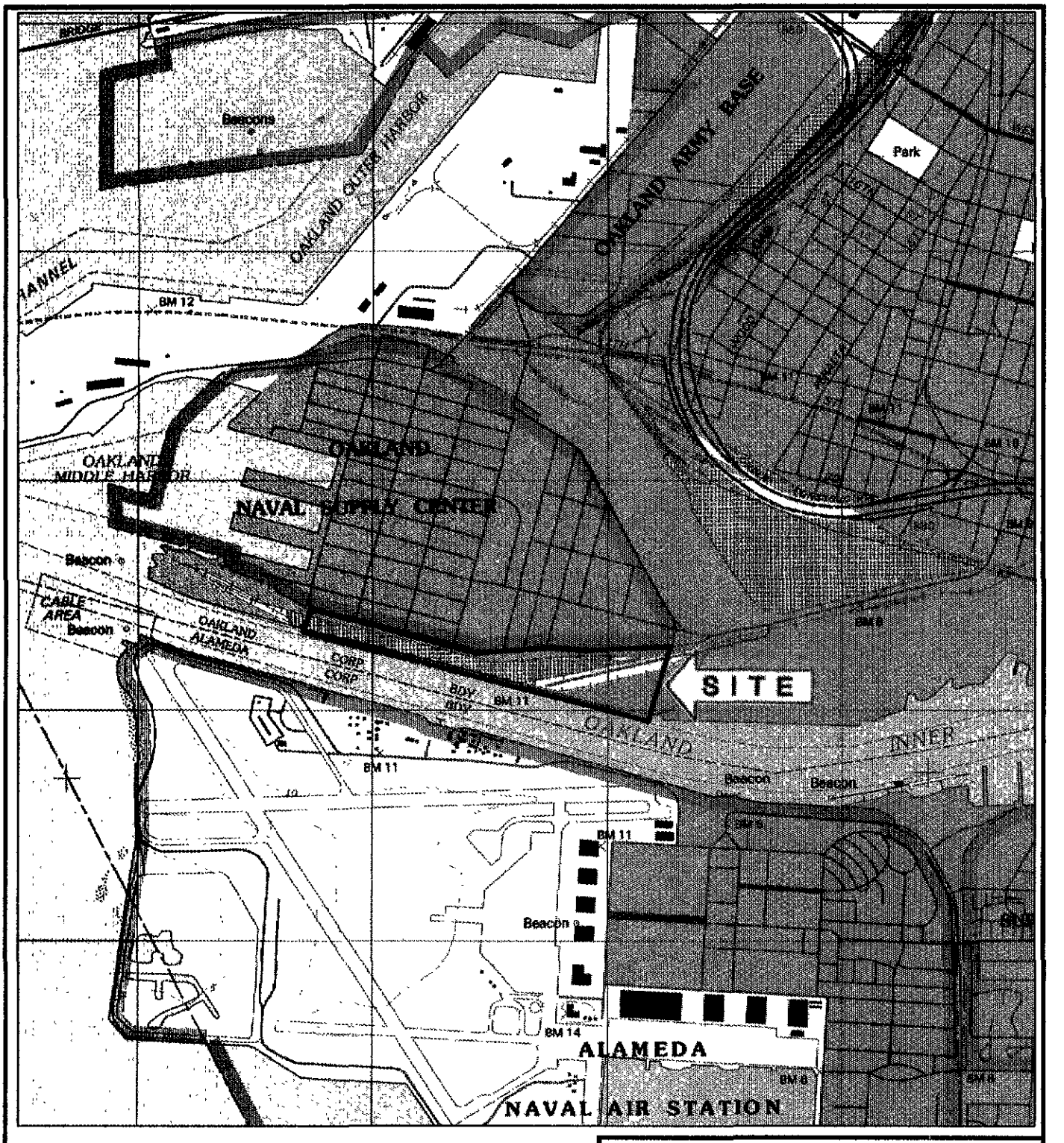
The project and this report were undertaken for the exclusive use of the Union Pacific Railroad. Use by any other person or organization is subject to no warranty by UPRR or EDG.

The conclusions provided in this report are based solely upon information provided to EDG by UPRR, Burns & McDonnell, and as generated by EDG for this project. Additional investigations as well as information not available to UPRR and EDG at the time this project and report were completed may result in modifications to the understanding of the site, conclusions, and other items generated as part of the work.

The project and this report were conducted and prepared in accordance with generally accepted environmental and engineering practices with a standard of care appropriate to the project. UPRR and EDG express and imply no other warranty.

FIGURES

FIGURES



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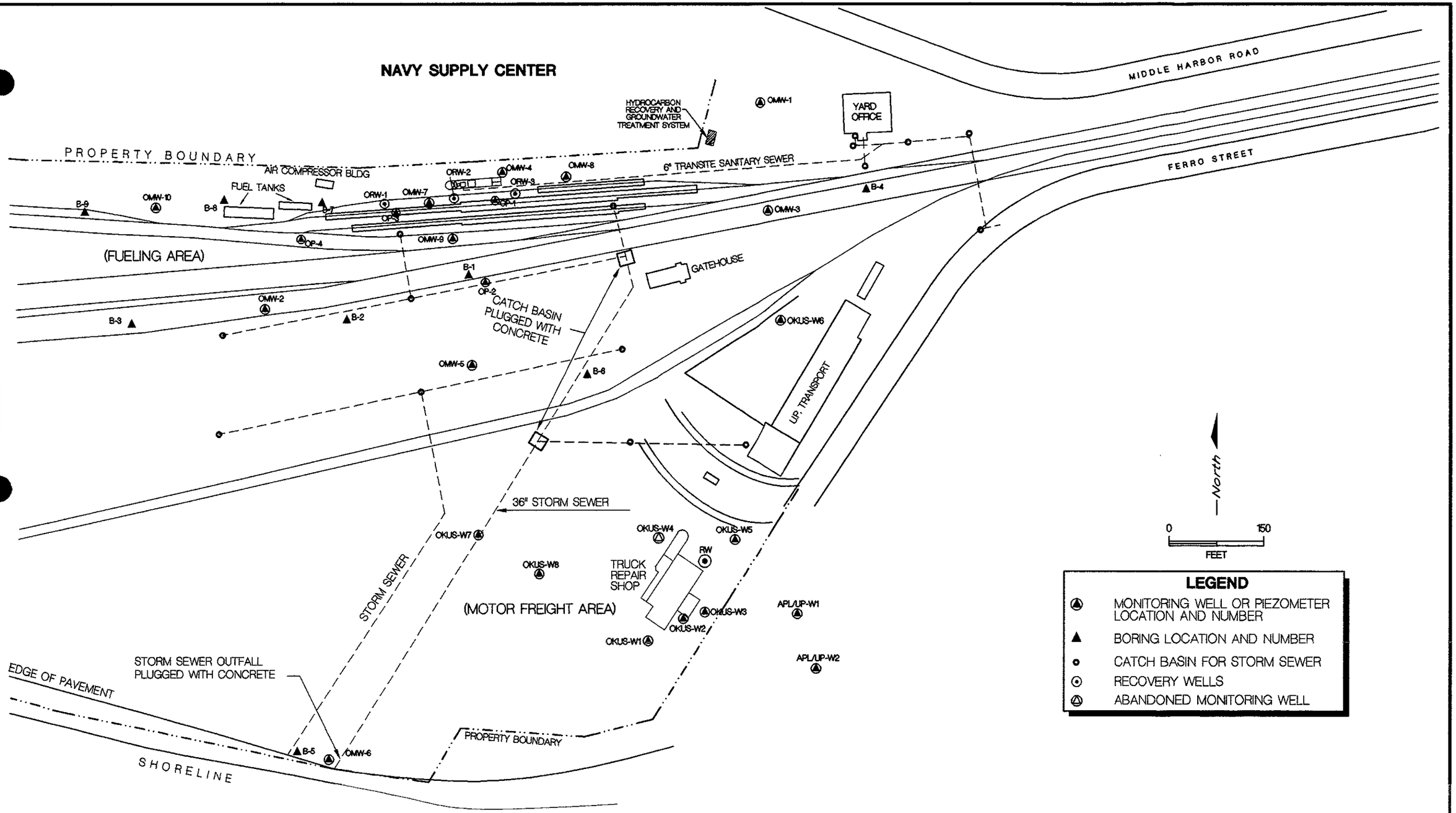
UPRR TOFC RAILYARD - OAKLAND, CA

FIGURE 1
SITE LOCATION MAP

SCALE: 1" = 2000' | DATE: 12/22/98



LEGEND

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

	BY	DATE
DRAWN	WRB	12/22/98
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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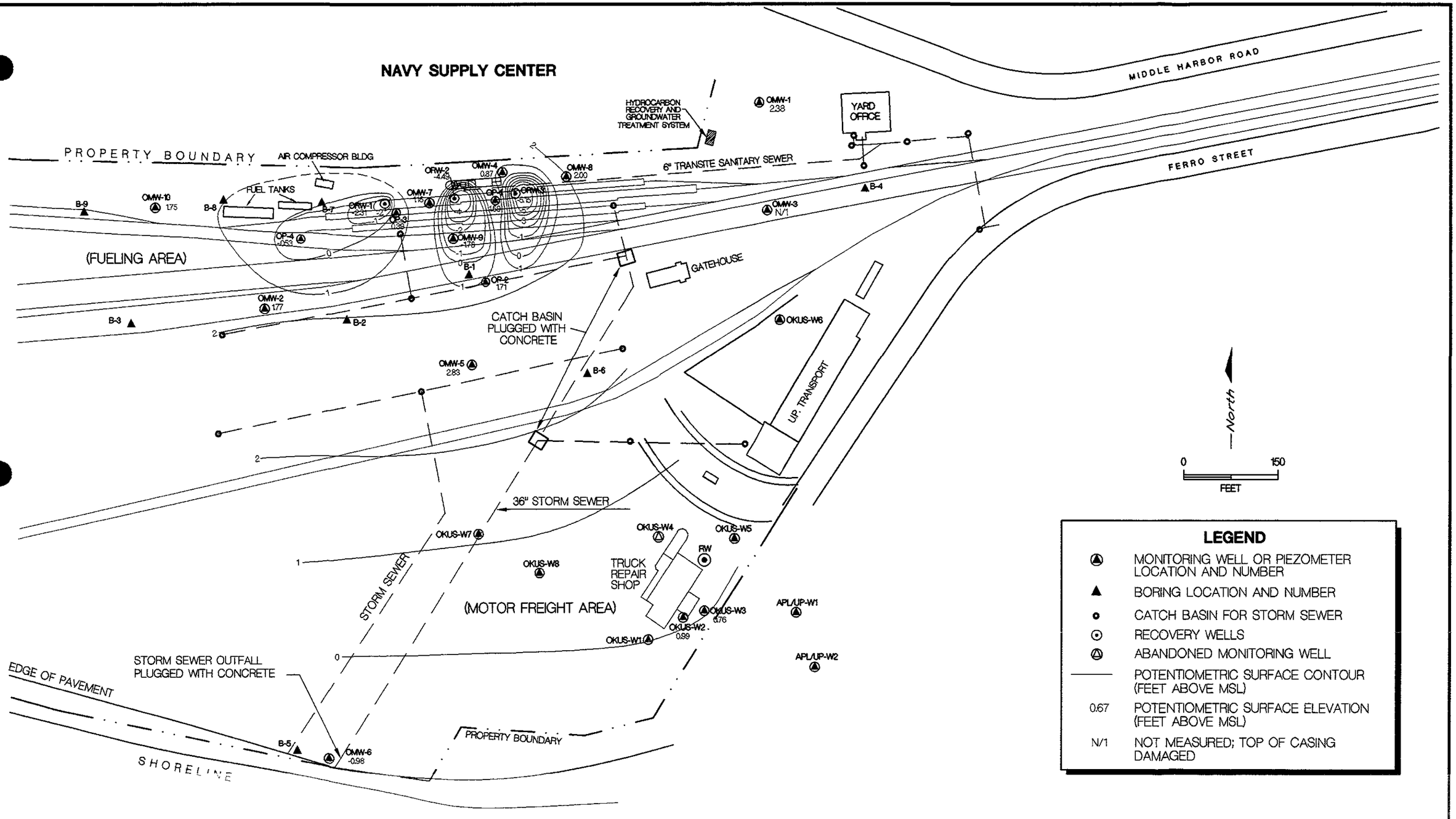
UPRR TOFC RAILYARD
UPMF REPAIR SHOP- OAKLAND, CALIFORNIA

FIGURE 2
SITE VICINITY MAP

SCALE 1" = 150'

DWG NO 96199-0007



LEGEND

▲	MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
▲	BORING LOCATION AND NUMBER
o	CATCH BASIN FOR STORM SEWER
⊙	RECOVERY WELLS
△	ABANDONED MONITORING WELL
———	POTENTIOMETRIC SURFACE CONTOUR (FEET ABOVE MSL)
0.67	POTENTIOMETRIC SURFACE ELEVATION (FEET ABOVE MSL)
N/1	NOT MEASURED; TOP OF CASING DAMAGED

FIGURE 3

	BY	DATE
DRAWN	CJJ	11/6/98
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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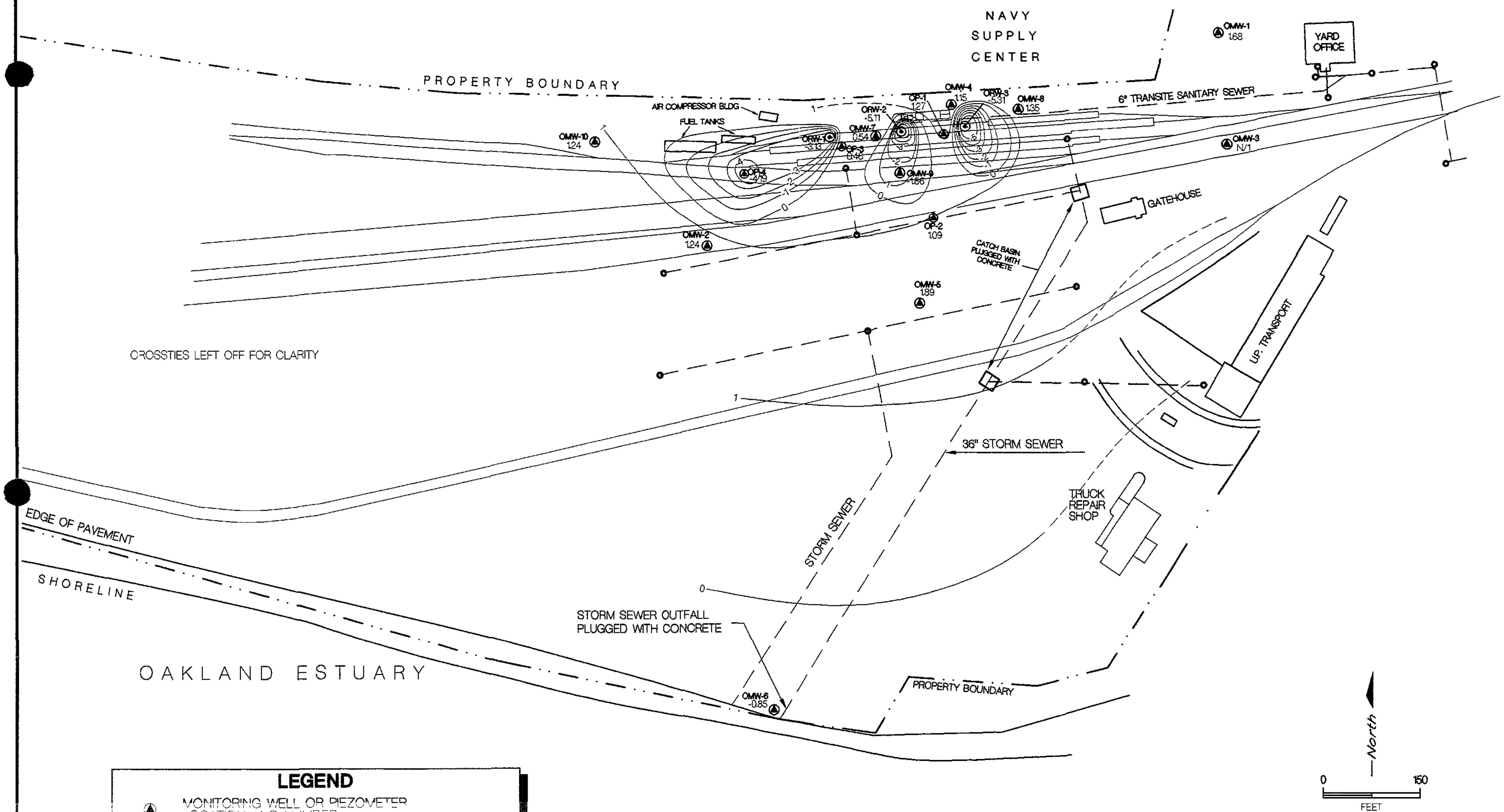
UPRR TOFC RAILYARD - OAKLAND, CALIFORNIA

GROUNDWATER POTENTIOMETRIC SURFACE MAP
JULY 1998

SCALE 1" = 150'

DWG NO. 96199-0015



LEGEND

- MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- NOT MEASURED, TOC DAMAGED
- GROUNDWATER ELEVATION IN FEET

FIGURE 4

	BY	DATE
DRAWN	CJJ	12/22/98
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APPROVED		
APPROVED		
APPROVED		

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UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

GROUNDWATER POTENTIOMETRIC SURFACE MAP
SEPTEMBER 1998

SCALE 1" = 150'

DWG NO 96199-0014

NAVY
SUPPLY
CENTER

PROPERTY BOUNDARY

YARD OFFICE

OMW-1 1.47

6" TRANSITE SANITARY SEWER

AIR COMPRESSOR BLDG

FUEL TANKS

OMW-10 1.03

OMW-2 -4.77

OMW-7

OMW-4 1.00

OMW-8 1.12

OMW-3 N/M

OMW-9 0.14

GATEHOUSE

OMW-2 0.85

CATCH BASIN PLUGGED WITH CONCRETE

OMW-5 1.48

U.P. TRANSPORT

CROSSTIES LEFT OFF FOR CLARITY

36" STORM SEWER

TRUCK REPAIR SHOP

OKUS-W3 0.15

OKUS-W2 0.43

STORM SEWER

EDGE OF PAVEMENT

SHORELINE

STORM SEWER OUTFALL PLUGGED WITH CONCRETE

OAKLAND ESTUARY

OMW-6 0.36

PROPERTY BOUNDARY

North

0 150

FEET

LEGEND

- MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- NOT MEASURED
- GROUNDWATER ELEVATION IN FEET

	BY	DATE
DRAWN	WRB	12/22/98
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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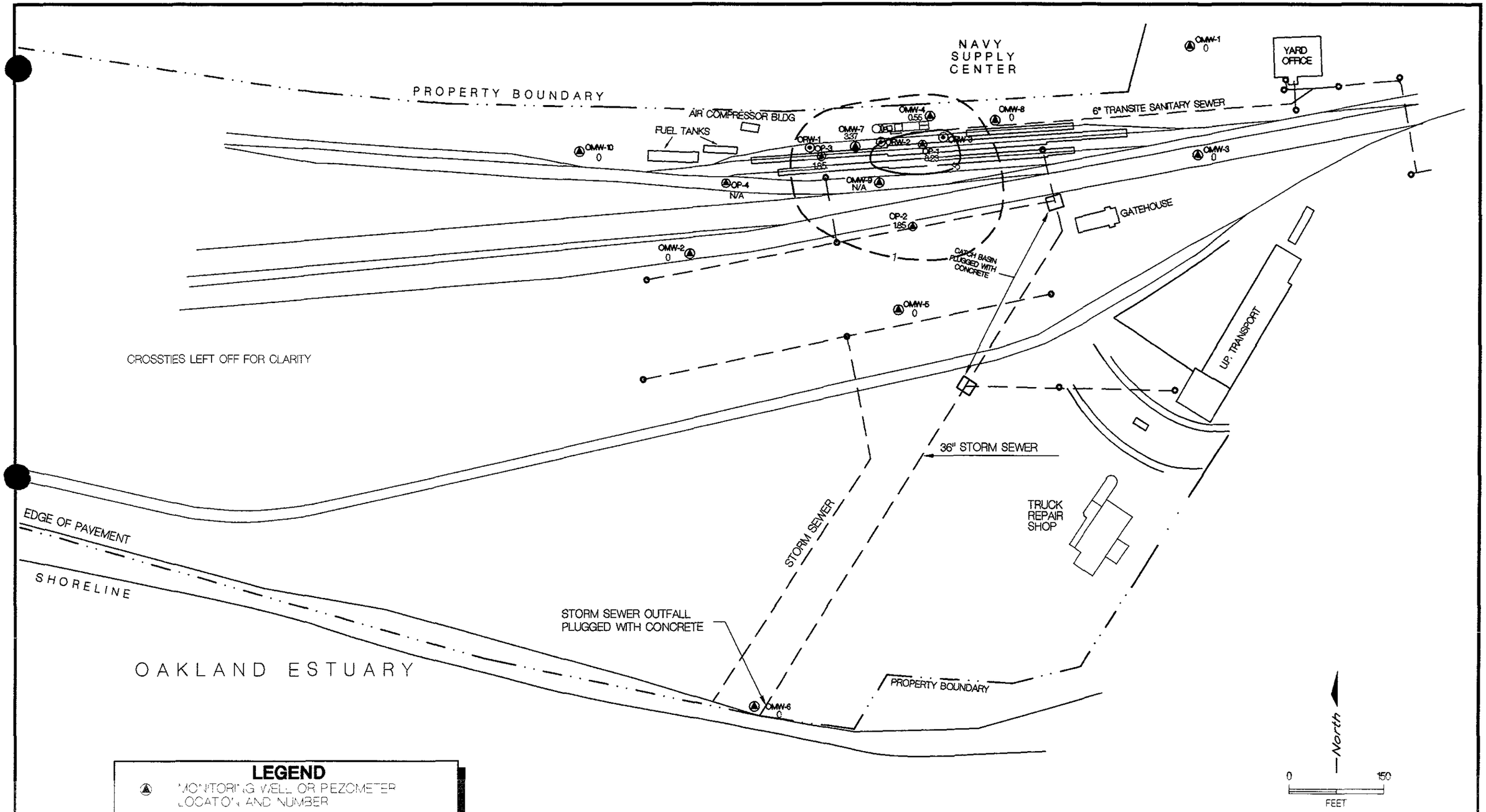
FIGURE 5

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

GROUNDWATER POTENTIOMETRIC SURFACE MAP
NOVEMBER 1998

SCALE 1" = 150'

DWG NO 96199-0016



LEGEND

- MONITORING WELL OR PEZOMETER LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
  PRODUCT THICKNESS (FT.)
  APPROXIMATE LATERAL EXTENT OF DIESEL NOT AVAILABLE

BY	DATE
DRAWN WRB	12/22/98
CHECKED	
APPROVED	
APPROVED	
APPROVED	

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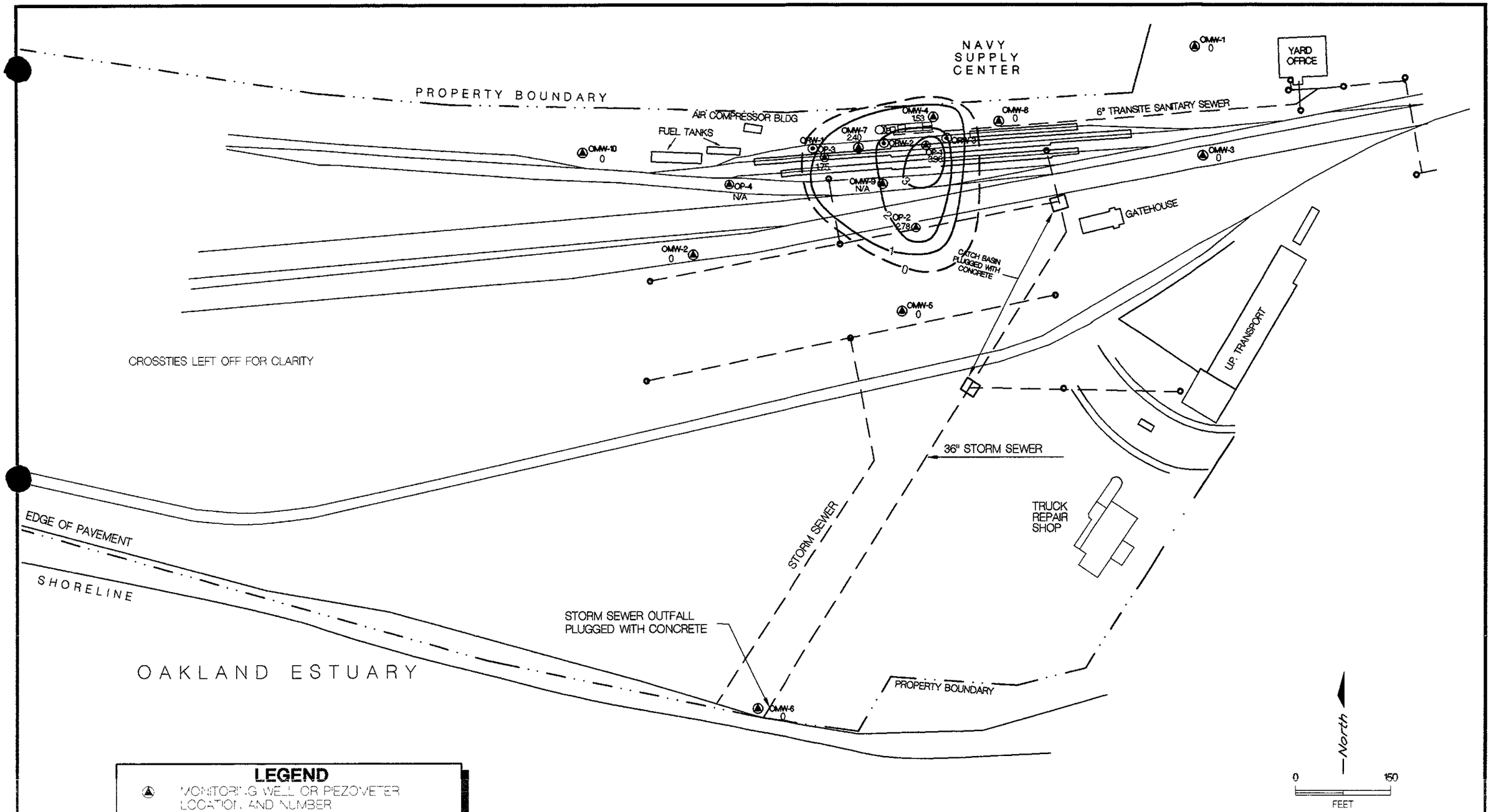
FIGURE 6

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

APPROXIMATE LATERAL EXTENT OF DIESEL JULY 1998

SCALE 1" = 150'

DWG NO 96199-0017



LEGEND

- MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- PRODUCT THICKNESS (FT)
- APPROXIMATE LATERAL EXTENT OF DIESEL NOT AVAILABLE

BY	DATE
DRAWN WRB	12/22/98
CHECKED	
APPROVED	
APPROVED	
APPROVED	

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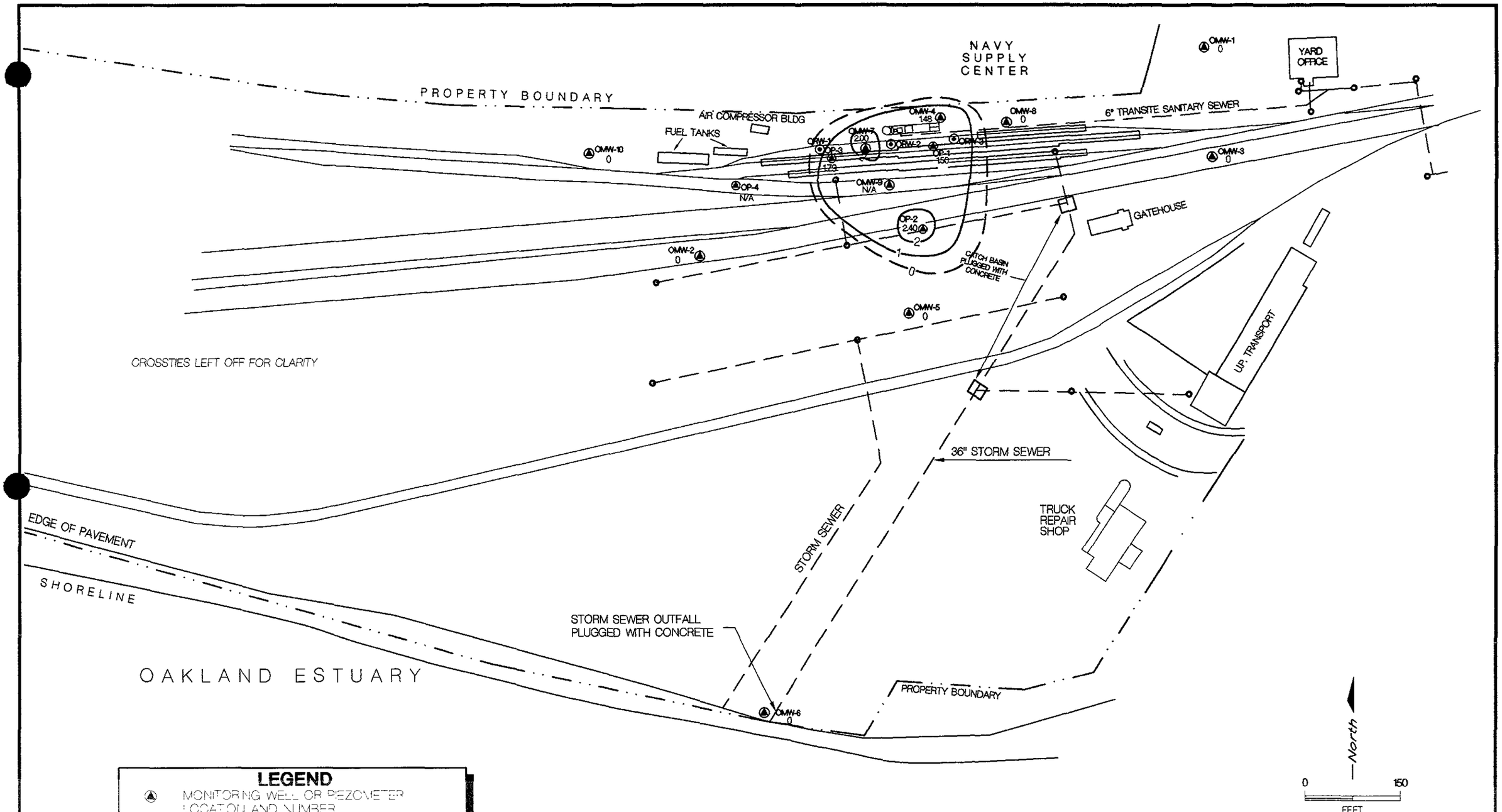
FIGURE 7

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

APPROXIMATE LATERAL EXTENT OF DIESEL SEPTEMBER 1998

SCALE 1" = 150'

DWG NO 96199-0018



LEGEND

- MONITORING WELL OR PIEZOMETER LOCATION AND NUMBER
- CATCH BASIN FOR STORM SEWER
- RECOVERY WELLS
- PRODUCT THICKNESS (FT.)
- APPROXIMATE LATERAL EXTENT OF DIESEL NOT AVAILABLE

BY	DATE
DRAWN WRB	12/22/98
CHECKED	
APPROVED	
APPROVED	
APPROVED	

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FIGURE 8

UPRR TOFC RAILYARD - OAKLAND CALIFORNIA

APPROXIMATE LATERAL EXTENT OF DIESEL NOVEMBER 1998

SCALE: 1" = 150'

DWG NO: 96199-0019

TABLES

TABLE 1
Analytical Results
Influent Water Stream to Carbon Units
Hydrocarbon Treatment System
Oakland Fueling Area

Date Collected	Benzene *(mg/L)*	Toluene *(mg/L)*	Ethylbenzene *(mg/L)*	Xylenes *(mg/L)*	Total Petroleum Hydrocarbons as Diesel *(mg/L)*
01/05/95	NA	NA	NA	NA	140
01/25/95	<0.03	<0.03	<0.03	<0.03	550
04/12/95	0.0015	<0.0003	<0.0003	0.0023	3.7
05/29/95	NA	NA	NA	NA	<0.02*
06/30/95	NA	NA	NA	NA	25
07/19/95	0.011	0.0006	0.005	0.015	13
08/08/95	NA	NA	NA	NA	11
09/08/95	NA	NA	NA	NA	11
10/13/95	0.009	0.0006	0.010	0.020	66
11/22/95	NA	NA	NA	NA	38
12/15/95	NA	NA	NA	NA	19
01/08/96	0.013	<0.0005	0.010	0.021	<0.05
02/12/96	NA	NA	NA	NA	56
03/12/96	NA	NA	NA	NA	42
04/10/96	0.0097	<0.0005	0.0067	0.010	36
05/13/96	NA	NA	NA	NA	14
06/13/96	NA	NA	NA	NA	18
07/17/96	<0.0005	<0.0005	<0.0005	<0.002	9.7
08/19/96	NA	NA	NA	NA	14
09/16/96	NA	NA	NA	NA	14
10/17/96	<0.0005	<0.0005	<0.0005	<0.001	11
11/25/96	NA	NA	NA	NA	13
12/13/96	NA	NA	NA	NA	14
01/14/97	0.0061	<0.0005	<0.0005	0.0039	22
02/11/97	NA	NA	NA	NA	13
03/10/97	NA	NA	NA	NA	16
04/04/97	0.003	<0.0005	<0.0005	<0.001	8.7
05/15/97	NA	NA	NA	NA	8.5
07/18/97	0.0024	<0.0005	<0.0005	0.0011	18
08/15/97	NA	NA	NA	NA	12
09/05/97	NA	NA	NA	NA	14
06/25/98	0.0046	<0.0005	0.0053	0.0105	26.5
07/09/98	0.0015	<0.0005	<0.0005	0.001	20
08/14/98	NA	NA	NA	NA	26
09/11/98	NA	NA	NA	NA	12
10/02/98	0.00054	<0.0005	<0.0005	<0.0005	19
11/06/98	NA	NA	NA	NA	<0.050

NA - Not Analyzed
*Unknown hydrocarbon in the Diesel range reported concentration of 14 mg/L

TABLE 2
Analytical Results
Effluent Water Stream from Carbon Units
Hydrocarbon Treatment System
Oakland Fueling Area

Date Collected	Benzene *(mg/L)*	Toluene *(mg/L)*	Ethylbenzene *(mg/L)*	Xylenes *(mg/L)*	Total Petroleum Hydrocarbons as Diesel *(mg/L)*
EBMUD 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
07/29/94	<0.0005	<0.0005	<0.0005	0.0007	<0.050
10/27/94	<0.0005	<0.0005	<0.0005	0.0006	<0.050
01/25/95	<0.03	<0.03	<0.03	<0.03	470
04/12/95	<0.0003	<0.0003	<0.0003	<0.0003	<0.050
07/19/95	<0.0005	<0.0005	<0.0005	<0.002	1.5
10/13/95	<0.0005	<0.0005	<0.0005	<0.002	<0.050
01/08/96	<0.0005	<0.0005	<0.0005	<0.002	36
04/10/96	<0.0005	<0.0005	<0.0005	<0.002	1.8
07/17/96	<0.0005	<0.0005	<0.0005	<0.002	0.12
10/17/96	<0.0005	<0.0005	<0.0005	<0.001	<0.050
01/11/97	<0.0005	<0.0005	<0.0005	<0.001	<0.050
04/04/97	<0.0005	<0.0005	<0.0005	<0.001	<0.050
07/18/97	<0.0005	<0.0005	<0.0005	<0.001	0.096
06/25/98	<0.0005	<0.0005	<0.0005	<0.001	<0.1
07/09/98	<0.0005	<0.0005	<0.0005	<0.001	0.066
07/28/98**	N/A	N/A	N/A	N/A	0.05
10/02/98	<0.0005	<0.0005	<0.0005	<0.001	<0.050

* - Discharge limits updated on July 1, 1996.

** - Resampled to verifiy breakthrough

N/A - Not Applicable

TABLE 3
Analytical Results
Water Stream Between Carbon Units
Hydrocarbon Treatment System
Oakland Fueling Area

Date Collected	Benzene *(mg/L)*	Toluene *(mg/L)*	Ethylbenzene *(mg/L)*	Xylenes *(mg/L)*
01/05/95	0.0048	0.0035	<0.003	0.015
01/25/95	<0.03	<0.03	<0.03	<0.03
04/12/95	0.0013	<0.0003	<0.0003	<0.0003
05/29/95	0.0032	<0.0005	<0.0005	<0.0005
06/30/95	0.002	<0.0005	<0.0005	<0.002
07/19/95	0.002	<0.0005	<0.0005	<0.002
08/08/95	<0.0005	<0.0005	<0.0005	<0.002
09/08/95	<0.0005	0.0008	<0.0005	<0.002
11/22/95	<0.0005	<0.0005	<0.0005	<0.002
12/15/95	<0.0005	<0.0005	<0.0005	<0.002
01/08/96	0.0008	<0.0005	<0.0005	<0.002
02/12/96	0.0012	0.0005	<0.0005	<0.002
03/12/96	<0.0005	<0.0005	<0.0005	<0.002
04/10/96	0.0018	<0.0005	0.0005	<0.002
05/13/96	<0.0005	<0.0005	<0.0005	<0.002
06/13/96	<0.0005	<0.0005	<0.0005	<0.002
07/17/96	<0.0005	<0.0005	<0.0005	<0.002
08/19/96	<0.0005	<0.0005	<0.0005	<0.001
09/16/96	<0.0005	<0.0005	<0.0005	<0.001
10/17/96	<0.0005	<0.0005	<0.0005	<0.001
11/25/96	0.023	0.0037	<0.0005	0.031
12/13/96	<0.0005	<0.0005	<0.0005	<0.001
01/14/97	<0.0005	<0.0005	<0.0005	<0.001
02/11/97	<0.0005	<0.0005	<0.0005	<0.001
03/10/97	<0.0005	<0.0005	<0.0005	<0.001
04/04/97	<0.0005	<0.0005	<0.0005	<0.001
05/15/97	<0.0005	<0.0005	<0.0005	<0.001
07/18/97	<0.0005	<0.0005	<0.0005	<0.001
08/15/97	<0.0005	<0.0005	<0.0005	<0.001
09/05/97	<0.0005	<0.0005	<0.0005	<0.001
06/25/98	<0.0005	<0.0005	<0.0005	<0.001
07/09/98	<0.0005	<0.0005	<0.0005	<0.001
08/14/98	<0.0005	<0.0005	<0.0005	<0.001
09/11/98	<0.0005	<0.0005	<0.0005	<0.001
10/02/98	<0.0005	<0.0005	<0.0005	<0.001
11/06/98	<0.0005	<0.0005	<0.0005	<0.001

TABLE 4
Hydrocarbon Treatment System
Granular Activated Carbon Usage
Oakland Fueling Area

Date	Time	Volume *(gallons)*	Periodic Flowrate *(gpm)*	Average Flowrate *(gpm)*	Infl Conc TPHd *(mg/l)*	Carbon Used *(pounds)*	Spent Carbon *(pounds)*	Remaining Pumpable *(gallons)*	Remaining Pumpable *(days)*	Projected Breakthru Date
05/07/92	11:35 PM	2020	1.74	1.74	45 *	8	8	531663	213	Dec-92
05/12/92	08:30 AM	12980	1.74	1.74	45	41	49	520703	208	Dec-92
05/19/92	01:30 PM	24990	1.16	1.55	59	50	98	387036	174	Nov-92
05/27/92	10:50 AM	45350	1.79	1.61	61	89	187	356823	154	Oct-92
06/02/92	03:00 PM	73150	3.13	1.91	100	144	331	200426	73	Aug-92
07/07/92	05:35 PM	166500	1.85	1.90	200	661	992	60539	22	Jul-92
08/11/92	11:56 AM	232370	1.32	1.32	6.1	0 +	0	1771651	935	Mar-95
09/25/92	09:55 AM	388390	2.41	1.86	17	333	333	529708	197	Apr-93
11/16/92	09:55 AM	484380	1.28	1.67	100	729	1062	50663	21	Dec-92
12/04/92	09:55 AM	518160	1.30	1.58	8.7	206	1268	454391	200	Jun-93
02/02/93	02:30 PM	673180	1.79	1.62	6.9	796	2064	-50298	-22	Jan-93
03/10/93	03:00 PM	741070	1.31	1.31	30 *	0 +	0	400262	212	Oct-93
03/30/93	09:00 AM	743950	0.10	1.61	44	18	18	270484	117	Jul-93
04/30/93	04:00 PM	755900	0.27	1.51	14	58	76	825055	379	May-94
05/27/93	01:40 PM	854610	2.55	1.58	120	855	931	53482	23	Jun-93
06/30/93	07:30 AM	1007200	3.14	1.68	1.2	1063	1994	27899	12	Jul-93
07/21/93	07:30 AM	1094630	2.89	2.89	2.2 *	0 +	0	2183247	524	Dec-94
07/28/93	08:30 AM	1125630	3.06	2.97	2.2	28	28	2152247	503	Dec-94
08/31/93	01:55 PM	1256910	2.66	2.87	3.2	138	167	1375740	333	Jul-94
09/30/93	04:00 PM	1333050	1.76	2.59	20	219	386	193850	52	Nov-93
10/28/93	05:50 PM	1411050	1.93	2.46	6.1	219	605	549390	155	Apr-94
11/30/93	08:00 PM	1475300	1.35	2.27	31	288	893	85757	26	Dec-93
12/28/93	12:00 PM	1526880	1.29	2.13	10	229	1122	210802	69	Mar-94
01/31/94	03:00 PM	1584340	1.17	2.01	3.3	233	1356	469026	162	Jul-94
02/07/94	12:00 PM	1595300	1.11	1.11	8.0 *	0 +	0	1500982	942	Sep-96
02/25/94	04:00 PM	1658010	2.40	1.75	9.3	90	90	1232840	489	Jun-95
03/30/94	11:00 AM	1785000	2.69	2.06	2.7	141	231	3932895	1323	Nov-97
05/03/94	05:00 PM	1841190	1.14	1.83	67	204	435	140249	53	Jun-94
06/01/94	04:00 PM	1909040	1.63	1.79	3.5	205	639	2333885	904	Nov-96
07/29/94	07:30 PM	2029010	1.43	1.73	1.4	306	946	4522185	1813	Jul-99
08/31/94	07:00 PM	2113920	1.79	1.74	2.1	190	1135	2471828	986	May-97
09/27/94	11:00 AM	2175320	1.60	1.72	5.9	128	1263	749848	302	Jul-95
10/28/94	12:00 PM	2254600	1.77	1.73	5.5	155	1418	635573	255	Jul-95
11/16/94	03:30 PM	2269370	0.54	1.61	39	36	1453	84163	36	Dec-94
11/23/94	11:00 AM	2276880	0.77	0.77	16 *	0 +	0	750491	681	Oct-96
01/25/95	01:30 PM	2468180	2.11	1.44	35 **	812	812	203706	99	May-95
04/12/95	10:50 AM	2549270	0.73	1.20	3.7	246	1059	1527342	883	Sep-97
05/29/95	03:30 PM	2732640	2.70	1.58	0	418	1476	1527342	673	Apr-97
06/30/95	02:00 PM	2830380	2.13	1.69	25	259	1736	63424	26	Jul-95
07/19/95	02:30 PM	2882550	1.90	1.72	13	134	1870	59968	24	Aug-95
07/21/95	11:00 AM	2890500	2.98	2.98	12 *	0 +	0	1000655	233	Mar-96
08/08/95	04:00 PM	2986700	3.67	3.32	11	184	184	991051	207	Mar-96
09/08/95	02:00 PM	3108110	2.73	3.12	11	229	413	865962	192	Mar-96
10/13/95	10:30 AM	3206500	1.96	2.83	66	410	823	107058	26	Nov-95
11/22/95	03:30 PM	3318600	1.94	2.65	38	515	1338	104523	27	Dec-95

TABLE 4
Hydrocarbon Treatment System
Granular Activated Carbon Usage
Oakland Fueling Area

Date	Time	Volume *(gallons)*	Periodic Flowrate *(gpm)*	Average Flowrate *(gpm)*	Infl Conc TPHd *(mg/l)*	Carbon Used *(pounds)*	Spent Carbon *(pounds)*	Remaining Pumpable *(gallons)*	Remaining Pumpable *(days)*	Projected Breakthru Date
12/15/95	08:00 AM	3369800	1.57	2.47	19	223	1562	138533	39	Jan-96
01/08/96	11:45 AM	3554790	5.32	2.88	0.05	691	2253	255074	62	Mar-96
02/12/96	08:00 AM	3714500	3.18	2.92	56	708	2961	4150	1	Feb-96
03/12/96	11:00 AM	3814170	2.38	2.86	42	470	3432	2610	1	Mar-96
04/10/96	08:00 AM	3927670	2.73	2.84	36	550	3982	3011	1	Apr-96
05/06/96	08:00 AM	4035290	2.87	2.87	25 *	0 +	0	480314	116	Aug-96
05/13/96	08:00 AM	4055530	2.69	2.78	14	66	66	829513	207	Dec-96
06/13/96	07:00 AM	4172140	2.62	2.73	18	369	435	522088	133	Oct-96
07/17/96	07:50 AM	4343300	3.49	2.92	9.7	475	910	674587	161	Dec-96
08/19/96	08:00 AM	4478300	2.84	2.90	14	363	1273	311757	75	Nov-96
09/16/96	10:00 AM	4556200	1.93	2.74	14	205	1478	223934	57	Nov-96
10/17/96	02:55 PM	4645700	1.99	2.63	11	225	1703	162148	43	Nov-96
11/25/96	10:25 AM	4781700	2.43	2.61	13	336	2039	-18021	-5	Nov-96
12/13/96	09:35 AM	4829600	1.85	2.52	14	118	2157	-67181	-18	Nov-96
12/19/96	09:40 AM	4840900	1.31	1.31	17 *	0 +	0	706345	375	Dec-97
01/14/97	01:00 PM	4914200	1.95	1.63	22	238	238	480841	205	Aug-97
02/11/97	02:30 PM	5072700	3.92	2.39	13	462	700	600366	174	Aug-97
03/10/97	10:00 AM	5186800	2.96	2.53	16	276	976	384394	105	Jun-97
04/04/97	11:00 AM	5288500	2.82	2.59	8.7	209	1185	562565	151	Sep-97
05/15/97	07:30 AM	5435800	2.50	2.58	8.5	211	1396	426769	115	Sep-97
06/30/97	11:25 AM	5484800	0.74	2.31	8.5 *	69	1465	377769	113	Oct-97
07/18/97	01:00 PM	5580700	3.69	2.48	18	212	1677	107798	30	Aug-97
08/08/97	09:00 AM	5666400	2.86	2.86	18 *	0 +	0	667103	162	Jan-98
08/15/97	11:00 AM	5679200	1.25	2.06	12	32	32	984655	333	Jul-98
09/05/97	11:00 AM	5790000	3.66	2.59	14	240	272	741104	199	Mar-98
6/30/1998	Not Recorded	5925800	10.48	4.56	26.5	480	751	282887	43	Aug-98
07/29/98	09:30 AM	6083000	12.13	6.08	27.5	581	1333	145697	17	Aug-98
08/28/98	09:00 AM	6166900	1.94	1.94	26	0 +	0	461841	165	Feb-99
09/28/98	10:30 AM	6267800	2.26	2.10	12	355	355	823146	272	Jun-99
10/31/98	10:00 AM	6400200	2.79	2.33	19	380	735	399870	119	Feb-99
11/23/98	10:00 AM	6477700	2.34	2.33	0	136	516	NA	NA	NA

* - Concentration estimate

** - Concentration represents the average estimated value from January to the next sampling event.

*** - Recovery system was inoperable from Sept. 22, 1997 to June 22, 1998. Readings reflect the first 7 days after the system was restarted.

+ - Changed carbon vessel on this date.

Signet meter battery changed on 9/1/95 - last reading 3,089,890 gallons.

TABLE 5
Fluid Level Measurements
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		8.79					
	01/25/95			2.52	6.27		6.27
	05/09/95			5.55	3.24		3.24
	05/17/95			4.43	4.36		4.36
	07/31/95			6.43	2.36		2.36
	09/07/95			6.86	1.93		1.93
	11/30/95			7.69	1.10		1.10
	01/10/96			6.48	2.31		2.31
	03/25/96			5.00	3.79		3.79
	05/17/96			2.98	5.81		5.81
	07/25/96			6.29	2.50		2.50
	09/16/96			7.05	1.74		1.74
	11/12/96			7.51	1.28		1.28
	01/20/97			4.26	4.53		4.53
	03/06/97			4.65	4.14		4.14
	05/20/97			6.11	2.68		2.68
	07/15/97			6.66	2.13		2.13
	08/28/97			6.58	2.21		2.21
	09/15/97			7.16	1.63		1.63
	11/18/97			6.58	2.21		2.21
	02/04/98			1.78	7.01		7.01
	05/21/98			5.43	3.36		3.36
	07/30/98			6.41	2.38		2.38
	08/12/98			6.54	2.25		2.25
	09/28/98			7.11	1.68		1.68
	11/04/98			7.32	1.47		1.47
OMW-2		5.88					
	01/25/95			3.35	2.53		2.53
	05/09/95		NOT GAUGED				
	05/17/95			2.44	3.44		3.44
	07/31/95		NOT GAUGED				
	09/07/95			4.35	1.53		1.53
	11/30/95			5.12	0.76		0.76
	01/10/96			2.60	3.28		3.28
	03/25/96			2.35	3.53		3.53
	05/17/96			1.73	4.15		4.15
	07/25/96			4.07	1.81		1.81
	09/16/96			4.60	1.28		1.28
	11/12/96			4.93	0.95		0.95
	01/20/97			2.44	3.44		3.44
	03/06/97			4.26	1.62		1.62
	05/20/97			4.65	1.23		1.23
	07/15/97			4.64	1.24		1.24
	08/28/97			4.58	1.30		1.30
	09/15/97			4.90	0.98		0.98
	11/18/97			2.11	3.77		3.77
	02/04/98			1.72	4.16		4.16
	05/21/98			2.34	3.54		3.54
	07/30/98			4.11	1.77		1.77
	08/12/98			4.30	1.58		1.58
	09/28/98			4.64	1.24		1.24
	11/04/98			5.03	0.85		0.85
OMW-3		7.16					
	01/25/95		NOT GAUGED - WELL UNDER WATER				
	05/09/95			4.37	2.79		2.79
	05/17/95			4.46	2.70		2.70
	07/31/95			5.22	1.94		1.94
	09/07/95			5.64	1.52		1.52

TABLE 5
Fluid Level Measurements
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-3	11/30/95			6.36	0.80		0.80
	01/10/96			5.13	2.03		2.03
	03/25/96			4.08	3.08		3.08
	05/17/96			2.61	4.55		4.55
	07/25/96			5.26	1.90		1.90
	09/16/96			5.90	1.26		1.26
	11/12/96			6.22	0.94		0.94
	01/20/97			3.79	3.37		3.37
	03/06/97			4.02	3.14		3.14
	05/20/97			5.34	1.82		1.82
	07/15/97			5.64	1.52		1.52
	08/28/97			5.79	1.37		1.37
	09/15/97			5.95	1.21		1.21
	11/18/97			5.27	1.89		1.89
	02/04/98			0.94	6.22		6.22
	05/21/98			4.12	3.04		3.04
	07/30/98	Well Not Gauged	PVC Damaged				
	08/12/98	Well Not Gauged	PVC Damaged				
	09/28/98	Well Not Gauged	PVC Damaged				
	11/04/98			5.90	1.26		1.26
OMW-4		7.41					
	01/25/95		6.23	7.12	0.29	0.89	1.04
	05/09/95		4.99	6.38	1.03	1.39	2.20
	05/17/95		5.19	6.58	0.83	1.39	2.00
	07/31/95		5.78	6.99	0.42	1.21	1.44
	09/07/95		6.01	6.92	0.49	0.91	1.25
	11/30/95		6.60	7.06	0.35	0.46	0.74
	01/10/96		5.73	6.48	0.93	0.75	1.56
	03/25/96		5.22	6.19	1.22	0.97	2.03
	05/17/96		5.23	6.26	1.15	1.03	2.02
	07/25/96		TRACE	5.82	1.59		1.59
	09/16/96		6.11	7.55	-0.14	1.44	1.07
	11/12/96		6.58	8.12	-0.71	1.54	0.58
	01/20/97		4.75	6.45	0.96	1.70	2.39
	03/06/97		5.25	6.24	1.17	0.99	2.00
	05/20/97		5.83	6.35	1.06	0.52	1.50
	07/15/97		6.24	6.75	0.66	0.51	1.09
	08/28/97		6.46	7.05	0.36	0.59	0.86
	09/15/97		6.40	7.11	0.30	0.71	0.90
	11/18/97		4.76	5.43	1.98	0.67	2.54
	03/31/98		3.07	4.00	3.41	0.93	4.19
	05/22/98		3.52	3.41	4.00	-0.11	3.91
	07/30/98		6.45	7.00	0.41	0.55	0.87
	08/12/98		5.68	7.02	0.39	1.34	1.52
	09/28/98		6.02	7.55	-0.14	1.53	1.15
	11/04/98		6.17	7.65	-0.24	1.48	1.00
OMW-5		7.62					
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95			4.84	2.78		2.78
	07/31/95		NOT GAUGED				
	09/07/95			5.85	1.77		1.77
	11/30/95			6.55	1.07		1.07
	01/10/96			5.46	2.16		2.16
	03/25/96			4.63	2.99		2.99
	05/17/96			4.83	2.79		2.79
	07/25/96			5.66	1.96		1.96
	09/16/96			6.17	1.45		1.45

TABLE 5
Fluid Level Measurements
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-5	11/12/96		TRACE	6.59	1.03		1.03
	01/20/97			3.73	3.89		3.89
	03/06/97			5.34	2.28		2.28
	05/20/97			5.59	2.03		2.03
	07/15/97			6.15	1.47		1.47
	08/28/97			6.36	1.26		1.26
	09/15/97			6.58	1.04		1.04
	11/18/97			5.33	2.29		2.29
	02/04/98			3.05	4.57		4.57
	05/21/98			3.56	4.06		4.06
	07/30/98			4.79	2.83		2.83
	08/12/98			5.00	2.62		2.62
	09/08/98			5.73	1.89		1.89
	11/04/98			6.14	1.48		1.48
OMW-6		5.78					
	01/25/95			6.91	-1.13		-1.13
	05/09/95			7.19	-1.41		-1.41
	05/17/95			6.84	-1.06		-1.06
	07/31/95			5.65	0.13		0.13
	09/07/95			5.51	0.27		0.27
	11/30/95			6.71	-0.93		-0.93
	01/10/96			6.72	-0.94		-0.94
	03/25/96			6.73	-0.95		-0.95
	05/17/96			6.50	-0.72		-0.72
	07/25/96			6.62	-0.84		-0.84
	09/16/96			6.44	-0.66		-0.66
	11/12/96			5.65	0.13		0.13
	01/20/97			5.52	0.26		0.26
	03/06/97			7.17	-1.39		-1.39
	05/20/97			6.39	-0.61		-0.61
	07/15/97			6.77	-0.99		-0.99
	08/28/97			6.59	-0.81		-0.81
	09/15/97			6.02	-0.24		-0.24
	11/18/97			4.89	0.89		0.89
	02/04/98			5.85	-0.07		-0.07
	05/21/98			6.13	-0.35		-0.35
	07/30/98			6.76	-0.98		-0.98
	08/12/98			6.88	-1.10		-1.10
	09/28/98			6.63	-0.85		-0.85
	11/04/98			5.42	0.36		0.36
OMW-7		7.03					
	01/25/95		3.31	9.53	-2.50	6.22	2.72
	05/09/95		5.22	9.25	-2.22	4.03	1.17
	05/17/95		5.41	8.38	-1.35	2.97	1.14
	07/31/95		5.61	8.83	-1.80	3.22	0.90
	09/07/95		5.80	7.97	-0.94	2.17	0.88
	11/30/95		6.49	7.54	-0.51	1.05	0.37
	01/10/96		5.40	8.33	-1.30	2.93	1.16
	03/25/96		5.46	9.60	-2.57	4.14	0.91
	05/17/96		5.40	8.79	-1.76	3.39	1.09
	07/25/96		5.92	9.32	-2.29	3.40	0.57
	09/16/96		6.18	8.86	-1.83	2.68	0.42
	11/12/96		6.50	8.79	-1.76	2.29	0.16
	01/20/97		4.95	10.76	-3.73	5.81	1.15
	03/06/97		5.26	7.70	-0.67	2.44	1.38
	05/20/97		5.71	8.26	-1.23	2.55	0.91
	07/15/97		6.21	9.67	-2.64	3.46	0.27
	08/28/97		6.39	9.10	-2.07	2.71	0.21

TABLE 5
Fluid Level Measurements
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	09/15/97		6.51	8.03	-1.00	1.52	0.28
	11/18/97		4.58	5.54	1.49	0.96	2.30
	03/31/98		3.15	6.75	0.28	3.60	3.30
	05/21/98		3.68	7.15	-0.12	3.47	2.79
	07/30/98		5.33	8.70	-1.67	3.37	1.16
	08/12/98		5.42	8.03	-1.00	2.61	1.19
	09/28/98		6.11	8.51	-1.48	2.40	0.54
	11/04/98		6.22	8.22	-1.19	2.00	0.49
OMW-8	01/25/95	7.52	TRACE	3.55	3.97		3.97
	05/09/95			5.00	2.52		2.52
	05/17/95			5.16	2.36		2.36
	07/31/95			5.70	1.82		1.82
	09/07/95			5.99	1.53		1.53
	11/30/95			6.53	0.99		0.99
	01/10/96			5.87	1.65		1.65
	03/25/96			5.01	2.51		2.51
	05/17/96			5.18	2.34		2.34
	07/25/96			5.77	1.75		1.75
	09/16/96			6.21	1.31		1.31
	11/12/96			6.69	0.83		0.83
	01/20/97			4.84	2.68		2.68
	03/06/97			5.15	2.37		2.37
	05/20/97			5.81	1.71		1.71
	07/15/97			6.12	1.40		1.40
	08/28/97			6.29	1.23		1.23
	09/15/97			6.40	1.12		1.12
	11/18/97			5.27	2.25		2.25
	02/04/98			1.67	5.85		5.85
	05/21/98			3.97	3.55		3.55
	07/30/98			5.52	2.00		2.00
	08/12/98			5.73	1.79		1.79
	09/28/98			6.17	1.35		1.35
	11/04/98			6.40	1.12		1.12
OMW-9		6.64					
	01/25/95		3.83	6.25	0.39	2.42	2.42
	05/09/95		4.94	9.02	-2.38	4.08	1.05
	05/17/95		4.18	8.95	-2.31	4.77	1.70
	07/31/95		6.07	8.46	-1.82	2.39	0.19
	09/07/95		5.23	6.89	-0.25	1.66	1.14
	11/30/95		5.76	7.25	-0.61	1.49	0.64
	01/10/96		4.45	9.00	-2.36	4.55	1.46
	03/25/96		4.19	8.96	-2.32	4.77	1.69
	05/17/96		5.41	7.40	-0.76	1.99	0.91
	07/25/96		5.16	8.41	-1.77	3.25	0.96
	09/16/96		5.75	6.19	0.45	0.44	0.82
	11/12/96		5.84	8.37	-1.73	2.53	0.40
	01/20/97		4.10	9.42	-2.78	5.32	1.69
	03/06/97		4.55	7.95	-1.31	3.40	1.55
	05/20/97		5.09	7.11	-0.47	2.02	1.23
	07/15/97			* 8.8	-2.16		-2.16
	08/28/97			* 8.8	-2.16		-2.16
	09/15/97			7.80	-1.16		-1.16
	11/18/97			NA	NA		NA
	02/04/98			NA	NA		NA
	05/21/98			NA	NA		NA
	07/30/98		8.40	* 8.5	-1.86	0.10	-1.78
	08/12/98			NA	NA		NA
	09/28/98			8.50	-1.86		-1.86
	11/04/98		TRACE	6.50	0.14		0.14

TABLE 5

Fluid Level Measurements

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		7.56					
	01/25/95		NOT GAUGED - WELL COVERED				
	05/09/95		NOT GAUGED - WELL COVERED				
	05/17/95		TRACE	4.64	2.92		2.92
	07/31/95		NOT GAUGED - WELL COVERED				
	09/07/95			6.02	1.54		1.54
	11/30/95		TRACE	7.78	-0.22		-0.22
	01/10/96		TRACE	4.68	2.88		2.88
	03/25/96			4.58	2.98		2.98
	05/17/96			4.75	2.81		2.81
	07/25/96			5.79	1.77		1.77
	09/16/96			6.33	1.23		1.23
	11/12/96		TRACE	6.50	1.06		1.06
	01/20/97			4.33	3.23		3.23
	03/06/97			5.05	2.51		2.51
	05/20/97			5.69	1.87		1.87
	07/15/97			6.71	0.85		0.85
	08/28/97			6.11	1.45	SHEEN	1.45
	09/15/97			6.75	0.81	SHEEN	0.81
	11/18/97			4.63	2.93		2.93
	02/04/98			3.00	4.56		4.56
	05/21/98			4.13	3.43		3.43
	07/30/98			5.81	1.75		1.75
	08/12/98			4.94	2.62		2.62
	09/28/98			6.32	1.24		1.24
	11/04/98			6.53	1.03		1.03
ORW-1		6.59					
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95		8.77	9.76	-3.17	0.99	-2.34
	07/31/95		8.35	10.55	-3.96	2.20	-2.11
	09/07/95		8.55	11.03	-4.44	2.48	-2.36
	11/30/95		5.92	5.98	0.61	0.06	0.66
	01/10/96		TRACE	11.20	-4.61		-4.61
	03/25/96			11.20	-4.61		-4.61
	05/17/96			11.40	-4.81		-4.81
	07/25/96		TRACE	10.90	-4.31		-4.31
	09/16/96			9.60	-3.01		-3.01
	11/12/96			9.60	-3.01		-3.01
	01/20/97		NOT GAUGED				
	03/06/97		9.55	9.75	-3.16	0.20	-2.99
	05/20/97		9.75	9.86	-3.27	0.11	-3.18
	07/15/97			7.98	-1.39	SHEEN	-1.39
	08/28/97		NOT GAUGED				
	09/15/97		NOT GAUGED				
	11/18/97		3.94	3.96	2.63	0.02	2.65
	03/31/98		2.25	2.88	3.71	0.63	4.24
	05/21/98		2.66	3.65	2.94	0.99	3.77
	07/30/98			8.90	-2.31		-2.31
	08/12/98			10.01	-3.42		-3.42
	09/28/98			9.72	-3.13		-3.13
	11/04/98		TRACE	9.45	-2.86		-2.86
ORW-2		6.79					
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95		9.55	9.56	-2.77	0.01	-2.76
	07/31/95		9.30	9.45	-2.66	0.15	-2.53
	09/07/95		9.45	9.50	-2.71	0.05	-2.67

TABLE 5
Fluid Level Measurements
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-2	11/30/95		9.66	9.68	-2.89	0.02	-2.87
	01/10/96		9.55	9.60	-2.81	0.05	-2.77
	03/25/96		10.75	11.85	-5.06	1.10	-4.14
	05/17/96		10.60	11.60	-4.81	1.00	-3.97
	07/25/96		11.70	12.30	-5.51	0.60	-5.01
	09/16/96		10.95	12.30	-5.51	1.35	-4.38
	11/12/96		9.63	10.87	-4.08	1.24	-3.04
	01/20/97		9.61	11.00	-4.21	1.39	-3.04
	03/06/97		10.05	11.09	-4.30	1.04	-3.43
	05/20/97		10.70	11.46	-4.67	0.76	-4.03
	07/15/97		11.68	12.01	-5.22	0.33	-4.94
	08/28/97		11.60	11.87	-5.08	0.27	-4.85
	09/15/97		11.90	12.08	-5.29	0.18	-5.14
	11/18/97		4.09	5.62	1.17	1.53	2.46
	03/31/98		2.27	4.05	2.74	1.78	4.24
	05/21/98		2.77	4.53	2.26	1.76	3.74
	07/30/98		11.26	11.36	-4.57	0.10	-4.49
	08/12/98			12.31	-5.52		-5.52
	09/28/98		11.88	12.00	-5.21	0.12	-5.11
	11/04/98		11.50	11.85	-5.06	0.35	-4.77
ORW-3		6.30					
	01/25/95		NOT GAUGED				
	05/09/95		NOT GAUGED				
	05/18/95		9.45	9.48	-3.18	0.03	-3.15
	07/31/95		TRACE	9.68	-3.38		-3.38
	09/07/95		9.57	9.60	-3.30	0.03	-3.27
	11/30/95		TRACE	9.67	-3.37		-3.37
	01/10/96		TRACE	9.55	-3.25		-3.25
	03/25/96		11.55	12.05	-5.75	0.50	-5.33
	05/17/96		11.60	12.10	-5.80	0.50	-5.38
	07/25/96			11.60	-5.30		-5.30
	09/16/96		11.40	11.90	-5.60	0.50	-5.18
	11/12/96		11.63	11.87	-5.57	0.24	-5.37
	01/20/97		NOT GAUGED		6.30	0.00	6.30
	03/06/97		11.20	11.50	-5.20	0.30	-4.95
	05/20/97		8.60	11.49	-5.19	2.89	-2.76
	07/15/97			11.46	-5.16	SHEEN	-5.16
	08/28/97			11.55	-5.25		-5.25
	09/15/97		11.40	11.47	-5.17	0.07	-5.11
	11/18/97		3.36	3.52	2.78	0.16	2.91
	03/31/98		2.20	2.69	3.61	0.49	4.02
	05/21/98		2.31	2.70	3.60	0.39	3.93
	07/30/98		11.45	11.48	-5.18	0.03	-5.15
	08/12/98		11.61	11.72	-5.42	0.11	-5.33
	09/28/98			11.61	-5.31		-5.31
	11/04/98		11.36	11.38	-5.08	0.02	-5.06
OP-1	05/18/95	6.71	3.84	5.05	1.66	1.21	2.68
	07/31/95		5.23	5.35	1.36	0.12	1.46
	09/07/95		5.55	6.13	0.58	0.58	1.07
	11/30/95		5.81	9.36	-2.65	3.55	0.33
	01/10/96		TRACE	4.41	2.30		2.30
	03/25/96			3.78	2.93		2.93
	05/17/96			2.18	4.53		4.53
	07/25/96			3.71	3.00		3.00
	09/16/96			3.15	3.56		3.56
	11/12/96		TRACE	2.90	3.81		3.81
	01/20/97		TRACE	3.90	2.81		2.81
	03/06/97		TRACE	4.19	2.52		2.52

TABLE 5
Fluid Level Measurements
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)
OP-1	05/20/97		4.87	4.94	1.77	0.07	1.83
	07/15/97		4.91	5.18	1.53	0.27	1.76
	08/28/97		4.55	4.64	2.07	0.09	2.15
	09/15/97		4.89	5.03	1.68	0.14	1.80
	11/18/97		3.33	3.38	3.33	0.05	3.37
	03/31/98		SHEEN	3.83	2.88		2.88
	05/21/98			3.82	2.89		2.89
	07/30/98		3.80	12.03	-5.32	8.23	1.59
	08/12/98		3.90	12.51	-5.80	8.61	1.43
	09/28/98		4.81	8.77	-2.06	3.96	1.27
	11/04/98		4.75	6.25	0.46	1.50	1.72
OP-2	05/18/95	7.80	5.15	6.97	0.83	1.82	2.36
	07/31/95		NOT GAUGED				
	09/07/95		6.04	7.85	-0.05	1.81	1.47
	11/30/95		6.85	7.26	0.54	0.41	0.88
	01/10/96		5.70	6.25	1.55	0.55	2.01
	03/25/96		5.00	6.67	1.13	1.67	2.53
	05/17/96		5.30	6.45	1.35	1.15	2.32
	07/25/96		5.97	6.62	1.18	0.65	1.73
	09/16/96		6.25	8.15	-0.35	1.90	1.25
	11/12/96		6.66	8.79	-0.99	2.13	0.80
	01/20/97		4.74	6.35	1.45	1.61	2.80
	03/06/97		5.38	6.40	1.40	1.02	2.26
	05/20/97		5.92	7.26	0.54	1.34	1.67
	07/15/97		6.34	8.37	-0.57	2.03	1.14
	08/28/97		6.55	8.45	-0.65	1.90	0.95
	09/15/97		6.62	8.59	-0.79	1.97	0.86
	11/18/97		5.55	5.87	1.93	0.32	2.20
	03/31/98		3.28	6.18	1.62	2.90	4.06
	05/21/98		NOT GAUGED				
	07/30/98		5.79	7.64	0.16	1.85	1.71
	08/12/98		5.92	8.92	-1.12	3.00	1.40
	09/28/98		6.27	9.05	-1.25	2.78	1.09
	11/04/98		6.42	8.82	-1.02	2.40	1.00
OP-3	05/18/95	6.48	4.88	9.86	-3.38	4.98	0.80
	07/31/95		5.32	8.46	-1.98	3.14	0.66
	09/07/95		5.16	8.22	-1.74	3.06	0.83
	11/30/95		5.75	6.52	-0.04	0.77	0.61
	01/10/96		4.84	10.20	-3.72	5.36	0.78
	03/25/96		5.12	9.84	-3.36	4.72	0.60
	05/17/96		5.03	10.29	-3.81	5.26	0.61
	07/25/96		TRACE	5.61	0.87		0.87
	09/16/96		5.75	9.29	-2.81	3.54	0.16
	11/12/96		6.14	8.89	-2.41	2.75	-0.10
	01/20/97		4.96	8.20	-1.72	3.24	1.00
	03/06/97		4.75	8.42	-1.94	3.67	1.14
	05/20/97		6.38	6.95	-0.47	0.57	0.01
	07/15/97		5.87	7.64	-1.16	1.77	0.33
	08/28/97		6.89	8.65	-2.17	1.76	-0.69
	09/15/97		6.03	8.03	-1.55	2.00	0.13
	11/18/97		3.89	5.61	0.87	1.72	2.31
	03/31/98		2.70	6.00	0.48	3.30	3.25
	05/21/98		3.80	6.77	-0.29	2.97	2.20
	07/30/98		5.79	7.64	-1.16	1.85	0.39
	08/12/98		5.20	8.40	-1.92	3.20	0.77
	09/28/98		5.74	7.49	-1.01	1.75	0.46
	11/04/98		5.86	7.65	-1.17	1.79	0.33

TABLE 5

Fluid Level Measurements

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)
OP-4	05/18/95	6.32	3.28	7.15	-0.83	3.87	2.42
	07/31/95		NOT GAUGED				
	09/07/95		4.64	6.17	0.15	1.53	1.44
	11/30/95		5.56	5.75	0.57	0.19	0.73
	01/10/96		3.43	6.45	-0.13	3.02	2.41
	03/25/96		3.11	6.89	-0.57	3.78	2.61
	05/17/96		3.30	6.43	-0.11	3.13	2.52
	07/25/96		4.30	7.58	-1.26	3.28	1.50
	09/16/96		4.71	8.09	-1.77	3.38	1.07
	11/12/96		5.10	8.56	-2.24	3.46	0.67
	01/20/97		3.30	6.49	-0.17	3.19	2.51
	03/06/97		3.80	4.99	1.33	1.19	2.33
	05/20/97		4.59	5.28	1.04	0.69	1.62
	07/15/97			* 6.32	-1.68		-1.68
	08/28/97			* 6.32	-1.68		-1.68
	09/15/97			9.90	-3.58		-3.58
	11/18/97			NA	NA		NA
	02/04/98			NA	NA		NA
	05/22/98			NA	NA		NA
	07/30/98			6.85	-0.53		-0.53
	08/12/98			NA	NA		NA
	09/28/98			10.51	-4.19		-4.19
	11/04/98			9.59	-3.27		-3.27

* Water and product levels below pump housing - reported value is depth to pump.

Data collected prior to 1997 was submitted in previous reports.

M.S.L. = Mean Sea Level

NA = Not Applicable. Wells are not gauged due to pump components blocking casing.

TABLE 6
Analytical Results
Groundwater Monitoring Wells
Union Pacific Railroad
Oakland Fueling Area

Well Number	Date Sampled	Total Petroleum Hydrocarbons-Diesel (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	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/15/94	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	0.240	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	0.056	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	0.13	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	0.17	<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	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.082	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	4.0	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	0.58	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	3.4	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	0.72	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.8	<0.0005	<0.0005	0.0023	<0.0005
	08/13/98	2.0	<0.0005	<0.0005	<0.0005	<0.0005
OMW-3	05/11/92	2.3	.0003 J	0.0013	.0003 J	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	1.8	<0.0003	0.0005	<0.0003	<0.0009
	05/02/94	1.8	<0.0005	0.0023	<0.0005	0.00089
	11/15/94	1.2	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.46	<0.0005	0.0013	<0.0005	<0.0005
	11/30/95	2.4	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	2.3	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	3.1	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	1.4	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	3.2	<0.0005	<0.0005	<0.0005	<0.0005
OMW-5	05/11/92	2.1	<0.0005	.0004 J	<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	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.52	<0.0005	0.0012	0.0014	0.0077
	05/18/95	2.4	<0.0005	<0.0005	<0.0005	0.0017
	11/30/95	13	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	5.8	<0.0005	<0.0005	<0.0005	<0.0005

TABLE 6
Analytical Results
Groundwater Monitoring Wells
Union Pacific Railroad
Oakland Fueling Area

Well Number	Date Sampled	Total Petroleum Hydrocarbons-Diesel (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
OMW-5	11/12/96	****** NOT SAMPLED - Well Contained Product/Sheen******				
	08/28/97	1.7	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	2.2	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	3.7	<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	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/16/94	0.46	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	1.1	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	2.5	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	2.3	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	1.9	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	0.99	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.5	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	1.5	<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	<0.050	<0.0005	<0.0005	<0.0005	<0.0005
	11/15/94	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	05/17/95	0.26	<0.0005	<0.0005	<0.0005	<0.0005
	11/30/95	1.7	<0.0005	<0.0005	<0.0005	<0.0005
	05/29/96	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	11/12/96	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	08/28/97	1.3	<0.0005	<0.0005	<0.0005	<0.0005
	02/05/98	1.9	<0.0005	<0.0005	<0.0005	<0.0005
	08/13/98	1.6	<0.0005	<0.0005	<0.0005	<0.0005
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/Sheen******				
	11/10/93	2.6	0.0043	0.0011	<0.0003	.00012
	05/02/94	2.6	0.00052	<0.0005	<0.0005	<0.0005
	11/16/94	****** NOT SAMPLED - Well Contained Product/Sheen******				
	05/17/95	****** NOT SAMPLED - Well Contained Product/Sheen******				
	11/30/95	****** NOT SAMPLED - Well Contained Product/Sheen******				
	05/29/96	****** NOT SAMPLED - Well Contained Product/Sheen******				
	11/12/96	****** NOT SAMPLED - Well Contained Product/Sheen******				
	08/28/97	****** NOT SAMPLED - Well Contained Product/Sheen******				
	02/05/98	9.1	18	<0.0005	<0.0005	<0.0005
	08/13/98	4.5	0.21	0.0005	<0.0005	<0.0005

NOTES: J = Estimated value below reporting limit.

* 0.00062 mg/L was detected in the trip blank.

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

TABLE 7
Diesel Recovery
Union Pacific Railroad
Oakland Fueling Area

DATE	TOTAL VOLUME RECOVERED (gallons)	RECOVERY RATE (gal/day)	NOTES
03/02/93	1500	--	VOLUME ESTIMATED FROM GAUGE
05/11/93	1700	2.9	TANK EMPTIED
06/10/93	1900	6.7	VOLUME ESTIMATED FROM GAUGE
09/03/93	2700	9.4	TANK EMPTIED
11/30/93	3400	8.0	VOLUME ESTIMATED FROM GAUGE
02/25/94	4200	9.2	VOLUME ESTIMATED FROM GAUGE
06/01/94	4800	6.3	VOLUME ESTIMATED FROM GAUGE
06/27/94	4900	3.8	TANK EMPTIED
09/23/94	5500	6.8	TANK EMPTIED
12/27/94	6000	5.3	TANK EMPTIED
03/17/95	6300	3.8	TANK EMPTIED
07/14/95	6900	5.0	TANK EMPTIED
10/18/95	7500	6.3	TANK EMPTIED
01/30/96	8200	6.7	TANK EMPTIED
07/08/96	9000	5.0	TANK EMPTIED
01/02/97	9800	4.5	TANK EMPTIED
08/05/97	10500	1.3	TANK EMPTIED
06/30/98*	10600	7.6	VOLUME ESTIMATED FROM GAUGE
09/28/98	10800	5.6	VOLUME ESTIMATED FROM GAUGE
11/23/98	10900	0.2	VOLUME ESTIMATED FROM GAUGE

* Recovery system was inoperable from Sept. 22, 1997 to June 22, 1998.
Readings reflect the first 7 days after the system was restarted.

APPENDIX A

FIELD LOGS
GROUNDWATER RECOVERY AND TREATMENT SYSTEM

GROUNDWATER TREATMENT SYSTEM FIELD LOG
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD

Date	Time	Volume		Flow Rate	Filter Pressure		Oil Level	Comments
		Signet (gallons)	Neptune (gallons)	Thru Carbon (gal/min)	Inlet (psig)	Outlet (psig)	In Tank (inches)	(Maintenance, Adjustments, and Observations)
7/2/98	1100	385690	5936800	26.5	9.5	9.0	19.5	
7/6/98	1030	406740	5958900	24.3	10	9.5	20.0	
7/9/98	1045	422580	5975100	27.0	10	9.5	20.5	Sampled inf, mid, eff.
7/13	1000	424050	5990800	20.1	10	6.5	22.5	
7/17	1045	444090	6013100	21.0	10	10	22.75	
7/21	0930	462810	6035600	21.0	10	7.0	22.75	
7/24	1100	470250	6051500	20.0	11	6.0	22.75	
7/28	1000	479930	6072400	22.0	12	6.0	22.75	
7/30	0930	488760	6083000	20.5	9.0	8.0	22.75	Gauged all wells at site

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

FLUID LEVEL MEASUREMENTS
OAKLAND TRAILER ON FLAT CAR FACILITY
UNION PACIFIC RAILROAD
DATE: July 30, 1998

WELL NUMBER	TIME	DEPTH TO PRODUCT (feet)	DEPTH TO WATER (feet)	AMOUNT OF PRODUCT RECV'D (gallons)	COMMENTS OR OBSERVATIONS
DS-1	—	—	—		Well lost
DS-2	—	—	—		Well abandoned
DS-3	—	—	—		" "
OMW-1	0915	—	6.41		
OMW-3	1110	—	4.95		Well head destroyed; casing bent + bent
OMW-8	1010	—	5.52		
OMW-4	0920	6.45	7.00		Cracked lid
ORW-3	1005	11.45	11.48		
OP-1	0955	3.80	12.03		
ORW-2	0950	11.26	11.36		
OMW-9	1000	8.40	8.50 + rising		
OMW-7	0945	5.53	8.70		
ORW-1	0935	—	8.90		
OP-3	0936	5.12	6.50		
OP-4	0930	—	6.85		
OMW-10	0925	—	5.81		
OMW-2	1045	—	4.11		
OP-2	1040	5.79	7.64		
OMW-5	—	—	4.79		
OMW-6	1050	—	6.76		
OKUS-W2	1102	—	8.72		
OKUS-W3	1100	—	9.04		
RW	1055	8.71	8.76		
OKUS-W4	—	—	—		Destroyed
OKUS-W5	—	—	—		Bunker C - too viscous to measure
OKUS-W6	—	—	—		" " "

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

7/2 MF ON SITE @ 1045 HRS

NEP	5936800
SIG	385C90
FLOW	26.5 GPM
OIL	19.5 INCHES
PSI IN	9.5 PSI
PSI OUT	9.0 PSI
OMW-9	614134
OMW-4	432580

1100 HRS • BEGIN PUMP DOWN OF TANK (APPOX 3/4 FULL)
• SKIM MATERIAL FROM OWS.
• TURNED ON CL PUMP.
• TOOK PARAMETER READINGS

1130 HRS • BEGAN TO BACKFLUSH PRIMARY CARBON

1200 HRS • BACKFLUSH COMPLETED.
• CHECKED PUMPS, All WORKING PROPERLY
• DRAIN CONDENSATE VALVE ON COMPRESSOR
• CHECKED OIL LEVEL/ CONDITION OF AIR FILTER BOTH O.K.
• BEGAN DRILLING DRAIN HOLE IN FLOOR OF COMPRESSOR ROOM DRILL BATTERY DIED HALF WAY INTO SOB WILL COMPLETE ON NEXT VISIT.
• UNPLUGGED CL PUMP

1320 HRS LEFT SITE

7/6/98 MF ONSITE 1035 HRS SUNNY, LIGHT BREEZE 10°

NEP	5958900
SIO	406740
FLOW	24.3 GPM
OIL	200 INCHES
PSI IN	10 PSI
PSI OUT	9.5 PSI
OMW-9	737896
OMW-4	452608
OP-4 MG	

- TURNED ON CL PUMP

1045 HRS
- BEGAN BACKFLUSH OF PRIMARY CARBON UNIT.
- SKIMMED O/W SEPERATOR FOR BIO-MATERIAL
- CHANGED BAG FILTERS
- TOOK PARAMETER READINGS

1130 HRS
- CONTINUING WORK ON DRAIN HOLE IN COMPRESSOR ROOM.
- ORW-3 WAS OBSERVED POMPING FOR >5MIN. CHECKED BUBBLE UNIT AND TURNED IT DOWN.
- OP-4 COUNTER MAY BE STICKING WILL CHECK AGAIN THURSDAY 7/9/98.

1415 HRS LEFT SITE

7/9/98 MF ONSITE 1045HRS CLOUDY, 60°, LIGHT BREEZE

NEP	5975100
SIG	422580
FLOW	27
OIL	20.5
PSI IN	10
PSI OUT	9.5
OMW-9	822333
OMW-4	455072

1100 ARS • TURNED ON CL PUMP
- PUMPED DOWN HOLDING TANK
- BEGAN BACKFLUSHING CARBON UNIT.
- CHANGED BAG FILTERS
- SKIMMED O/W SEPERATOR FOR BIO-MATERIAL
- FINISHED BACKFLUSHING

1145 ARS • CHECKED ALL WELLS: OMW-4 COUNTER SPORADICLY WORKING (NOTIFIED SCOTT). OMW-9 SEEMS TO BE PUMPING BUT IS ALMOST SILENT COUNTER NOT TURNING.
- FINISHED DRILLING CONCRETE DRAINAGE FOR COMPRESSOR. STILL A LITTLE POOLING IN ROOM.
- DID O/M ON COMPRESSOR ALL O.K.

1230 ARS
- TOOK SAMPLES FROM IN, MID, EFF PORTS WHILE SYSTEM WAS ACTIVE.
- UNPLUGGED CL PUMP
- SECURED SITE

1300 ARS LEFT SITE

7/13/98 MT ONSITE @ 1000 HRS Cloudy, LIGHT BREEZE 60's.

NEP	5990800
SIG	424050
FLOW	20.1
OIL	22.5
PSI IN	10
PSI OUT	6.5
OMW-4	466884
OMW-9	848350

1000 HRS
- WALKED THROUGH SYSTEM TO OBSERVE OPERATING CONDITIONS/PERFORMANCE
  - PSI IN 13
    PSI OUT 6
  - HOLDING TANK FULL HI FLOAT SWITCH TRIPED
  - PLUGGED IN CL PUMP
  - SHUT OFF POWER CHANGED BAG FILTERS BEGAN TO PUMP DOWN HOLDING TANK.

1045 HRS
- WALKED THROUGH ORW WELLS/OMW WELLS TO OBSERVE CONDITIONS/PERFORMANCE.
  - ORW SCREEN ON ROSES HEAVILY FOULED; CLEANED ALL SCREENS. PUMPS SOUND GOOD
  - COUNTER ON OMW-4 STILL SPORADIC.
- PERFORMED O/M ON COMPRESSOR
  - SMALL AMOUNT OF POOLING AT BASE OF COMPRESSOR HOWEVER BETTER THAN BEFORE
  - DRAINED CONDENSATE VALVE
  - CHECKED OIL/OIL

1200 HRS
- TOOK PARAMETER READINGS
- SKIMMED O/W SEPERATOR
- TURNED OFF CL PUMP

1250 HRS LEFT SITE

7/17/98 INT. ONSITE 1045 HRS 80° SUNNY LIGHT BREEZE

NEP	6013100
SIG	444090
FLOW	21.0
OIL	22.75"
PSI IN	10
PSI OUT	10
OMN-4	467073
OMN-9	957972

1045 HRS • WALKED THROUGH SYSTEM TO OBSERVE OPERATING CONDITIONS/PERFORMANCE
- HOLDING TANK EMPTY (LOW)
- BEGAN PUMPING CL.
- BEGAN BACKFLUSHING CARBON (SOME BIO MATERIAL IN EFFLUENT)
- CHANGED FILTER BAGS
- SKIMMED O/W SEPERATOR
- TOOK PARAMETER READINGS

1145 HRS • CHECKED ORW^{3} & OMW^{16} PERFORMED MAINTENANCE ON COMPRESSOR.
- ALL WELLS & PUMPS OPERATING. CHARTED SCREENS.
- STILL SLIGHT FOOLING IN COMP. ROOM
- OMW-4 BUMPER STILL STICKING.

1230 HRS LEFT SITE

0930 HRS

7-21-98 MT ONSITE OVERCAST 60° NO WIND

NEP	6035600
SIG	462810
FLOW	21.0
OIL	22.75
PSI IN	10/10
PSI OUT	7/10
OMW-4	467750
OMW-9	57627

0940 HRS – WALKED THROUGH SYSTEM TO OBSERVE OPERATING CONDITIONS / PERFORMANCE

- HOLDING TANK PUMPING DOWN
- BEGAN PUMPING CL
- CHECKED ORW'S & OMW'S, ALL SEEM TO BE WORKING PROPERLY
- PERFORMED O/M ON COMPRESSOR, SYSTEMS TO BE OPERATING PROPERLY.

1030 HRS – CHANGED BAG FILTERS

- ATTEMPTED TO BACKFLUSH CARBON HOWEVER WATER FROM SPIGOT NOT FLOWING. CALLED Scott RE: PROBLEM. CALLED U.P.'s PLUMBER @ 510-891-7428 AND REQUESTED THAT SOMEONE COME OUT. Scott SAY'S TO WAIT AROUND 1 HOUR.
- SKIMMED O/W SEPERATOR
- RECORDED PARAMETERS

LEFT SITE 1145 HRS

1/24/98 MH ONSITE 1100 HRS 70° Sunny, BREEZY

NEP	6051500
SIG	470250
Flow	20.0
OIL	22.75
PSI IN	11/10
PSI OUT	6/9
OMW-RM4	468050
OMW-9	137870

1100 HRS – WALKED THROUGH SYSTEM TO OBSERVE OPERATING CONDITIONS/PERFORMANCE

- HOLDING TANK PUMPING DOWN EXTREMELY SLOWLY (PRESSURE DROP 11→6) CHANGED BAG FILTERS. TURNED ON CL PUMP.
- WATER STILL OFF. CALLED & INFORMED SCOTT K. & CALLED DAN RENOLDS @ 510 991-7428 TO ASK FOR HIM TO COME OUT TO SITE TO INVESTIGATE, LEFT MESSAGE.
- SKIMMED O/M SEPERATOR

1145 HRS – WALKED THROUGH OMW & ORW WELLS TO PERFORM WEEKLY MAINTENANCE.

- ALL WELLS OPERATING PROPERLY.
- COUNTER ON OMW-9 POSSIBLY NOT WORKING PROPERLY (TOO FAST)
- COUNTER ON OMW-4 POSSIBLY NOT WORKING (TOO SLOW/STICKING)
- COMPRESSOR SEEMS TO BE WORKING FINE. PERFORMED O/M.

LEFT SITE 1230 HRS

7/28/98 1000 ARS SUNNY TO ~ SLIGHT BREEZE
MG ONSITE

NEP	607400
SIG	419930
FLOW	22.0
OIL	22.75
PSI IN	12/10
PSI OUT	6/10
OMW-4	497340
OMW-9	255579

1000 ARS — SYSTEM INSPECTION - SEEMS TO BE OPERATING PROPERLY.
- HIGH PRESSURE DROP ACROSS BAG FILTERS SO THEY WERE CHANGED BEFORE PUMPING DOWN HOLDING TANK.
- FOUND WATER OUTLET/VALVE AT BASE OF RADIO ANTENNAE/DISA WILL USE THIS FOR BACKFLUSHING CARBON UNITS. BACKFLUSHED SECONDARY CARBON FOR APPROX 45 MIN & PRIMARY FOR 30 MIN THEN SAMPLED EFFLUENT.
- ~~BC~~ AB STARTED SYSTEM UP - HOWEVER LARGE PRESSURE DROP - CHANGED BAG FILTERS AGAIN.
- SC CAME OUT TO ASSIST W/ WELL GAUGING HOWEVER INTERFACE PROBE NOT OPERATING PROPERLY. WILL GAUGE WELLS ON THURS.

1230 ARS - INSPECTED ORW & OMW WELLS ALL OPERATING PROPERLY.
- PERFORMED O/M ON AIR COMPRESSOR
- BACKWASHED BAG FILTERS
- TOOK PARAMETER READINGS

7/30/98 0930 ARS 71° CLOUDY SLIGHT BREEZE

NEP	6083000
S16	2588760
Flow	22.5
Oil	22.75
PSI IN	12/9
PSI OUT	6/9
OMW-4	512077
OMW-9	312295

0930 ARS – BEGAN WELL MEASUREMENTS FOR MONTHLY REPORT. FINISHED WELL GAGING AT 1145 ARS

1145 ARS – SYSTEM INSPECTION, SEEMS TO BE OPERATING PROPERLY.
- HIGH PRESSURE drop across gauges changed bag filters.
- Backflushed primary carbon.
- Skimmed o/w seperator.
- Took parameter readings

1230 ARS – INSPECTED OMW's & Compressor all FUNCTIONING PROPERLY WITH EXCEPTION OF COUNTERS.

LEFT SITE @ 1245 ARS

GROUNDWATER TREATMENT SYSTEM FIELD LOG
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD

Date	Time	Volume		Flow Rate	Filter Pressure		Oil Level	Comments
		Signet (gallons)	Neptune (gallons)	Thru Carbon (gal/min)	Inlet (psig)	Outlet (psig)	In Tank (inches)	(Maintenance, Adjustments, and Observations)
8/3/98	1110	490300	6100300	25.4	9.5	9.0	22.75	
8/7/98	0930	495010	6103800	25.0	10.0	9.0	22.75	
8/10/98	1130	498620	6108800	25.5	10.0	9.5	22.75	
8/14/98	1130	516350	6128100	22.5	9.5	7.0	22.75	Chlorine Pump replaced, sampled inf. & mid
8/17/98	0800	528830	6140900	26.0	11.0	8.0	22.75	Carbon changed in vessels #1 & #2
8/18/98	1300	NA	NA	NA	NA	NA	NA	OMW-4 pump adjustements made
8/21/98	0930	532640	6145900	31.0	9.5	9.0	22.75	OMW-4 removed for service & repair
8/24/98	0950	540640	6154700	23.0	8.5	8.0	23.0	EBMUD annual sampling & filter disposal
8/28/98	0900	552390	6166900	27.0	9.5	6.0	23.0	

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

7/30/98 0930 ARS MA 71° CLOUDY SLIGHT BREEZE

NEP	6083000
SIG	488760
Flow	22.5
Oil	22.75
PSI IN	12/9
PSI OUT	6/8
OMW-4	512077
OMW-9	312295

0930 ARS - BEGAN WELL MEASUREMENTS FOR MONTHLY REPORT, FINISHED WELL GAGING AT 1145 ARS

1145 ARS - SYSTEM INSPECTION, SEEMS TO BE OPERATING PROPERLY.
- HIGH PRESSURE drop across gauges changed bag filters.
- Backflushed primary carbon.
- Skimmed o/w seperator.
- Took parameter readings

1230 ARS - INSPECTED OMW's & Compressor all FUNCTIONING PROPERLY WITH EXCEPTION OF COUNTERS.

LEFT SITE @ 1245 ARS

ARRIVE AT OAKLAND SITE AT 0745

SUNNY, WARM. 75°F

WELL	DTW	DTP	TD	TIME
OKUS-W7	5.28		20.82	0827
OKUS-W8	5.05		14.86	0833
APL/UP-W1	9.76		21.86	0855
APL/UP-W2	8.99		16.97	0903
OKUS-W1	7.95		18.70	0913
OKUS-W2	8.80		22.32	0917
OKUS-W3	7.13		22.08	0926
OMW-1	6.54		12.07	0936
OMW-4	6.88		11.80	0945
OMW-5	5.00		12.37	1005
OMW-2	4.3		9.92	1015 ✓
OMW-8	5.73			17.46
OMW-10	4.94			1535
OMW-4	7.02	5.68		1738
OMW-7	8.03	5.42		1638
OMW-9	N/A			—
ORW-1	10.01			16828
ORW-2	12.31			1710
ORW-3	11.72	11.61		1745

WELL	DTW	DTP	TD	TIME
OP-1	12.51	3.90		1802
✓ OP-2	8.92	5.92		
OP-3	8.40	5.20		1558
✓ OP-4				

SAMPLED

WELL	TIME
OKUS-W7	1600
OKUS-W8	1400
OKUS-W1	1715
OKUS-W2	1640
OKUS-W3	1800

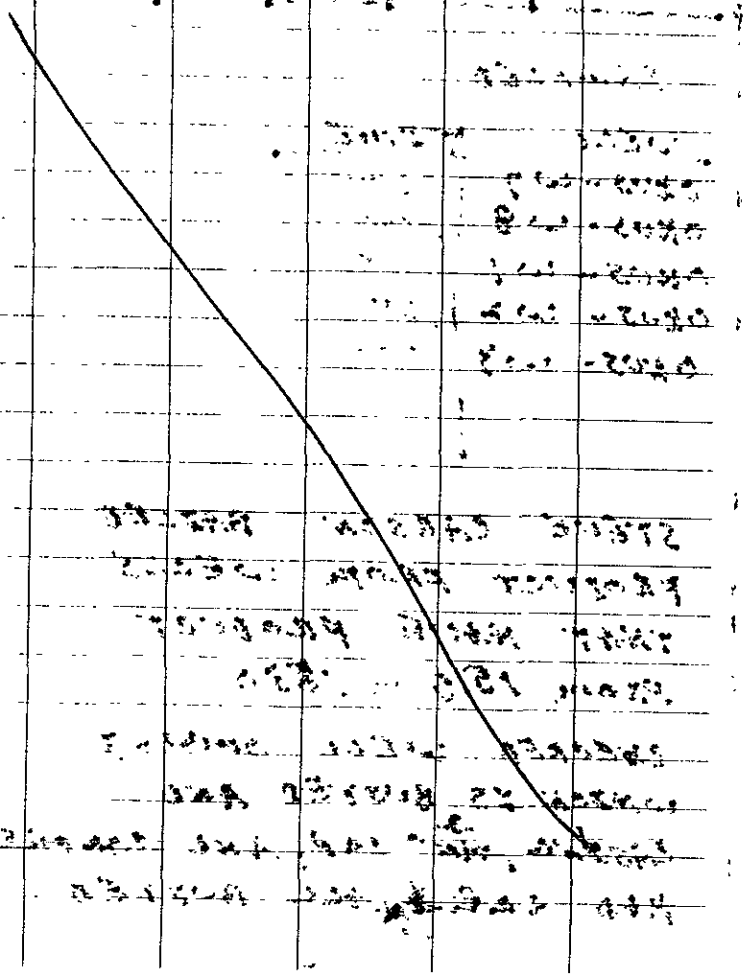
STEVE CARSON BAILED PRODUCT FROM WELLS THAT HAVE PRODUCT FROM 1515 - 1830

CHECKED WELL OMW-3 WHICH IS BUSTED AND CASING, CAP, AND CONCRETE PAD ARE ALL BUSTED

30

WELL OMW-5 HAS NO CASING OR WELL RAP AND NEEDS A NEW CASING

LEFT SITE AT ~~0638~~ 1838



8/13/98

31

ARRIVE AT APL/UP-W1 AT 0800

SUNNY; WARM, 70°F

CALIBRATE INSTRUMENTS

SAMPLED	TIME
APL/UP-W1	0835
APL/UP-W2	0915
OMW-1	0950
OMW-3	1045
OMW-5	1045
OMW-6	1110
OMW-8	1300
OMW-9	1415
OMW-10	1340

WELL	DTP	DTW	TIME
RW-1	8.74	8.82	1438
OMW-5	9.03		1446
OMW-6	5.81		1451
OP-2	~~8.91~~ 5.92	8.92	1425

BAILED PRODUCT FROM RW-1 AND OP-2

LEFT SITE AT 1520

8/7/98 MB 72° CLOUDY SLIGHT BREEZE

NET	~~6100300~~ MB 6103800
SIC	~~490300~~ MB 495010
FLOW	25.0
OIL	22.75
PSI IN	4/10
PSI OUT	10/9
OMW-4	560756
OMW-9	513546

0930 HRS – ONSITE INSPECTING SYSTEM. HOLDING TANK JUST ABOUT EMPTY. BEGIN BACKFLUSHING PRIMARY CARBON FOR 45 MIN. SOME BIO-MATERIAL COMING OUT W/ EFFLUENT.

1015 HRS – INSPECTING OMW's & ORW's; ALL WELLS OPERATIONAL. HEAVY FOULING ON ALL SCREENS – CLEANED SCREENS REDEPLOT INTO WELLS.

1100 HRS – COMPRESSOR OPERATIONAL. PERFORM WEEKLY O/M

1130 HRS – CLEANING SKIMMER AND INTERFACE PROBE CHANGING OUT BAG FILTERS – HEAVILY FOULED WITH BIO-MATERIAL/SLUDGE/FREE-PHASE

LEFT SITE @ 1210 HRS

8/10/98 MF & DLH ON SITE. SUNNY & HOT 93°F

NEP	6108.800
SIG	498.620
FLOW	25.5
OIL	22.75
PSI-IN	10
PSI-OUT	9.5
OMW-4	573442
OMW-9	521023

1130 ARRIVE ON SITE. INSPECT SYSTEM. TURNED ON CHLORINE PUMP. CHANGED BAG FILTERS BEGIN BACKWASHING CARBON (PRIMARY).

1305 INSPECT OMWs & ORWs. ALL WELLS OPERATIONAL. IRON OXIDE CLEANED FROM SLEEVES. CHECKED FLOW FROM OMW-4 AND OMW-9. HIGH BACK PRESSURE IN BOTH WELLS. CHECKED AIR COMPRESSOR AIR FILTER, OIL, & DRAIN OUT.

1450 OIL/WATER SKIMMER CLEANED OF IRON OXIDE DEBRIS. CLEANED PROBE IN OIL/WATER SEPARATOR. TOOK PARAMETER READINGS.

1510 CHLORINE SHUT OFF. LEAVE SITE.

8/14/18 MF ONSITE 1130 ARS SUNNY, 82° CLEAR SKIES

NEP	6128100
SIC	516350
Flow	22.5
Oil	22.75
PSI IN	10 / 9.5
PSI OUT	5.5 / 7
OMW-4	003886
OMW-9	749794

1130 ARRIVED ON SITE. INSPECTED SYSTEM. CHANGED OUT CHLORINE PUMPS. NEW PUMP ON 100% CAPACITY. CHANGED BAG FILTERS

1200 INSPECT OMW's & ORW's. ALL WELLS OPERATIONAL CLEANED SURFACES TOOK COUNTER READINGS

1230 PERFORMING O/M ON AIR COMPRESSOR. UNIT OPERATIONAL FLUID LEVELS ALL ACCEPTABLE.

1360 BACKWASHING PRIMARY CARBON. DISCHARGE WATER BROWN BUT CLEARS AS BACKWASH CONTINUES.

1330 FINISHED BACKWASHING. TOOK INFLUENT & MID FLUENT SAMPLES. (1330 & 1340). SKIMMED O/W SEPERATOR. DROPPED A MEASURING LINE IN OIL HOLDING TANK TO CHECK MEASURING DEVICE. RESULTS CONFIRMED 22.75 INCHES

1410 TURNED OFF CL PUMP LEFT SITE

3/17/98 MF ONSITE 0800. OVERCAST SKIES, 60°, SIGAT BRE

NEP	6140900
SIG	528830
FLOW	26.0
OIL	22.75
PSI IN	11/
PSI OUT	8/
OMW-4	022222
OMW-9	847400

0800 HRS- ARRIVE ONSITE. INSPECT SYSTEM. TURNED OF CHLORINE PUMP. CHANGED BAG FILTERS.

0900 HRS- INSPECT OMW'S & ORW'S. OMW-4 NOT OPERATI PROPERLY. WELL IS NOT CYCLING RATHER A CONSTANT STREAM OF AIR IS BLOWING OU OF WELL CASING (TOP HOLES). PUMP IS PULLED OUT OF WELL TO OBSERVE. IT SEEMS AS THE AIR IS BY-PASSING PUMP OWING TO LARG BACK PRESSURE BEING EXERTED ON PUMP. AIR VALVE IS SHUT, DISCHARGE VALVE IS SHUT THEN PUMP DISCHARGE LINE IS DISCONNECTED JUST before DISCHARGE VALVE TO SEE IF THE ABSENCE OF BACK PRESSURE RETURNS PUMP TO NORMAL OPERATING CONDITIONS. PUMP OPERATING NORMAL WITH NO AIR BY-PASSING. SCOTT K. WAS NOTIFIED AS TO CONDITION.

1000 HRS- WESTATES/US FILTER ARRIVES. CREW ~~DOES~~ NOT HAVE COMPRESSOR. I CALLED DONNA AND SHE SAID THAT THE CREW WAS INSTR CTED TO BRING COMPRESSOR. CREW DECIT TO USE VACUUM TO SUCK WATER FROM CARBON VESSELS. (VESSELS DEWATERED AND REFILLED WITH CARBON) CREW LEAVES SITE AT 1435 HRS.

1435 HRS- BEGIN REFILLING CARBON ~~TAN~~ VESSELS WITH WATER TO SIT OVER NIGHT. NOTE THAT IT IS EASIER TO FILL DISCHARGE PIPE RATHER THAN FILL FROM MANHOLE

SEEING AS LARGE AMOUNT OF PRESSURE BUILDS UP.

— LEFT SITE @ 1530 HRS.

8/18/98 MF & A.G ONSITE 1300HRS 60° OVERCAST

~~HCP~~ ^M
~~STG~~ ^M
~~Flow~~ ^M

1300 HRS - ONSITE TO INVESTIGATE OMW-4 PUMP. PUMP WAS DISASSEMBLED AND CLEANED. FLOAT CYLINDER IS CRACKED. FLOAT ROD AIR GAP AND COUNTERWEIGHT AIR GAPS BOTH ADJUSTED TO WITHIN SPECS. PRESSURE GAUGE PUT ON DISCHARGE LINE WITH A READING OF 8-10 PSI. PUT REDEPLOYED IN WELL AND COMPRESSED AIR SET TO 35 PSI PUMP STARTED UP. PUMP IS CYCLING PROPERLY AND SOUNDS STRONG. CL ON.

1400 HRS - PLUMBING ON CARBON VESSELS RE-CONNECTED AND WATER TOPPED OFF. O/W SEPERATOR SKIMMED AND OIL CHAMBER OBSERVED TO BE LOW. HOLDING TANK SAMPLED USING A BAILER AND FOUND TO HAVE ½" OF PRODUCT ON SURFACE. TURNED CL PUMP OFF. SYSTEM RESTARTED.

1520 HRS - LEFT SITE

8/21/98 MF ONSITE @ 0930 80° SUNNY NO WIND

NEP	6145900
SIG	532640
FLOW	31.0
OIL	22.75
PSI IN	9.5/9.0
PSI OUT	6/8.0
OMW-4	038013
OMW-9	884535

TURN ON CL PUMP

0930 HRS- INSPECT O/W SYSTEM. TRIP HOLDING TANK RELAY. PRESSURE DROP NOT AS LARGE AS IN PAST WEEKS. TRIP OIL ALARM PROBE TO SEE IF AUTO DIALER CALLS SCOTT K. AUTO DIALER NOT WORKING PROPERLY. RE PROGRAM UNIT TO CALL B&M @ 650 871 2926 TEST IS SUCCESSFULL. WILL FURTHER INVESTIGATE W/ SCOTT.

1100 HRS- INSPECT OMW'S & ORW'S. OMW-4 NOT FUNCTIONING PROPERLY, SYMPTOMS SAME AS BEFORE (I.E. AIR BLOWING BY PUMP. PUMP NOT CYCLING). PER INSTRUCTION FROM SCOTT K. PUMP IS SHUT DOWN @ AIR VALVE & DISCHARGE VALVE. PUMP PULLED FROM WELL TO BE SENT TO MANUFACTURER FOR SERVICE.

1200 HRS- O/M PERFORMED ON COMPRESSOR. ALL PARAMETERS NORMAL & FUNCTIONING PROPERLY.

1230 HRS- BACKFLUSH PRIMARY CARBON WITH FOULING. TAKE PARAMETER READINGS.

1300 HRS - LEFT SITE

2/24/98 MF ONSITE @ 0950 sunny clear 80°

NEP	6154700
SAG	540640
FLOW	23.0
ON	23.0
PSI IN	10/ 8.5
PSI OUT	6/ 8.0
OMW-4	OUT OF SERVICE
OMW-9	969217

0950 HRS - TURN ON U PUMP. INSPECT SYSTEM. HOLDING TANK ALMOST EMPTY. BEGIN BACKFLUSHING PRIMARY CARBON. MET WITH RODNEY E. TEMPLES ONSITE FOR SITE WALK & SAMPLING BY EBMUD. RODNEY WILL RETURN TO SITE AT 1200 HRS TO COLLECT WATER SAMPLE (EFFLUENT). BAG FILTERS CHANGED. BACKWASH INITIALLY LIGHT BROWN, AT END OF FLUSHING WATER CLEAR

1045 HRS - INSPECTING OMW's & ORW's. OMW-4 OUT OF SERVICE (PUMP BEING SERVICED BY MANUFACTURER) OMW-9 & ORW's 1 & 3 WORKING PROPERLY. ORW 2 STUCK IN PUMP MODE EVEN WHEN WATER IS BELOW BUBBLER LINE. BUBBLER LINE #2 DISCONNECTED AT CONTROL BOX AND PUT IN WATER FOR TESTING. TOO MANY BUBBLES COMING OUT OF LINE (72). ADJUSTMENT CONTROL TURNED DOWN AND PUMP NOW FUNCTIONING PROPERLY.

1150 HRS - RODNEY T. BACK ONSITE TO TAKE 3-40ml EFFLUENT WATER SAMPLES. NO GLOVES WERE WORN AND NO CHAIN OF CUSTODY WAS FILLED OUT.

1200 HRS - KEVIN FROM LAIDLAW ONSITE TO TAKE 2-55 GAL. DRUMS OF BAG FILTERS AND LEAVE 2 EMPTY DRUMS.

1230 HRS. LEFT SITE

3/28/98 MF ONSITE @ 0900 SUNNY 40° NO WIND

NEP	616900
SIG	552390
Flow	27.0
DIL	23.0
PSI IN	9.5 /
PSI OUT	6.0 /
OMW-4	OUT OF SERVICE
OMW-9	99240

0900 HRS - INSPECT SYSTEM, HOLDING TANK ALMOST EMPTY. NORMAL PRESSURE DROP ACROSS GAUGES. PLUG IN CL PUMP. CHANGE BAG FILTERS BIO FOULING HAS REDUCED. SIMON & BALE ONSITE LOOKING FOR PVC WATER LINE LEAK. TAKE PARAMETER READINGS. BACK FLUSH PRIMARY CARBON, LITTLE BIO FOULING IN BACK FLUSH WATER.

1000 HRS - INSPECT OMW'S & ORW'S, CLEAN SCREENS. CHECK MASTER CONTROL ALL EQUIPMENT FUNCTIONING PROPERLY.

1030 HRS - INSPECT AIR COMPRESSOR. ALL PARAMETER NORMAL.

1100 HRS - FINISH TAKING PARAMETER READINGS. TURN OFF CL PUMPS.

1130 HRS - LEFT SITE

GROUNDWATER TREATMENT SYSTEM FIELD LOG
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD

Date	Time	Volume		Flow Rate	Filter Pressure		Oil Level	Comments
		Signet (gallons)	Neptune (gallons)	Thru Carbon (gal/min)	Inlet (psig)	Outlet (psig)	In Tank (inches)	(Maintenance, Adjustments, and Observations)
9/1/98	1000	562320	6177580	24.7	9	9	23"	
9/4/98	1100	570460	6186800	27.0	9	8.5	23¼"	
9/8/98	1300	577300	6196000	27.0	8.5	8.0	23¼"	
9/11/98	0900	589320	6208700	25.7	10	9	23¼"	Changed compressor oil. Sample mf/eff.
9/14/98	0900	590720	6218100	26.5	9.5	9.0	23.5"	
9/17/98	1000	594830	6229300	27.0	10	9	23.5"	
9/21/98	0930	606070	6242200	26.5	10	10	23.5"	
9/25/98	1000	616990	6253600	14.5	10	9.5	26.5"	Adjust weir. Skim oil from transfer tank
9/28/98	1030	630350	6267800	26.5	10	9.5	29.75"	Gauge monitoring wells.

AIL COPIES MONTHLY TO: USPCI/LAIDLAW, 5665 FLATIRON PARKWAY, BOULDER, COLORADO 80301, ATTENTION: DENTON MAULDIN

FLUID LEVEL MEASUREMENTS
OAKLAND TRAILER ON FLAT CAR FACILITY
UNION PACIFIC RAILROAD
DATE: 9/28/98

WELL NUMBER	TIME	DEPTH TO PRODUCT (feet)	DEPTH TO WATER (feet)	AMOUNT OF PRODUCT RECV'D (gallons)	COMMENTS OR OBSERVATIONS
OMW-1	1140	—	7.11		—
OMW-3	1147	—	5.73		DAMAGED WELL
OMW-8	1158	—	6.17		—
OMW-4	1213	6.02	7.55		TRIANGULAR WELL COVER
OP-1	1215	4.84	8.77		—
ORW-3	1223	—	11.61		PUMP IN WELL
ORW-2	1226	11.88	12.00		PUMP IN WELL
OMW-9	1229	—	8.50		PUMP REMOVED
OMW-7	1234	6.11	8.51		—
ORW-1	1238	—	9.72		PUMP IN WELL
OP-3	1241	5.74	7.49		—
OMW-10	1250	—	6.32		—
OP-4	1255	—	10.51		PUMP REMOVED
OKUS-W2	1430	—	9.05		—
OKUS-W3	1434	—	9.37		—
OKUS-W5	1441	TOO VISCOUS	—		VISCOUS PRODUCT TOO THICK
OMW-6	1453	—	6.63		—
OMW-5	1503	—	5.73		—
OP-2	1507	6.27	9.05		—
OMW-2	1517	—	11.64		—
RW	1532	9.08	9.12		MEASURED FROM WOOD COVER

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

9/1/98 JC on site @ 1000 Sunny 80's

NEP 6177500
SIG 562320
Flow 24.7 (after changing filters)
oil 23"
PSI in 9
PSI out 9

OMW-9 236349
OMW-4 out of service

1010 Arrived on site. Turned on secondary water valve. Valve is located inside a concrete valve box located on the concrete pad in between tracks, approx. 300' west of treatment unit.
Valve box contains 2 valves. Use the new (Non broken one).

1012 Turned on chlorine
~~Regenerator~~

1015 Changed bag filters; tripped solenoid to start emptying the transfer tank.

1030 Skimmed oil/water separator. Very thick algal/oil mats floating on water.

1100 Begin backflush of ~~prior~~ primary carbon unit.

1125 Finish backflush. Reconnect hoses

Inspect wells. ORW-1 + ORW-2 working fine. ORW-3 not pumping. Pulled hose from well. Cleaned off intake + bubbler line opening. Adjusted bubbler line pressure w/o any effect on the well.

1200 Leave site

9/4/98 MF ONSITE @ 1100 SUNNY, REAR 80's NO WIND

NEP	6186800
SIG	570460
FLOW	27
OIL	23.25
PSI IN	9
PSI OUT	8.5
OMW-4	638076
OMW-9	360490

1100 HRS - INSPECTED SYSTEM. HOLDING TANK JUST FINISHING PUMP DOWN. CHANGED BAG FILTERS, MODERATE BIO-FOULING.

1130 HRS - TURNED WATER MAIN ON. BEGAN BACKFLUSH OF PRIMARY CARBON, LITTLE BIO-FOULING. EXAMINED OIL COMPARTMENT OF O/W SEPARATOR LEVEL OF OIL IS ABOUT 1½" BELOW LIP OF OVERFLOW PIPE.

1200 HRS - FINISH BACKFLUSHING CARBON. INSPECTED ORW'S & OMW'S. ORW-3 PUMP NOT TURNING ON. DID BUBBLER LINE TEST WHICH WORKED. IT SEEMS AS THOUGH WATER LEVEL IN WELL MAY BE LOW. REDEPLOYED OMW-4 PUMP WHICH HAD BEEN OVERHAULED BY EJECTOR SYSTEMS INC. (WITH FLOAT, NEW VALVE RETAINER AND THOROUGH CLEANING) INITIALLY PUMP WORKED FINE BUT THEN BEGAN TO BLOW BY. PUMP WAS PULLED OUT OF WELL AND A SHAVING OF WHAT LOOKED LIKE PVC WAS STUCK IN THE FLAP, SHAVING WAS REMOVED PUMP WAS REDEPLOYED AND OBSERVED FOR APPROX. 10 MINUTES AND WORKED FINE.

1300 HRS - COMPRESSOR INSPECTED AND O/M'D REPLACED OIL HEADS TO BE CHANGED

9/8/98 MF ONSITE @ 1300 ARS 70° SUNNY, CLEAR LIGHT BREEZE

NEP	6196000
SIG	577300
FLOW	27
DIC	23.25
PSI IN	12.5/8.5
PSI OUT	5.5/8.0
OMW-4	638172
OMW-9	473970

1300 ARS - ONSITE. INSPECT SYSTEM. TRANSFER TANK FULL. TURNED OFF SYSTEM TO CHANGE OUT SILT FILTERS. RESTART SYSTEM TO PUMP DOWN TRANSFER TANK.

1330 ARS - INSPECT ORW'S & OMW'S. ORW'S OPERATING AS NORMAL. OMW-9 PUMPING WITH A SLIGHT GURGLE ON EXHAUST PORTION OF CYCLE. PUMP REMOVED FROM WELL TO OBSERVE FOR ANY DEFECTS; PUMP SEEMS FINE. MADE SLIGHT ADJUSTMENT IN AIRFLOW TO PUMP (FROM 30 PSI → 40 PSI) REDEPLOYED PUMP INTO WELL.

1400 ARS - INSPECTING COMPRESSOR. SLIGHT BUILD-UP OF OIL DROPLETS AROUND COOLING FINS OF "CYLINDER HEAD" ON THE RIGHT SIDE OF UNIT AS YOU WALK THROUGH THE DOOR.

1430 ARS - BACKFLUSHING PRIMARY CARBON, SLIGHT BUILDUP OF BIO-MATERIAL. UNIT BACK-FLUSHED UNTIL WATER CLEARS.

1530 ARS RECONNECT HOSE ON PRIMARY CARBON TURN OF WATER MAIN. TURN OFF CL PUMP SECURE ENCLOSURE

9/11/98 ME & AG ONSITE 80° SUNNY, CLEAR, NO WIND

NEP	6208700
SIG	589320
FLOW	25.7
OIL	23.25
PSI IN	10.0
PSI OUT	9.0
OMW-4 ~~RB~~	654570
OMW-~~8~~ 9	539920

0930 ARS - INSPECT SYSTEM. HOLDING TANK ALMOST EMPTY. BEGIN BACKWASH OF PRIMARY CARBON TO SPEED REFILL RATE OF HOLDING TANK. CHANGE BAG FILTERS.

1000 ARS - INSPECTING ORW'S & OMW'S. ORW-2 NOT PUMPING. BUBBLER LINE ADJUSPMENTS MADE WITH PUMP/THEN OPERATING PROPERLY. ORW-3 GOING ON AT MASTER CONTROL AND WATER LEVEL NEAR BOTTOM OF WELL UPON INSPECTION. IT APPEARS AS THOUGH PUMP IS OPERATING PROPERLY, HOWEVER WELL RECHARGE IS VERY SLOW. BACK WASH ON PRIMARY CARBON STOPPED.

1100 ARS - COMPRESSOR S/M PERFORMED. COMPRESSOR OIL DRAINED AND CHANGED USING ALL SEASON T-30 OIL. NEW CASE ORDERED FROM GRAINGER.

1130 ARS - TRANFER TANK WORKED ON. USING COMPRESSOR/ SUCTION UNIT A LAYER OF FREE-PRODUCT WAS REMOVED FROM SURFACE OF TANK. APPROXIMATELY 10 VOLUMES OF FREE-PRODUCT WERE REMOVED FROM TANK AND SENT BACK INTO OIL/WATER SEPERATOR.

1250 ARS - INFLUENT & MID FLUENT WATER SAMPLES TAKEN. INFLUENT ANALYSIS TEH-D

MID FLUENT TPH

9/14/98 MR ONSITE @ 0900 HRS OVERCAST 70° NO WIND

NEP	6218100
SIG	590720
Flow	26.5
OIL	23.50
PSI IN	9.5
PSI OUT	9.0
OMW-4	657229
OMW-9	627084

0900 HRS - INSPECT SYSTEM. HOLDING TANK EMPTY. BEGIN BACKFLUSHING PRIMARY CARBON. CHANGE BAG FILTERS. WATER HAS TAIN LAYER OF FREE-PRODUCT ON IT.

1000 HRS - INSPECT ORW's & OMW's. ORW-3 NOT PUMPING. ADJUST BUBBLER LINE WHICH ACTIVATES PUMP. DOUBLE CHECK BY POURING 5-GAL TAP WATER INTO WELL WHICH ACTIVATES PUMP.

1030 HRS - OMW-4 BLOWING AIR/NOT CYCLING PROPERLY. ATTEMPT TO REMOVE PUMP BUT IT IS STUCK IN MUD. ADJUST AIR PSI WHICH IN TURN STARTS CYCLING OF PUMP. USING PRY BAR AM ABLE TO FREE PUMP FROM WELL AND OBSERVE INTAKE FOR ANY OBSTRUCTION, ALL LOOKS PROPER. REDEPLOY 6TH PUMP.

1100 HRS - PERFORM O&M ON COMPRESSOR, TOP UP OIL. SYSTEM SEEMS TO BE OPERATING PROPERLY.

1120 HRS - TAKE PARAMETER READINGS. UNPLUG CL PUMP SECURE SITE. CLEAN SKIMMER.

1145 HRS - LEFT SITE

9/17/98 MK ONSITE 1000 ARS SUNNY 70° LIGHT BREEZE

NEP	6229300
SIG	594830
FLOW	27.0
OIL	23.50
PSI IN	10
PSI OUT	9
OMW-4	663841
OMW-9	716185

1000 HRS - INSPECT SYSTEM. HOLDING TANK HALF FULL. CHANGE BAG FILTERS. TRIP SOLENOID TO PUMP DOWN HOLDING TANK. TURN ON CL PUMP.

1030 HRS - INSPECT ORW's & OMW's. ORW's PUMPING NORMALLY. CLEAN ALL SURFACES. OMW-4 IN B/U BY MODE. FULL PUMP FROM WELL - UNREMARKABLE. REDEPLOY AND PUMP BEGINS TO PUMP NORMALLY. WILL DISCUSS W/SCOTT.

1100 HRS - PERFORM MAINTENANCE ON COMPRESSOR SEEMS TO BE WORKING FINE.

1115 HRS - BEGIN BACKWASHING PRIMARY CARBON. FIRST FEW BURSTS CONTAIN BIO-MATERIAL AND OFF COLOR. BACKWASH FOR ½ HOUR.

1145 HRS TAKE PARAMETER READINGS. TURN OFF CL PUMP. SKIM O/W SEPERATOR.

1230 HRS - LEAVE SITE

9/21/98 MF ONSITE @0930 HRS SUNNY 60's

NEP	6242200
SIO	606070
FLOW	26.5
OIL	23.5
PSI IN	10/10
PSI OUT	9.5/10
OMW-4	663875
OMW-9	83507

0930 - INSPECTING SYSTEM. HOLDING TANK HALF FULL; TRIP SOLENOID TO PUMP DOWN TANK. TURN ON CI PUMP. STINK O/W FOR BIO MATERIAL, SLIGHT BUILD UP OF PRODUCT ON TOP OF BIO MATERIAL IN WATER COMPARTMENT OF O/W SEPERATOR.

1000 - TANK PUMPED DOWN. BAG FILTERS CHANGED. LITTLE BIO MATERIAL PRESENT IN FILTERS. PRIMARY CARBON BACKFLUSHED. FAIR AMOUNT OF GREEN BIO MATERIAL IN WATER EFFLUENT AFTER PRESSURE IS ALLOWED TO BUILD UP AND IS THEN RELEASED.

1045 - INSPECTING OMW'S & ORW'S. ALL ORW'S WORKING PROPERLY. CLEAN SCREENS OF BIO MATERIAL & REDEPLOY. OMW-4 IN CONSTANT BLOW BY MODE. PULL PUMP FROM WELL NOTICE SMALL SHAVINGS OF WHITE MATERIAL BLOCKING THE SEALING FLAP. OBSTRUCTION REMOVED AND PUMP IS REDEPLOYED AND WORKING PROPERLY. OMW-9 WORKING PROPERLY AND UNREMARKABLE.

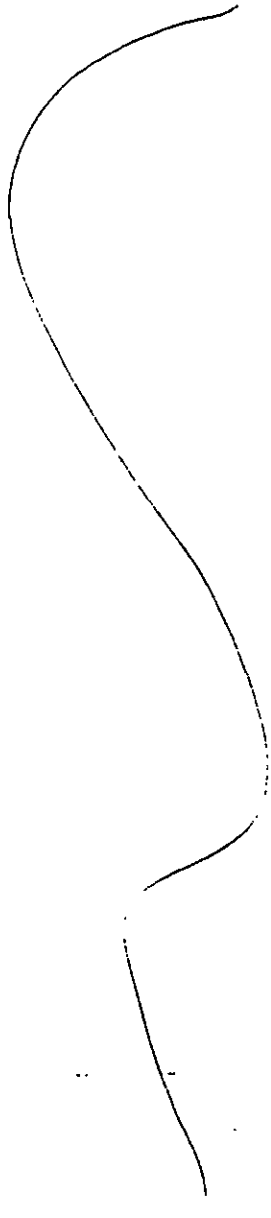
1115 - PERFORM O/M ON AIR COMPRESSOR. UNIT (CONT.)

WORKING PROPERLY.

1145 - TAKE PARAMETER READINGS. TURN OFF C/ PUMP.

SECURE SITE

LEAVE SITE @ 1200 HRS



9/25/98 AGGMF ONSITE @ 1000 HRS SUNNY 75°

NEP	6253600
SAG	616990
OIL	26.50
FLOW	14.50
PSI IN	10
PSI OUT	9.5
OMW-4	664273
OMW-9	953715

1000 - INSPECT SYSTEM. HOLDING TANK ALMOST EMPTY. CHANGE BAG FILTERS. TOP OF OIL COMPARTMENT OF O/W SEPERATOR OPENED AND PRODUCT THICKNESS MEASURED AND FOUND TO BE 6". PRODUCT LINE APPROX. 1.5" BELOW LIP OF SKIMMER/WEIR, ACCORDING TO DOCUMENT THE SKIMMER/WEIR IN THE O/W SEPERATOR SHOULD BE ADJUSTED AND KEPT AT SUCH AN ANGLE THAT ONLY 2" OF PRODUCT BE BUILT UP. BASED ON THIS INFORMATION IT IS DETERMINED THAT THE SKIMMER ANGLE IS OUT OF ADJUSTMENT AND READJUSTMENTS ARE MADE. AFTER ADJUSTMENTS ARE MADE TO SKIMMER OIL HOLDING TANK READING GOES FROM 23.50" TO 26.50".

1200 - BEGIN BACKFLUSHING PRIMARY CARBON. INITIAL EFFLUENT CONTAINS BIOMATERIAL AND WATER IS VERY TURBID. AFTER A FEW MINUTES WATER BEGINS TO CLARIFY. INSPECTING OMW's & ORW's. ORW's ALL OPERATING NORMALLY. OMW-4 STUCK IN BLOW BY MODE. PUMP IS (CONT)

REMOVED FROM WELL TO OBSERVE. PUMP IS DISMANTLED AND INSPECTED FOR DEFECT; ALL IS NORMAL WITH THE EXCEPTION OF TINY FLECKS OF WHITE SHAVINGS OF MATERIAL. IT IS DETERMINED THAT THE HOSE CLAMPS ON THE PLUMBING ATTACHED TO THE PUMP ARE DRAGING ALONG INSIDE WALL OF WELL. CLAMPS ARE REPOSITIONED TO ALLOW FOR OBSTRUCTION FREE MOVEMENT WHEN BEING DEPLOYED INTO WELL. PUMP REASSEMBLED AND REDEPLOYED INTO WELL. PUMP OBSERVED FOR APPROX. 10 MINUTES TO BE OPERATING PROPERLY.

1300 - WATER TO PRIMARY CARBON BACKFLUSHING TURNED OFF HOSES REPLUMBED. COMPRESSOR O&M PERFORMED - AIR COMPRESSOR OPERATING PROPERLY.

1330 - INFLUENT & MIDFLUENT SAMPLES (WATER) TAKEN FROM CARBON UNITS. PARAMETER READINGS TAKEN.

1400 - TURNED OFF & PUMP SECURED SITE AND LEFT FOR OFFICE.

9/28/98 MG + DA ONSITE ~~0930~~ 1030 ARS SONNY 60°

NEP	626 7800
SIG	630 350
FLOW	26.5
OIL	29.75"
PSI IN	10
PSI OUT	9.5
OMW-4	66467/
OMW-9	67923

1030 AJ ~~0930~~ - INSPECTING SYSTEM. HOLDING TANK HALF FULL. TRIP SOLENOID TO PUMP DOWN. CHANGE BAG FILTERS. SKIM OFF SEPERATOR WATER COMPARTMENT. TURN ON Cl PUMP. BEGIN BACKWASHING PRIMARY CARBON. FINISH BACKWASHING.

1030 - INSPECT OMW'S & ORW'S. ORW'S ALL WORKING PROPERLY CLEAN OFF SCREENS. OMW'S WORKING PROPERLY.

1100 - PERFORM O/M ON AIR COMPRESSOR; UNIT WORKING PROPERLY.

1115 - BEGIN WELL GAUGING

~~1315~~ 1417 MT - FINISH WELL GAUGING. TAKE PARAMETER READINGS

~~1330~~ 1418 HA - TURN OFF Cl PUMP. SECURE SITE. LEAVE SITE

1532

1600

GROUNDWATER TREATMENT SYSTEM FIELD LOG
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD

Date	Time	Volume		Flow Rate	Filter Pressure		Oil Level	Comments
		Signet (gallons)	Neptune (gallons)	Thru Carbon (gal/min)	Inlet (psig)	Outlet (psig)	In Tank (inches)	(Maintenance, Adjustments, and Observations)
10/2/98	1000	645390	6284500	26.0	10	9.5	32.0	
10/8/98	1800	656790	6296900	26.0	10	10	32.25	
10/9/98	0800	658411	6312450	26.0	9.5	9.5	32.25	
10/14/98	2100	659705	6324850	20.0	10	9.5	32.5	
10/15/98	2000	699580	6344400	26.0	10	9.5	33.0	
10/20/98	1800	716890	6363900	26.5	10	9.5	33.0	
10/26/98	2000	735280	6384000	21.0	10	10	33.5	
10/31/98	1000	750270	6400200	26.0	10	9.5	33.5	

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

10/2/98 MF ONSITE @ 1000 ARS 60°S SUNNY

NEP	~~6296900 m3~~	6284500
S.G	~~676790 m3~~	645390
Flow	~~26.0 m3~~	26.0
OIL	~~32.25 m3~~	32.0"
PSI IN	~~9.5 m3~~	10
PSI OUT	~~9.0 m3~~	9.5
OMW-4	~~689567 m3~~	669366
OMW-9	~~71522 m3~~	70835

1000 - INSPECT SYSTEM. PUMP DOWN HOLDING TANK. CHANGE BAG FILTERS. BEGIN BACKFLUSHING PRIMARY CARBON. SAMPLING INF, MID, EFF.

1030 - INSPECT OMW'S & ORW'S. ORW'S FUNCTIONING ~~PROPERLY~~ PROPERLY; CLEAN SCREENS. OMW-4 FUNCTIONING PROPERLY. OMW-9 BLOWING BY, PULL ~~WELL~~ PUMP FROM WELL TO LOOK FOR PROBLEM NOTHING FOUND. REDEPLOY PUMP WHICH THEN OPERATES PROPERLY.

1100 - STOP BACKFLUSHING CARBON. CLEAN WATER COMPARTMENT OF O/W SEPARATOR. PERFORM O&M ON AIR COMPRESSOR SYSTEM WORKING PROPERLY.

1130 - OPEN TOP OF O/W SEPARATOR, USE INTERFACE PROBE TO MEASURE PRODUCT THICKNESS = 1.5" TURN OFF CI PUMP. TAKE PARAMETER READINGS. MEASURE CI = 8"

1200 - LEFT SITE

M. Freeman

10/5/98 MF ONSITE @ 1800 HRS TO'S WARM

NEP	6296900
SIG	656790
FLOW	21.0
OIL	32.25
PSI IN	10
PSI OUT	10
OMW-4	189587
OMW-9	71522

1800 - INSPECT SYSTEM. PUMP DOWN HOLDING TANK. CHANGE BAG FILTERS. SKIM WATER COMPARTMENT OF O/W SEPARATOR.

1900 - BEGIN TO BACKFLUSH PRIMARY CARBON - LITE BIOFOULING. CONTINUE BACKFLUSHING FOR APPROX. 30 MINUTES.

1930 - INSPECT OMW'S & ORW'S. ORW'S ALL OPERATING PROPERLY, CLEAN SCREENS. OMW-4 OPERATING PROPERLY. OMW-9 INITIALLY NOT OPERATING. PUMP PULLED UP & RELEASED WHICH STARTS PUMP TO CYCLE AGAIN.

2030 - TAKE PARAMETER READINGS. TURN OFF C/ PUMP SECURE AREA.

2100 - LEFT SITE.

M. Freeman

10/7/90 MK ONSITE AT 0800 ARS 60° OVERCAST

MEP	6312450
SIG	658,411
FLOW	24.0
OIL	32.25"
PSI IN	10/ 9.5
PSI OUT	6/ 9.5
OMW-4	709,587
OMW-9	42,209

0800 HRS- INSPECTING SYSTEM. HOLDING TANK 3/4 FULL; TRIP DELAY TO PUMP DOWN TANK. TURN ON CL PUMP. SKIM OVERFLOW FOR BIO-MATERIAL. NORMAL AMOUNT OF SLUDGE/FLOATING MATERIAL.

0830 HRS- BEGIN BACKFLUSHING OF PRIMARY CARBON UNIT. LITTLE BIO-FOULING HOWEVER, WATER VERY TURBID. CONTINUE BACKFLUSHING FOR 30 MINUTES, RECONNECT HOSES TO PROPER FITTING

0900 HRS- CHANGE BAG FILTERS. INSPECT OMW'S & ORW'S. ORW'S FUNCTIONING PROPERLY. CLEAN SCREENS REDEPLOY PUMPS INTO WELLS. OMW'S FUNCTIONING PROPERLY; RECORD COUNTER READINGS. INSPECT MASTER CONTROL BOX. SYSTEM FUNCTIONING AS NORMAL.

0930 HRS PERFORM O/M ON AIR COMPRESSOR. CHECK OIL, OIL LEVEL NORMAL SYSTEM OPERATING NORMALLY.

1000 HRS - RECORD PARAMETER READINGS. DISCONNECT CL PUMP SECURE SITE.

1015 HRS LEFT SITE

NET	0524080
SIG	659,705
FLOW	20.0
OIL	32.5"
PSI IN	10/10
PSI OUT	7/9.5
OMW-4	729,587
OMW-9	72,909

2100 HRS - INSPECTING SYSTEM. MOLDING TANK AI TURN OF CI PUMP TO SUPRESS BIO-FOULING. BAG FILTORS.

2130 HRS - BEGIN BACKFLUSHING OF PRIMARY CARB BIO-MATERIAL IN DISCHARGE HOSE/CK, SI/C IS PRESENT. ALTERNATING B/W FREE FLOW AND BUILD UP OF PRESSURE TO BLOW OUT AND BIO-FOULING.

2200 HRS - INSPECTING ORW's & OMW's. ORW's WORKIN CLEANED SCREENS REDEPLOTED PUMPS. OMW- PROPERLY. OMW-9 SPORADICALLY CYCLING, R FROM WELL SHUT AIR VALVE AND WATER LINE. RECONNECTED AIR AND DISCHARGE LINES PUMP. CYCLING PROPERLY.

2230 HRS - PERFORM B/M ON ~~SEC~~ AIR COMPRESSOR. O. NORMAL. TURN OFF CI PUMP. TAKE PARA READINGS. SECURE ~~SITE~~

2300 HRS - LEFT SITE

[redacted]

[illegible] ONSITE [illegible]

.NEP 6344400

.SIG 699580

.Flow 26

.OIL 33"

.PSI-IN 10

.PSI-OUT 9.5

OMW-4 736571

OMW-9 ~~297336~~ mb 173500

2000 HRS - INSPECTING SYSTEM. HOLDING TANK ½ FULL. TRIP RELAY TO PUMP DOWN TANK. SKIM OFF SEPARATOR OF BIO-MATERIAL. TAKE PARAMETER READINGS.

2045 HRS - CHANGE BAG FITTERS. BEGIN BACKFLUSHING PRIMARY CARBON. LITTLE BIO-FOULING, HOWEVER, SLIGHT SHEEN ON WATER WITH HIGH TURBIDITY.

2130 HRS - FINISH BACKFLUSH OF PRIMARY CARBON. INSPECTING OMW'S & ORW'S. ORW'S WORKING PROPERLY, CLEAN SCREENS REDEPLOY PUMPS. OMW-4 CYCLING PROPERLY HOWEVER COUNTER IS SAMMING. OMW-9 CYCLING PROPERLY.

2200 HRS - INSPECT AIR COMPRESSOR/PERFORM O&M; SYSTEM OPERATING PROPERLY, OIL LEVEL CORRECT. TURN OFF CL PUMP. TAKE PARAMETER READINGS. SECURE SITE.

2230 HRS LEFT SITE.

10/20/98 ME ONSITE 1600 HRS

NEP	6363900
SIG	716890
FLOW	26.5
OIL	33"
PSI-IN	10/10
PSI-OUT	6/9.5
OMW-4	73C670 mg
OMW-9	~~433763~~ 274,500

1600 ARS - INSPECTING O/W SEPARATOR, ADDING TAT TURN ON OF PUMP. CHANGE BAG FILTER BACKFLUSH OF PRIMARY CARBON. LITTLE SLIGHT SHEEN ON DISCHARGE WATER BACKFLUSH FOR APPROX 30 MINUTES

1630 ARS - SKIM O/W SEPARATOR OVERFLOW FOR B DROPPED METAL COMAR INTO O/W SEP WIH NOTICE SLOTH K. AND FIGURE OUT, RECOVER PART.

1900 ARS INSPECTING OMW-4 & OMW-9. OMW-4 COUN TO STICK. HOWEVER, PUMP IS CYCLING OMW-9 WORKING PROPERLY, SLIGHT GA DISCHARGE PORTION OF CYCLE. ORW'S WE PROPERLY. CLEAN SCREENS REDEPLOY.

1945 ARS - PERFORM O&M ON AIR COMPRESS CORRECT. TAKE PARAMETER READIN OFF OF PUMP. SECURE SITE.

2015 ARS - LEFT SITE

10/29/10 MT ONSITE 2000HRS 50° CLEAR

NEP	6384000
SIG	735280
FLOW	21
OIL	33.5"
PSI IN	10
PSI OUT	10
OMW-4	736020
OMW-9	561920

2000 HRS - INSPECTING SYSTEM. TURNED OF CI PUMP. HOLDING TANK THREE-QUARTERS FULL, TRIPPED RELAY TO PUMP DOWN HOLDING TANK.
2030 HRS - CHANGED OUT BAG FILTERS. BEGAN BACKFLUSHING PRIMARY CARBON. LITTLE BIO-FOULING. SKIMMED OIL WATER OVERFLOW PARTITION BIO-FOULING HAS DECREASED OVER PAST FEW WEEKS.
2100 HRS - INSPECTING ORW'S & OMW'S. ALL ORW'S OPERATING PROPERLY. PERFORMED MAINTENANCE/USUAL SCREEN CLEANING AND REDEPLOYED HOSES. OMW-4 WORKING PROPERLY. OMW-9 STUCK IN BLOW BY MODE. PUMP PULLED FROM WELL AND VISUALLY OBSERVED FROM ANY OBSTRUCTIONS/FOREIGN MATERIALS. ALL LOOKS NORMAL. DISCHARGE VALVE SHUT AND LINE DISCONNECTED AT FITTING, UPON DISCONNECTING HOSE A GREAT BURST OF AIR IS RELEASED. SPORADIC BURSTS OF AIR ARE RELEASED INTERMITENTLY WITH SOME AERATED WATER. PUMP IS REDEPLOYED INTO WELL WHILE DISCONNECTED FROM DISCHARGE (CONT

[redacted]

LINE AND PUMP APPEARS TO BE FU
PROPERLY. DISCHARGE LINE RE-CONNEC
PUMP OBSERVED FOR 5-MINUTES; OPE
PROPERLY.

2200 ARS - STOPPED BACKFLUSHING. RECONNEC
PLUMBING. PERFORMED WEEKLY C
COMPRESSOR ALL SYSTEMS OPERA

2230 ARS - CHLORINE PUMP DISCONNECTED. PAR.
READINGS TAKEN. SITE SECURED.

2245 - LEFT SITE.

M. Freeman

10/31/98 MF ONSITE 1000 HRS 62° CLOUDY

NET	670200
SIG	750270
FLOW	26.0
OIL	33.5"
PSI IN	10/10
PSI OUT	6/7.5
OMW-4	745605
OMW-3	5F7800

1000 HRS - ONSITE, INSPECTING SYSTEM. HOLDING TANK ALMOST EMPTY. BEGIN BACKFLUSHING PRIMARY CARBON. DISCHARGE WATER CONTAINS SLIGHT SHEEN AND INITIAL DISCHARGE OF BIO GROWTH. PUMP IN #1 PUMP. WILL NEED TO ORDER NEW DRUM OF SODIUM HYPOCHLORITE

1045 HRS - FINISHED BACKFLUSHING OF PRIMARY CARBON, CHANGE OUT BAG FILTERS. NEED TO ORDER NEW FILTERS. USING BAILER MEASURE PRODUCT THICKNESS IN OIL/WATER SEPARATOR (1.25") VERIFY WITH INTERFACE PROBE. SLIM ACCORDION FOR BIO MATERIAL.

1115 HRS - INSPECTING OMW'S & ORW'S. OMW-3 NOT CYCLING PROPERLY. REMOVED PUMP FROM WELL AND SHUT AIR & DISCHARGE VALVES. RELEASED AIR PRESSURE FROM DISCHARGE LINE REDEPLOYED PUMP INTO WELL AND OPENED AIR & DISCHARGE VALVES WITH PUMP OPERATING PROPERLY. ADJUSTED AIR PRESSURE TO 50 PSI. CLEANED SCREENS ON ORW-1, ORW-2 & ORW-3 AIR PUMPS CYCLING PROPERLY WITH NORMAL WATER LEVELS OBSERVED. OMW-4 OPERATING WITH

[redacted]

0 2111 SLIGHT "GURGLE" BETWEEN CYCLES. PSI. AD
TO PSI - OBSERVED "CLEANER" CYCLING.
1215 HRS - PERFORMED EOM ON COMPRESSOR.
NORMAL PROPER OIL LEVEL - CYCLING AS
1230 HRS - TOOK SYSTEM PARAMETER READIN
@ PUMP. SECURED SITE
1257 HRS - LEFT SITE

GROUNDWATER TREATMENT SYSTEM FIELD LOG
OAKLAND FUELING AREA
UNION PACIFIC RAILROAD

Date	Time	Volume		Flow Rate Thru Carbon	Filter Pressure		Oil Level In Tank	Comments
		Signet (gallons)	Neptune (gallons)	(gal/min)	Inlet (psig)	Outlet (psig)	(inches)	(Maintenance, Adjustments, and Observations)
11/3/98	1400	759910	6410600	21.5	10	9.5	33.5	
11/6/98	1400	770550	6421400	20.5	10	9.5	33.5	Collected Samples.
11/11/98	1500	787590	6440600	12.4	10	10	33.5	OMW-9 was not pumping. ORW-1 not pumping
								OMW-9 fixed. Unable to re-start ORW-1
11/12/98	0930	—	—	—	—	—	—	Disconnect pump, bring to office for repair.
11/16/98	1430	801120	6455300	16	10	10	33.75	ORM-1 Not in service yet. Other pumps functioning
11/20/98	1430	812340	6467300	18.2	10	10	33.75	Install ORW-1.
11/23/98	1000	822210	6477700	19.0	10	10	34.10	

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

FLUID LEVEL MEASUREMENTS
OAKLAND TRAILER ON FLAT CAR FACILITY
UNION PACIFIC RAILROAD
DATE: 11/4/98 MIKE FREEMAN, BRIAN WALTMAN

WELL NUMBER	TIME	DEPTH TO PRODUCT (feet)	DEPTH TO WATER (feet)	AMOUNT OF PRODUCT RECV'D (gallons)	COMMENTS OR OBSERVATIONS
OMW-1	1300	——	7.32		
OMW-3	1305	——	5.90		
OMW-8	1250	——	6.40		
OMW-4	1240	6.17	7.65		
ORW-3	1225	11.36	11.38		PULLED PUMP PRIOR TO MEASURING
OP-1	1445	4.75	6.25		
ORW-2	1215	11.50	11.85		PULLED PUMP PRIOR TO MEASURING
OMW-9	1430	SHEEN	6.5		PULLED PUMP PRIOR TO MEASURING
OMW-7	1440	6.22	8.22		
ORW-1	1200	SHEEN	9.45		PULLED PUMP PRIOR TO MEASURING
OP-3	1435	5.86	7.65		
OP-4	1140	——	9.59		PULLED PUMP PRIOR TO MEASURING
OMW-10	1155	——	6.53		
OMW-2	1147	——	5.03		
OMW-5	1325	——	6.14		
OMW-6	1340	——	5.42		
OKUS-W2	1350	——	9.23		
OKUS-W3	1400	——	9.05		
OKUS-W5	~~1334~~ 1417	——	——		PRODUCT TOO VISCOUS TO MEASURE
RW	1332	7.31	9.35		
OP-2	1419	6.42	8.82		

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

11/3/98 MF ONSITE 1400 ARS 65° OVERCAST

NEP	6410600
S.G	75991.0
Flow	21.5
O.L	33.5"
PSI IN	10/10
PSI OUT	6/9.5
OMW-4	765584
OMW-9	578780

1700 AR

1800 AR

1400 HRS - INSPECTING SYSTEM. HOLDING TANK 1/2 FULL; TRIP RELAY TO PUMP DOWN. CHANGED OUT BAG FILTERS. SKIMMED O/W OVERFLOW TROUGH; LITTLE BIO MATERIAL, SLIGHT SHEEN ON WATER.

1430 ARS - BEGAN BACKFLUSH OF PRIMARY CARBON. HANDLE ON VALVE BROKE (DISCHARGE HOSE) MAKING USUAL PRESSURE BUILD UP TECHNIQUE NOT POSSIBLE. VALVE WILL NEED REPLACEMENT. BACKFLUSHED UNIT FOR APPROX. 30 MINUTES

1500 ARS - MET WITH HENRY WOLF TO FAMILIARIZE HIM WITH REMEDIATION SYSTEM, WALKED THROUGH SITE, PULLED OPEN WELLS, LOOKED AT AIR COMPRESSOR, EXAMINED O.L WATER SEPARATOR.

1600 ARS - INSPECTING OMW's & ORW's. OMW-4 CYCLING PROPERLY. COUNTER SEEMS TO BE WORKING PROPERLY. OMW-9 NOT CYCLING PROPERLY. AIR VALVE AND DISCHARGE VALVE SHUT. DISCHARGE LINE DISCONNECTED TO RELIEVE PRESSURE. PUMP PULLED FROM WELL AND OBSERVED FOR FOULING. PUMP APPEARS FREE OF OBSTRUCTION. PUMP RE-DEPLOYED AND BEGINS TO CYCLE PROPERLY. ON NEXT VISIT IF PUMP NOT CYCLING WILL TAKE IT APART AND EXAMINE INTERNAL PARTS.

OTW's WORKING PROPERLY, CLEANED SCREENS REDEPLOYED PUMPS.

1700 HRS- INSPECTING AIR COMPRESSOR. OIL LEVEL CORRECT. CYCLING PROPERLY. TOOK PARAMETER READINGS. UNPLUGGED CI PUMP SECURED SITE.

1800 HRS- LEFT SITE.

11/6/98 MF ONSITE 1430 HRS 60° OVERCAST

NEP	642400
SIG	770550
FLOW	20.5
OIL	33.5"
PSI IN	10
PSI OUT	9.5
OMW-4	783081
OMW-9	607059

1400 HRS - PICK UP SODIUM HYPO CHLORITE FROM RICK HOWELL AT MAINT. YARD.

1430 HRS - INSPECTING O/M SYSTEM - HOLDING TANK ALMOST EMPTY. Ø CHANGE BAG FILTERS. BEGIN BACKFLUSH OF PRIMARY CARBON. BACKFLUSH FOR APPROX. 30 MIN. TAKE PARAMETER READINGS. SKIM O/W OVERFLOW THROUGH. TURN ON C/ PUMP.

1530 HRS BEGIN SAMPLING INFLUENT FOR TPHd AND MID-FLUENT FOR BTEX. SAMPLING COMPLETED AT 1550 HRS.

1600 HRS - INSPECTING ORW's & OMW's. ORW's CYCLING PROPERLY. CLEAN SCREENS REDEPLOY PUMPS IN RESPECTIVE WELLS. OMW's BOTH CYCLING PROPERLY TOOK COUNTER READINGS. INSPECT AIR COMPRESSOR + PERFORM WEEKLY MAINTENANCE - OIL LEVEL O.K. RESSURED BAG FILTERS DROPPED OFF SODIUM HYPO CHLORITE IN FENCED-IN AREA.

1630 HRS - SECURED SITE. TURNED OFF C/ PUMP. LEFT SITE.

M. Frame

11/11/98 MF ONSITE 1500 ARS CLOUDY 60° NO WIND

NET	6440600
SIG	787590
FLOW	12.4 GPM
OIL	33.5
PSI IN	10
PSI OUT	10
OMW-4	314510
OMW-9	698560

1500 ARS - INSPECT SYSTEM. HOLDING TANK EMPTY. CHANGE BAG FILTERS. BEGIN BACKFLUSHING PRIMARY CARBON. TURN ON C1 PUMP. SKIM O/S OVERFLOW TRAY

1600 ARS - FINISH BACKFLUSH. INSPECT ORW'S & OMW's. OMW-4 OPERATING PROPERLY. RECORD COUNTER. OMW-9 NOT PUMPING. PULL PUMP TO HIGHER ELEVATION IN WELL AND RELEASE TO ORIGINAL POSITION AND PUMP BEGINS CYCLING. ADJUST AIR PRESSURE TO ≤ 30 PSI. ORW-2 & ORW-3 OPERATING PROPERLY. ORW-1 NOT PUMPING. WATER LEVEL HIGH IN WELL. MASTER CONTROL GREEN LIGHT CONSTANTLY ON. RE-ADJUST BUBBLER LINE; PUMP STILL NOT FUNCTIONING. WILL CONSULT WITH ABBIE H. AS TO RECTIFYING PROBLEM.

1700 ARS
1635 - TURN OFF C1 PUMP, TAKE PARAMETER READINGS SECURE SITE.

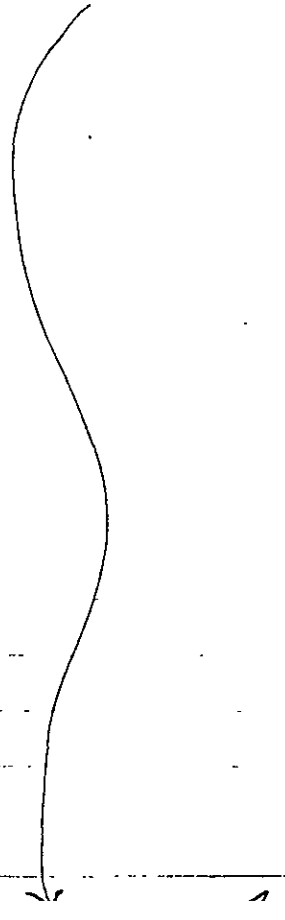
1715 ARS - LEFT SITE

M. Turner

[illegible] ARS [illegible] TO [illegible]

[illegible] ARS. [illegible] TO INSPECT DRW-1. MASTER CONTROL GREEN LIGHT CONSTANTLY ON. PER INSTRUCTIONS FROM ABOVE B. I DISCONNECTED AIR LINE WHICH POWERS PUMP AND THERE WAS GOOD AIR PRESSURE THROUGH THE PROBLEM IS WITH THE PUMP (IE FOULING, WORN SEALS etc.) DISCONNECT REMAINING HOSES AND BRING PUMP TO OFFICE FOR REPAIRS. THE OFF DISCHARGE HOSE FROM PUMP TO PREVENT BACKFLOW of WATER INTO PUMP BOX. SHUT OFF AIR TO PUMP AT CONTROL BOX. SECURED SITE.

1115HRS LEFT SITE



1/16/98 MF ONSITE 1430 ARS OVERCAST 60° LIGHT WIND

NET	6455300
SIG	80 11 20
FLOW	16
OIL	33 35°
PSI IN	10/10
PSI OUT	3/10
OMW-1	5-5 525
OMW-4	7: 7 0 54

1430 ARS - ONSITE INSPECTION - SYSTEM. HOLDING TANK ALMOST FULL CHANGED BAG FILTERS. TOOK DIAMETER READINGS. SKIMMED OVERFLOW TRAY. PUMPING DOWN HOLDING TANK.

1530 ARS - BEGIN BACKFLUSHING PRIMARY SEPTUM. EFFLUENT FAIRLY DIRTY W/ BIO-DEBRIS. CONTINUE BACKFLUSHING FOR APPROX 30 MIN. STOP BACKFLUSHING WHEN EFFLUENT CLEARS.

1600 ARS - INSPECTING OMW-1, OMW-1 NOT IN SERVICE TO TO PUMP MAINTENANCE. OMW-2 & OMW-3 RECEIVING PROPERLY CLEAN SCREENS REDEPTH. OMW-4 & OMW-9 BOTH RECEIVING TAPE READINGS. INSPECT COMPRESSOR, OPERATING AS USUAL. OIL LEVEL CHECKED AND FOUND TO BE AT PROPER LEVEL.

1650 ARS - TURN OFF (1) PUMP. SECURE SITE.

1640 ARS - LEFT SITE.

M. Fuson

11/20/15 MF ONSITE @ 1430 HRS. OVERCAST LIGHT WIND 60's.

NEP	6467300
S.C	812340
SION	182
O.L	33.55
PSI IN	10
PSI OUT	10
OMN-1	
OMN-4	

1430 HRS - ONSITE. INSPECTING SYSTEM. TURNED ON AL PUMP. PUMP DOWN HOLDING TANK. CHANGE BAG FILTERS.

1500 HRS - BEGIN BACKFLUSHING PRIMARY CARBON. LITTLE BIOFOULING NOTICED IN EFFLUENT. NEED TO REPLACE DISCHARGE VALVE (BROKEN). SLIM. CHECK ION TROUBLE. BACKFLUSHING PRIMARY CARBON.

1530 HRS - INSTALL OMN-1. PUMP IS CYCLING PROPERLY. TIGHTEN ALL FITTINGS. MASTER CONTROL OPERATING AS USUAL. CLEAN OMN SCREENS PERIOD. INSPECT OMN'S BOTH PUMPS CYCLING PROPERLY. INSPECT AIR COMPRESSOR. AIR NOZZLING PROPERLY.

1630 HRS - TAKE PARAMETER READINGS. UNPLUG 1 PUMP. SECURE SITE.

1645 HRS - LEAVE SITE

11/23/98 M.F. ONSITE @ 1000 HRS, RAINING MOD. WIND 50's

NEP	6477700
SIG	822210
Flow	19.0
OIL	34.0"
PSI IN	10
PSI OUT	10
OMW-4	887743
OMW-9	729078

1000 HRS- INSPECTING SYSTEM. HOLDING TANK EMPTY. CHANGE BIO FILTERS. TAKE PARAMETER READINGS, SKIM OVERFLOW TROUGH, TURN ON CL PUMP.

1045 HRS- INSPECTING OMW'S & ORW'S. OMW'S OPERATING NORMALLY. ORW'S - CYCLING PROPERLY. PULL PUMPS FROM WELLS TO CLEAN SCREENS. REDEPLOY PUMPS

1145 HRS- INSPECTING AIR COMPRESSOR. SYSTEM OPERATING NORMALLY. OIL LEVEL IS PROPER.

1200 HRS- BEGIN BACKFLUSHING PRIMARY CARBON, FAIR AMOUNT OF BIO MATERIAL IN EFFLUENT WATER. VALVE ON DISCHARGE HOSE JAMMING WILL BRING HOSE BACK TO OFFICE TO REPLACE/REPAIR VALVE.

1245 HRS - LEFT SITE

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area**	Laidlaw Project Number: **96199**
Measuring Point (MP) Location: **Top Of Casing**	**Well No. OMW-1**
Well Depth: (Below MP): **12.07 Feet**	
Casing Diameter: **2 Inches**	Sampling Date: **8/13/98**
Depth to Ground Water (Below MP): **6.54 Feet**	Sample ID No. **OMW-1**
Method of Well Development:	Time: **0950**
☐ Tap ☐ Submersible Pump ☐ Bladder Pump	Riser Elevation (MP):
▩ Bailer ☐ Centrifugal Pump ☐ Other	Top of Screen Elevation:
Sampling Collection Method:	Sample Appearance: **Rust Colored**
☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample	Odor: **None**
▩ Bailer Type ○ Teflon ○ Stainless Steel	Sampling Problems (if any): **None**
○ ABS Plastic ○ PVC ◉ HDPE	
Pump Intake Or Bailer Set At _____ *Feet Below MP*	*Decontamination Performed:* ***Probe***
Tubing Type (if used):	
Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests	Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
9:44	**7.0**	**1,120**	**24.6**	**1.0**		
9:46	**7.0**	**1,110**	**24.4**	**2.0**		
9:49	**7.0**	**1,110**	**24.1**	**3.0**		

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area** | Laidlaw Project Number: **96199**

Measuring Point (MP) Location: **Top Of Casing**

Well Depth: (Below MP): **9.92 Feet**

Well No. OMW-2

Casing Diameter: **2 Inches** | Sampling Date: **8/13/98**

Depth to Ground Water (Below MP): **4.30 Feet** | Sample ID No. **OMW-2**

Method of Well Development: | Time: **1415**

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

▩ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation:

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

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

▩ Bailer Type ○ Teflon ○ Stainless Steel | Sampling Problems (if any): **None**

○ ABS Plastic ○ PVC ◉ HDPE

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

Tubing Type (if used):

Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
14:06	**7.0**	**440**	**21.4**	**1.0**		
14:08	**7.0**	**440**	**20.9**	**2.0**		
14:11	**7.0**	**440**	**20.9**	**3.0**		

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area**	Laidlaw Project Number: **96199-01**
Measuring Point (MP) Location: **Top Of Casing**	**Well No. OMW-3**
Well Depth: (Below MP): **N/A**	
Casing Diameter: **2 Inches**	Sampling Date: **8/28/97**
Depth to Ground Water (Below MP): **N/A**	Sample ID No. **OMW-3**
Method of Well Development:	Time: **1015**
☐ Tap ☐ Submersible Pump ☐ Bladder Pump	Riser Elevation (MP):
▩ Bailer ☐ Centrifugal Pump ☐ Other	Top of Screen Elevation:
Sampling Collection Method:	Sample Appearance: **Cloudy Gray**
☐ Tap ☐ Submersible Pump ☐ Bladder Pump Sample	Odor: **Light diesel**
▩ Bailer Type ○ Teflon ○ Stainless Steel	Sampling Problems (if any): **None**
○ ABS Plastic ○ PVC ◉ HDPE	
Pump Intake Or Bailer Set At _____ Feet Below MP	Decontamination Performed: **Probe**
Tubing Type (if used):	
Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests	Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
10:08	**7.0**	**1,300**	**22.4**		**1.0**	
10:11	**7.0**	**2,230**	**21.8**		**2.0**	
10:14	**7.0**	**2,450**	**21.4**		**3.0**	

At Least Well Bore Volumes Were Evacuated Before Sampling

Comments: The protective well casing, well cap, surrounding concrete, and pvc well casing were all broken so a water level and total depth were not taken. Three gallons were purged before sampling.

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area** | Laidlaw Project Number: **96199**

Measuring Point (MP) Location: **Top Of Casing**

Well No. OMW-5

Well Depth: (Below MP): **17.46 Feet**

Casing Diameter: **2 Inches** | Sampling Date: **8/13/98**

Depth to Ground Water (Below MP): **5.73 Feet** | Sample ID No. **OMW-5**

Method of Well Development: | Time: **1300**

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

▩ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation:

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

☑ Tap ☐ Submersible Pump ☐ Bladder Pump Sample | Odor: **none**

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

○ ABS Plastic ○ PVC ◉ HDPE

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

Tubing Type (if used):

Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	*Cumulative* Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
12:49	**7.0**	**2,810**	**22.3**		**2.0**	
12:52	**7.0**	**2,770**	**22.1**		**4.0**	
12:57	**7.0**	**2,600**	**21.1**		**6.0**	

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area** | Laidlaw Project Number: **96199-01**

Measuring Point (MP) Location: **Top Of Casing**

Well Depth: (Below MP): **11.80 Feet**

Well No. OMW-6

Casing Diameter: **2 Inches** | Sampling Date: **8/13/98**

Depth to Ground Water (Below MP): **6.88 Feet** | Sample ID No. **OMW-6**

Method of Well Development: | Time: **1110**

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

▩ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation:

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

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

▩ Bailer Type ○ Teflon ○ Stainless Steel | Sampling Problems (if any): **None**

○ ABS Plastic ○ PVC ◉ HDPE

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

Tubing Type (if used):

Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	*Cumulative* Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
10:58	**7.0**	**3,550**	**21.4**		**1.0**	
11:01	**7.0**	**3,310**	**20.9**		**2.0**	
11:05	**7.0**	**3,290**	**20.7**		**3.0**	

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area** | Laidlaw Project Number: **96199**

Measuring Point (MP) Location: **Top Of Casing**

Well Depth: (Below MP): **17.46 Feet**

Well No. OMW-8

Casing Diameter: **2 Inches** | Sampling Date: **8/13/98**

Depth to Ground Water (Below MP): **5.73 Feet** | Sample ID No. **OMW-8**

Method of Well Development: | Time: **1300**

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

▩ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation:

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

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

▩ Bailer Type ○ Teflon ○ Stainless Steel | Sampling Problems (if any): **None**

○ ABS Plastic ○ PVC ◉ HDPE

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

Tubing Type (if used):

Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	Cumulative Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
12:49	**7.0**	**2,810**	**22.3**		**2.0**	
12:52	**7.0**	**2,770**	**22.1**		**4.0**	
12:57	**7.0**	**2,600**	**21.1**		**6.0**	

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments: Took duplicate sample OMW-800

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

LAIDLAW SAMPLING AND WELL STABILIZATION FORM

Laidlaw Project Name: **UP Fueling Area** | Laidlaw Project Number: **96199**

Measuring Point (MP) Location: **Top Of Casing**

Well Depth: (Below MP): **15.35 Feet**

Well No. OMW-10

Casing Diameter: **2 Inches** | Sampling Date: **8/13/98**

Depth to Ground Water (Below MP): **4.94 Feet** | Sample ID No. **OMW-10**

Method of Well Development: | Time: **1340**

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

▩ Bailer ☐ Centrifugal Pump ☐ Other | Top of Screen Elevation:

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

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

▩ Bailer Type ○ Teflon ○ Stainless Steel | Sampling Problems (if any): **None**

○ ABS Plastic ○ PVC ◉ HDPE

Pump Intake Or Bailer Set At N/A Feet Below MP | Decontamination Performed: **Probe**

Tubing Type (if used):

Tubing Used For: ☐ Sample Collection ☐ Well Development/Field Tests | Samples Collected: **BTEX, TPH-Diesel**

Time	pH (Units)	Temperature Corrected Conductance (umho/cm)	Temperature (Centigrade)	Water Level (Nearest 0.01 Ft.)	*Cumulative* Volume of Water Removed From Well (Gallons)	Pumping Rate in gallons/Minute (GPM)
1328	**7.0**	**2,020**	**23.4**		**1.6**	
1331	**7.0**	**2,250**	**23.5**		**3.2**	
1335	**7.0**	**2,210**	**23.1**		**4.8**	

At Least 3 Well Bore Volumes Were Evacuated Before Sampling

Comments:

[Comments may continue on back]

Form Completed By: **Joe Franzen** Witnessed By:

APPENDIX B

ANALYTICAL RESULTS

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

aidlaw Environmental	Client Project ID:	Oakland Motor Freight/ Fueling	Sampled: Aug 12, 1998
65 Flatiron Pkwy.	Sample Matrix:	Water	Received: Aug 14, 1998
Boulder, CO. 80301	Analysis Method:	EPA 5030/8015 Mod./8020	Reported: Sep 9, 1998
Attention: Lisa Hennesey	First Sample #:	808-1325	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 808-1325 OKUS-W2	Sample I.D. 808-1326 OKUS-W200	Sample I.D. 808-1327 OKUS-W1	Sample I.D. 808-1328 APL/UP-W1	Sample I.D. 808-1329 OKUS-W3	Sample I.D. 808-1330 OKUS-W7
QC Batch Number:		GC082598 802002A	GC082698 802002A	GC082698 802002A	GC082698 802002A	GC082698 802002A	GC082698 802002A
Purgeable Hydrocarbons	50	2,800	3,400	N.D.	160	6,900	81
Benzene	0.50	190	190	N.D.	17	230	3.1
Toluene	0.50	39	39	N.D.	0.72	58	N.D.
Ethyl Benzene	0.50	2,600	3,400	N.D.	130	5,400	1.0
Total Xylenes	0.50	150	180	N.D.	11	170	0.11
Chromatogram Pattern:		Gasoline	Gasoline	--	Gasoline	Gasoline	Unidentified Hydrocarbons C6 - C12

Quality Control Data

Report Limit Multiplication Factor:	10	20	1.0	1.0	100	1.0
Date Analyzed:	8/25/98	8/26/98	8/26/98	8/26/98	8/26/98	8/26/98
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	118	124	115	125	116	122

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 808-1331

Sampled: Aug 12&13, 1998
Received: Aug 14, 1998
Reported: Sep 9, 1998

QC Batch Number: GC082698 802002A | GC082698 802002A

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 808-1331 OKUS-W8	Sample I.D. 808-1332 APL/UP-W2
Purgeable Hydrocarbons	50	79	58
Benzene	0.50	N.D.	3.3
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	35
Total Xylenes	0.50	N.D.	3.2
Chromatogram Pattern:		Unidentified Hydrocarbons >C8	Unidentified Hydrocarbons C6 - C12

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	8/26/98	8/26/98
Instrument Identification:	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	110	114

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Sample Matrix: Water
Analysis Method: EPA 5030/8020
First Sample #: 808-1333

Sampled: Aug 13, 1998
Received: Aug 14, 1998
Reported: Sep 9, 1998

BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 808-1333 OMW-6	Sample I.D. 808-1334 OMW-8	Sample I.D. 808-1335 OMW-800	Sample I.D. 808-1336 OMW-1	Sample I.D. 808-1337 OMW-10	Sample I.D. 808-1338 OMW-3
QC Batch Number:		GC082698 802002A	GC082698 802002A	GC082698 802002A	GC082698 802009A	GC082698 802009A	GC082698 802002A
Benzene	0.50	N.D.	N.D.	N.D.	N.D.	210	N.D.
Toluene	0.50	N.D.	N.D.	N.D.	N.D.	0.50	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	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:	8/26/98	8/26/98	8/26/98	8/26/98	8/26/98	8/26/98
Instrument Identification:	HP-2	HP-2	HP-2	HP-9	HP-9	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	121	119	117	103	107	118

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

8081325.LLL <3>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Sample Matrix: Water
Analysis Method: EPA 5030/8020
First Sample #: 808-1339

Sampled: Aug 13&14, 1998
Received: Aug 14, 1998
Reported: Sep 9, 1998

QC Batch Number: GC082798 GC082798 GC082798

802002A 802002A 802009A

BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 808-1339 OMW-5 ✓	Sample I.D. 808-1340 OMW-2	Sample I.D. 808-1341 TB(8-14-98)
Benzene	0.50	N.D.	N.D.	N.D.
Toluene	0.50	N.D.	N.D.	N.D.
Ethyl Benzene	0.50	N.D.	N.D.	N.D.
Total Xylenes	0.50	N.D.	N.D.	N.D.

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0
Date Analyzed:	8/27/98	8/27/98	8/27/98
Instrument Identification:	HP-2	HP-2	HP-9
Surrogate Recovery, %: (QC Limits = 70-130%)	128	124	104

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Project Manager

Sequoia Analytical

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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 808-1325

Sampled: Aug 12, 1998
Received: Aug 14, 1998
Reported: Sep 9, 1998

QC Batch Number: SP081898 8015EXB (6 columns)

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 808-1325 OKUS-W2	Sample I.D. 808-1326 OKUS-W200	Sample I.D. 808-1327 OKUS-W1	Sample I.D. 808-1328 APL/UP-W1	Sample I.D. 808-1329 OKUS-W3	Sample I.D. 808-1330 OKUS-W7
Extractable Hydrocarbons	50	2,400	2,100	230	500	2,600	1,500
Chromatogram Pattern:		*Diesel* & Unidentified Hydrocarbons <C12	*Diesel* & Unidentified Hydrocarbons <C12	*Diesel*	*Diesel*	*Diesel* & Unidentified Hydrocarbons <C12	*Diesel*

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98
Date Analyzed:	8/26/98	8/26/98	8/26/98	8/26/98	8/26/98	8/26/98
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

Melissa A. Brewer
Project Manager

Sequoia Analytical

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Laidlaw Environmental	Client Project ID:	Oakland Motor Freight/ Fueling	Sampled: Aug 12&13, 1998
665 Flatiron Pkwy.	Sample Matrix:	Water	Received: Aug 14, 1998
Boulder, CO. 80301	Analysis Method:	EPA 3510/8015 Mod.	Reported: Sep 9, 1998
Attention: Lisa Hennesey	First Sample #:	808-1331	

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 808-1331 OKUS-W8	Sample I.D. 808-1332 APL/UP-W2	Sample I.D. 808-1333 OMW-6 ✓	Sample I.D. 808-1334 OMW-8 ✓	Sample I.D. 808-1335 OMW-800	Sample I.D. 808-1336 OMW-1 ✓
QC Batch Number:		SP081898 8015EXB	SP082098 8015EXB	SP082098 8015EXB	SP082098 8015EXB	SP082098 8015EXB	SP082098 8015EXB
Extractable Hydrocarbons	50	2,000	360	1,500	1,600	1,500	170
Chromatogram Pattern:		Diesel	Diesel	Diesel & Unidentified Hydrocarbons >C25	Diesel & Unidentified Hydrocarbons >C25	Diesel	Unidentified Hydrocarbons >C16

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	8/18/98	8/20/98	8/20/98	8/20/98	8/20/98	8/20/98
Date Analyzed:	8/26/98	8/29/98	8/29/98	8/29/98	8/29/98	8/29/98
Instrument Identification:	HP-3A	HP-3A	HP-3B	HP-3B	HP-3A	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Sample Matrix: Water
Analysis Method: EPA 3510/8015 Mod.
First Sample #: 808-1337

Sampled: Aug 13, 1998
Received: Aug 14, 1998
Reported: Sep 9, 1998

QC Batch Number: SP082098 8015EXB | SP082098 8015EXB | SP082098 8015EXB | SP082098 8015EXB

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 808-1337 OMW-10	Sample I.D. 808-1338 OMW-3	Sample I.D. 808-1339 OMW-5	Sample I.D. 808-1340 OMW-2
Extractable Hydrocarbons	50	4,500	3,200	3,700	2,000
Chromatogram Pattern:		Diesel & Unidentified Hydrocarbons >C25	Diesel & Unidentified Hydrocarbons >C25	Diesel & Unidentified Hydrocarbons >C18	Diesel

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	5.0	1.0
Date Extracted:	8/20/98	8/20/98	8/20/98	8/20/98
Date Analyzed:	8/29/98	8/29/98	9/6/98	8/29/98
Instrument Identification:	HP-3B	HP-3B	HP-3B	HP-3A

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

8081325.LLL <7>

Sequoia Analytical

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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Sample Descript: Water
Analysis for: Arsenic
First Sample #: 808-1325

Sampled: Aug 12&13, 1998
Received: Aug 14, 1998
Digested: Aug 24, 1998
Analyzed: Aug 25, 1998
Reported: Sep 9, 1998

LABORATORY ANALYSIS FOR: Arsenic

Sample Number	Sample Description	Detection Limit mg/L	Sample Result mg/L	QC Batch Number	Instrument ID
808-1325	OKUS-W2	0.0050	0.12	ME0824983020MDA	MV-2
808-1326	OKUS-W200	0.0050	0.10	ME0824983020MDA	MV-2
808-1327	OKUS-W1	0.0050	N.D.	ME0824983020MDA	MV-2
808-1328	APL/UP-W1	0.0050	0.027	ME0824983020MDA	MV-2
808-1329	OKUS-W3	0.0050	0.093	ME0824983020MDA	MV-2
808-1330	OKUS-W7	0.0050	N.D.	ME0824983020MDA	MV-2
808-1331	OKUS-W8	0.0050	N.D.	ME0824983020MDA	MV-2
808-1332	APL/UP-W2	0.0050	0.012	ME0824983020MDA	MV-2

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

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Project Manager

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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Matrix: Liquid

QC Sample Group: 8081325-341

Reported: Sep 9, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Diesel	Arsenic
QC Batch#:	GC082598	GC082598	GC082598	GC082598	SP081898	SP082098	ME082498
Analy. Method:	802002A EPA 8020	802002A EPA 8020	802002A EPA 8020	802002A EPA 8020	8015EXB EPA 8015M	8015EXB EPA 8015M	3020MDA EPA 206.2
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 3510	EPA 3510	EPA 3020
Analyst:	C. Westwater	C. Westwater	C. Westwater	C. Westwater	K. Grubb	K. Grubb	T. Le
MS/MSD #:	8081010	8081010	8081010	8081010	BLK081898B	BLK082098B	8081325
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0.12 mg/L
Prepared Date:	8/25/98	8/25/98	8/25/98	8/25/98	8/18/98	8/20/98	8/24/98
Analyzed Date:	8/25/98	8/25/98	8/25/98	8/25/98	8/26/98	8/29/98	8/25/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A	HP-3A	MV-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L	500 µg/L	0.10 mg/L
Result:	19	18	19	55	290	410	0.22
MS % Recovery:	95	90	95	92	58	82	100
Dup. Result:	20	19	19	58	330	330	0.20
MSD % Recov.:	100	95	95	97	66	66	80
RPD:	5.1	5.4	0.0	5.3	13	22	9.5
RPD Limit:	0-20	0-20	0-20	0-20	0-50	0-50	0-20
LCS #:	2LCS082598	2LCS082598	2LCS082598	2LCS082598	LCS081898B	LCS082098B	LCS082498
Prepared Date:	8/25/98	8/25/98	8/25/98	8/25/98	8/18/98	8/20/98	8/24/98
Analyzed Date:	8/25/98	8/25/98	8/25/98	8/25/98	8/28/98	8/29/98	8/25/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A	HP-3A	MV-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	500 µg/L	500 µg/L	0.10 mg/L
LCS Result:	17	17	16	62	390	350	0.11
LCS % Recov.:	85	85	80	103	78	70	110
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130	60-140	60-140	80-120

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

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

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Matrix: Liquid

QC Sample Group: 8081325-341

Reported: Sep 9, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082698 802002A	GC082698 802002A	GC082698 802002A	GC082698 802002A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	BLK082698	BLK082698	BLK082698	BLK082698
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/26/98	8/26/98	8/26/98	8/26/98
Analyzed Date:	8/26/98	8/26/98	8/26/98	8/26/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	20	20	19	60
MS % Recovery:	100	100	95	100
Dup. Result:	21	20	21	62
MSD % Recov.:	105	100	105	103
RPD:	4.9	0.0	10	3.3
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	-	-	-	-
Prepared Date:	-	-	-	-
Analyzed Date:	-	-	-	-
Instrument I.D.#:	-	-	-	-
Conc. Spiked:	-	-	-	-
LCS Result:	-	-	-	-
LCS % Recov.:	-	-	-	-
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

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

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Matrix: Liquid
QC Sample Group: 8081325-341
Reported: Sep 9, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082698 802009A	GC082698 802009A	GC082698 802009A	GC082698 802009A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8080596	8080596	8080596	8080596
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/26/98	8/26/98	8/26/98	8/26/98
Analyzed Date:	8/26/98	8/26/98	8/26/98	8/26/98
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	19	20	21	65
MS % Recovery:	95	100	105	108
Dup. Result:	19	21	21	65
MSD % Recov.:	95	105	105	108
RPD:	0.0	4.9	0.0	0.0
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	9LCS082698	9LCS082698	9LCS082698	9LCS082698
Prepared Date:	8/26/98	8/26/98	8/26/98	8/26/98
Analyzed Date:	8/26/98	8/26/98	8/26/98	8/26/98
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	22	23	24	75
LCS % Recov.:	110	115	120	125

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

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** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

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Laidlaw Environmental
665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Matrix: Liquid

QC Sample Group: 8081325-341

Reported: Sep 9, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082798	GC082798	GC082798	GC082798
	802002A	802002A	802002A	802002A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Newcomb	D. Newcomb	D. Newcomb	D. Newcomb
MS/MSD #:	8081340	8081340	8081340	8081340
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/27/98	8/27/98	8/27/98	8/27/98
Analyzed Date:	8/27/98	8/27/98	8/27/98	8/27/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	21	21	21	64
MS % Recovery:	105	105	105	107
Dup. Result:	21	21	21	63
MSD % Recov.:	105	105	105	105
RPD:	0.0	0.0	0.0	1.6
RPD Limit:	0-20	0-20	0-20	0-20
LCS #:	2LCS082798	2LCS082798	2LCS082798	2LCS082798
Prepared Date:	8/27/98	8/27/98	8/27/98	8/27/98
Analyzed Date:	8/27/98	8/27/98	8/27/98	8/27/98
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	21	20	21	63
LCS % Recov.:	105	100	105	105
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer
Project Manager

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** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (925) 988-9600, FAX (925) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

aidlaw Environmental
65 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling
Matrix: Liquid

QC Sample Group: 8081325-341

Reported: Sep 9, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC082798 802009A	GC082798 802009A	GC082798 802009A	GC082798 802009A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	8081327	8081327	8081327	8081327
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	8/27/98	8/27/98	8/27/98	8/27/98
Analyzed Date:	8/27/98	8/27/98	8/27/98	8/27/98
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
Result:	20	21	22	69
MS % Recovery:	100	105	110	115
Dup. Result:	20	21	23	68
MSD % Recov.:	100	105	115	113
RPD:	0.0	0.0	4.4	1.5
RPD Limit:	0-20	0-20	0-20	0-20

LCS #:	9LCS082798	9LCS082798	9LCS082798	9LCS082798
Prepared Date:	8/27/98	8/27/98	8/27/98	8/27/98
Analyzed Date:	8/27/98	8/27/98	8/27/98	8/27/98
Instrument I.D.#:	HP-9	HP-9	HP-9	HP-9
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L
LCS Result:	20	21	23	69
LCS % Recov.:	100	105	115	115

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

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Project Manager

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

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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Laidlaw Environmental
5665 Flatiron Pkwy.
Boulder, CO. 80301
Attention: Lisa Hennesey

Client Project ID: Oakland Motor Freight/ Fueling

Lab Number: 8081325-341

Received: Aug 14, 1998

Reported: Sep 9, 1998

LABORATORY NARRATIVE

All quality control measures were within criteria. All Method Blanks were N.D. for the requested analytes.

SEQUOIA ANALYTICAL, #1271

Melissa A. Brewer

Melissa A. Brewer
Project Manager

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

☐ 680 Chesapeake Drive • Redwood City, CA 94063 • (650) 364-9600 FAX (650) 364-9233
☐ 819 Striker [redacted] Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 9[redacted]100
☐ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: LAIDLAW ENVIRO.	Project Name: OAKLAND MOTOR FREIGHT
Address: 5665 PLATIRON PKWY.	Billing Address (if different): 9808323
City: BOULDER State: Co Zip Code: 80301	
Telephone: (303) 938-5500 FAX #:	P.O. #: 96120.844
Report To: LISA HENNESEY Sampler: JOE FRAZIER	QC Data: ☐ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

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

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	metals ARSENIC ONLY	TPH-G 8020	BTEx 8015	TPH-D	Comments
1. OKUS-W2	8/12/98 1640	H_2O	2	1 AMBER 1 metals	8081325	X		X	X	
2.			2	40ml.			X	X		
3. OKUS-W200	8/12/98 1640	H_2O	2	1 AMBER 1 metals	8081326	X			X	
4.			2	40ml.			X	X		
5. OKUS-W1	8/12/98 1715	H_2O	2	1 AMBER 1 metals	8081327	X			X	
6.			2	40ml.			X	X		
7. APL/UP-W1	8/13/98 0835	H_2O	2	1 AMBER 1 metals	8081328	X			X	
8.			2	40ml.			X	X		
9. OKUS-W3	8/12/98 1800	H_2O	2	1 AMBER 1 metals	8081329	X			X	
10.			2	40ml.			X	X		

Relinquished By:	Date: 8/14/98	Time: 1017	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: TRENTA	Date: 8/14	Time: 1017

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

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

□ 680 Chesapeake Drive • Redwood City, CA 94063 • (650) 364-9600 FAX (650) 364-9233
□ 819 Striker[illegible], Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) [illegible]100
□ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: LAIDLAW ENVIRO.	Project Name: OAKLAND MOTOR FREIGHT
Address: 5665 FLATIRON PKWY	Billing Address (if different): [illegible]
City: BOULDER State: Co. Zip Code: 80301	
Telephone: (303) 938-5300 FAX #:	P.O. #: 96159
Report To: LISA HENNESEY Sampler: JOE FRANZEN	QC Data: □ Level D (Standard) □ Level C □ Level B □ Level A

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

□ Drinking Water □ Waste Water □ Other

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Metals	Arsenic only	TPH-G BTEX	BTEX only	TPH-D						Comments
1. OKLS-W7	8/13/98 1600	H2O	2	1 amber 1 metals	8081330	X			X							
2.			2	40ml			X	X								
3. OKLS-W8	8/13/98 1400	H2O	2	1 Amber 1 metals	8081331	X			X							
4.			2	40 ml.			X	X								
5. APL/UP-W2	8/13/98 0915	H2O	2	1 amber 1 metals	8081332	X			X							ID changed per Lisa Hennesey 8/17/98 MB
6.			2	40ml,			X	X								
7. OMW-6	8/13/98 1110	H2O	1	AMBER	8081333				X							OAKLAND FUELING
8.			2	40 m				X								
9. OMW-8	8/13/98 1300	H2O	1	AMBER	8081334				X							OAKLAND FUELING
10.			2	40 ml.				X								

Relinquished By: Joe Franzen	Date: 8/14/98	Time: 1017	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: T Burke	Date: 8/14	Time: 1027

Were Samples Received in Good Condition? □ Yes □ No Samples on Ice? □ Yes □ No Method of Shipment_____ Page ___ of ___

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

680 Chesapeake Drive • Redwood City, CA 94063 • (650) 364-9600 FAX (650) 364-9233
819 Striker Ave, Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 921-0100
404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: LAIDLAW ENVIRO.	Project Name: OAKLAND FUELING
Address: 5665 FLATIRON PKWY.	Billing Address (if different):
City: BOULDER State: CO. Zip Code: 80301	980323
Telephone: (303)938-5500 FAX #:	P.O. #: 96199
Report To: LISA HENNESEY Sampler: JOE FRANZEN	QC Data: ☐ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

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

☐ Drinking Water ☐ Waste Water ☐ Other

Analyses Requested: TPH-D, BTEX 8015

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	TPH-D	BTEX 8015	Comments
1. OMW-800	8/13/98 1300	H_2O	1	AMBER	8081335	X		
2.			2	40ml			X	
3. OMW-1	8/13/98 0950	H_2O	1	AMBER	8081336	X		
4.			2	40ml			X	
5. OMW-10	8/13/98 1340	H_2O	1	AMBER	8081337	X		
6.			2	40ml			X	
7. OMW-3	8/13/98 1015	H_2O	1	AMBER	8081338	X		
8.			2	40ml			X	
9. OMW-5	8/13/98 1045	H_2O	3	1 AMBER 2 40ml	8081339	X	X	
10. OMW-2	8/13/98 1415	H_2O	3	1 AMBER 2 40ml	8081340	X	X	

Relinquished By:	Date: 8/14/98	Time: 1027	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab:	Date: 8/14	Time: 1027

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

Pink - Client
Yellow - Sequoia
White - Sequoia

SEQUOIA ANALYTICAL
CHAIN OF CUSTODY

❑ 680 Chesapeake Drive • Redwood City, CA 94063 • (650) 364-9600 FAX (650) 364-9233
❑ 819 Striker [redacted] Suite 8 • Sacramento, CA 95834 • (916) 921-9600 FAX (916) 9[redacted]00
❑ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (510) 988-9600 FAX (510) 988-9673

Company Name: [redacted] LAIDLAW	Project Name: OAKLAND FUEL / MOTOR FREEWAY
Address: 5665 FLATIRON PKWY.	Billing Address (if different):
City: BOULDER State: Co. Zip Code: 80301	4EC393
Telephone: (303) 938-5500 FAX #:	P.O. #:
Report To: LISA HENNESEY Sampler: JOSE FRANCISCO	QC Data: ❑ Level D (Standard) ❑ Level C ❑ Level B ❑ Level A

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

❑ Drinking Water ❑ Waste Water ❑ Other

Analyses Requested: BTEX 8015

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	Comments
1. TB-8-14-98	8/14/98	H2O	1	40ml	8081341	
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Relinquished By: [signature]	Date: 8/14/98	Time: 1017	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By Lab: T Hunt	Date: 8/14	Time: 1020

Were Samples Received in Good Condition? ❑ Yes ❑ No Samples on Ice? ❑ Yes ❑ No Method of Shipment_____ Page ___ of ___

Pink - Client
Yellow - Sequoia
White - Sequoia

Curtis & Tompkins, Ltd.

BTXE

Client:	Burns & McDonnell	Analysis Method:	EPA 8020A
Project#:	96-071-1	Prep Method:	EPA 5030
Location:	UNPAC		

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
134485-001	INFLUENT_GW	42043	07/09/98	07/16/98	07/16/98	
134485-002	MIDFLUENT_GW	42043	07/09/98	07/16/98	07/16/98	
134485-003	EFFLUENT_GW	42043	07/09/98	07/16/98	07/16/98	

Matrix: Water

Analyte Diln Fac:	Units	134485-001 1	134485-002 1	134485-003 1
Benzene	ug/L	1.5	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	1	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	77	79	86
Bromofluorobenzene	%REC	86	82	85

Curtis & Tompkins Ltd.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
134485-001	INFLUENT_GW	42008	07/09/98	07/14/98	07/16/98	
134485-003	EFFLUENT_GW	42008	07/09/98	07/14/98	07/16/98	

Matrix: Water

Analyte	Units	134485-001	134485-003
Dilu Fac:		1	1
Diesel C12-C22	ug/L	20000 YH	66 YH
Surrogate			
Hexacosane	%REC	111	106

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

134485

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3483

Laboratory: CURTIS & TOMPKINS
Address: 2323 5TH ST.
City/State/Zip: BERKELEY CA. 94710
Telephone: 510 486-0900
Attention: Scott REISTERT

Document Control No.: 07998
Lab. Reference No. or Episode No.:

Project Number: 96-071-1
Project Name: V.V. P.A.C.
Site, Group, or SWMU Name:

Sample Number: Sample Point	Sample Number: Sample Designator	Sample Event: Round	Sample Event: Year	Sample Depth (in feet): From	Sample Depth (in feet): To	Sample Collected: Date	Sample Collected: Time	Sample Type: Matrix: Liquid	Solid	Gas	Composite	Grab	Number of Containers	Analysis: TEH D ROLA	BTEX SOLID	Remarks
EFLUENT	GW		98			7/9/98	1230	X					3	X	X	STANDARD
2D EFLUENT	GW		98			7/9/98	1245	X					3	X	X	TURN AROUND
EFLUENT	GW		98			7/9/98	1300	X					3	X	X	TIME
														DSW		

Sampler (signature): Michael Fuerna
Sampler (signature):

Special Instructions:

Relinquished By:	Date/Time	Received By:	Date/Time
1 Michael Fuerna (signature)	7/9/98 1530	(signature)	
Relinquished By: 2 (signature)	Date/Time	Received By: (signature)	Date/Time 7/9/98

Condition of Shipping Container: Good [ ] Fair [ ] Poor [ ]
Ice Present in Container: Yes [✓] No [ ]
Comments:

981905 FormWCI-OPI

FROM-CURTIS & TOMPKINS JUL 23 '98 10:43 FAX 5104869689 PAGE.004
TO-16508712653

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Burns & McDonnell
377 Oyster Point Blvd. Ste. 13
South San Francisco, CA 94080

Date: 12-AUG-98
Lab Job Number: 134779
Project ID: 96-071-1
Location: N/A

Reviewed by: Damara Moore

Reviewed by:

Curtis & Tompkins, Ltd.

Lab Report:**134779**
Client: **Burns & McDonnell**
Location: **UNPAC**
Project #: **96-071-1**

Receipt Date: **07/28/98**

CASE NARRATIVE

This report contains sample results and batch QC for one water sample that was received, cold and intact, from the above referenced project on July 28, 1998.

Aromatic Volatile Organics by EPA 8260: A high surrogate recovery was observed for sample EFFLUENT_GW (134779-001). As there were no detected analytes, any potential high bias does not affect the quality of the data. No other analytical problems were encountered.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
134779-001	EFFLUENT_GW	42370	07/28/98	07/29/98	08/05/98	

Matrix: Water

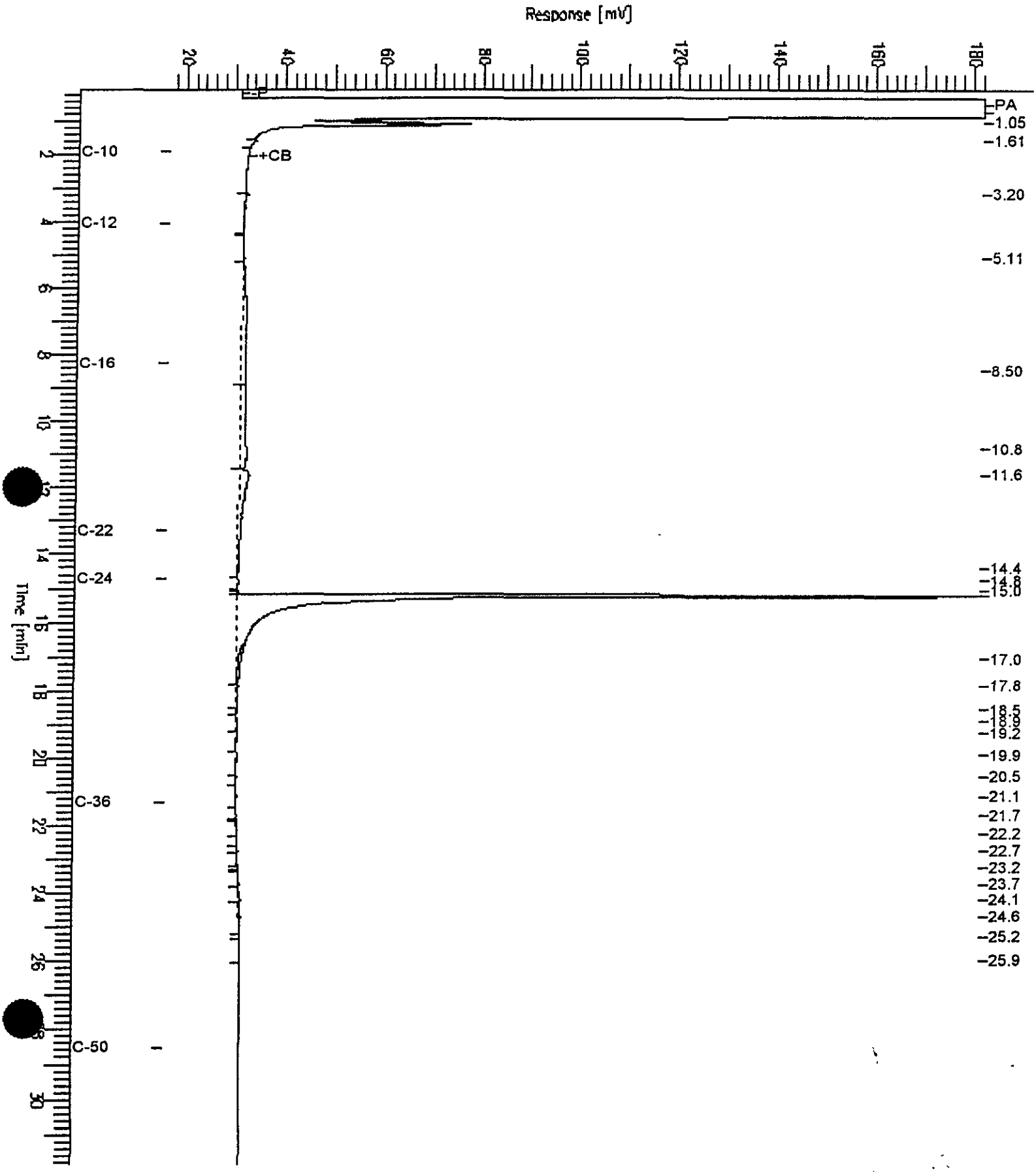
Analyte	Units	134779-001
Diln Fac:		1
Diesel C12-C22	ug/L	58 Y
Surrogate		
Hexacosane	%REC	65

Y: Sample exhibits fuel pattern which does not resemble standard

Chromatogram

Sample Name : 134779-001,42370
FileName : D:\GC13\CHB\216B033.RAW
Method : BTEH181.MTH
Start Time : 0.07 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 17 mV

Sample #: 42370 Page 1 of 1
Date : 8/6/98 12:02 PM
Time of Injection: 8/5/98 06:46 PM
Low Point : 16.55 mV High Point : 182.09 mV
Plot Scale: 165.5 mV



TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520

METHOD BLANK

Matrix:	Water	Prep Date:	07/29/98
Batch#:	42370	Analysis Date:	08/05/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC76196

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	73	53-136

Lab #: 134779 BATCH QC REPORT Curtis & Tompkins,dfd.1

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 42370
Units: ug/L
Diln Fac: 1
Prep Date: 07/29/98
Analysis Date: 08/05/98

BS Lab ID: QC76197

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	2145	87	58-110

Surrogate	%Rec	Limits
Hexacosane	87	53-136

BSD Lab ID: QC76198

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	1970	80	58-110	9	21

Surrogate	%Rec	Limits
Hexacosane	76	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Aromatic Volatile Organics
EPA 8020 Analyte List

Client:	Burns & McDonnell	Analysis Method:	EPA 8260
Project#:	96-071-1	Prep Method:	EPA 5030
Field ID:	EFFLUENT_GW	Sampled:	07/28/98
Lab ID:	134779-001	Received:	07/28/98
Matrix:	Water	Extracted:	08/01/98
Batch#:	42413	Analyzed:	08/01/98
Units:	ug/L		
Diln Fac:	1		

Analyte	Result	Reporting Limit
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Recovery	Recovery Limits
1,2-Dichloroethane-d4	126*	85-121
Toluene-d8	97	92-110
Bromofluorobenzene	105	84-115

* Values outside of QC limits

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Burns & McDonnell	Analysis Method:	EPA 8260
Project#:	96-071-1	Prep Method:	EPA 5030

METHOD BLANK

Matrix:	Water	Prep Date:	07/31/98
Batch#:	42413	Analysis Date:	07/31/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC76350

Analyte	Result	Reporting Limit
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	113	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	104	84-115

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Burns & McDonnell	Analysis Method:	EPA 8260
Project#:	96-071-1	Prep Method:	EPA 5030

METHOD BLANK

Matrix:	Water	Prep Date:	07/31/98
Batch#:	42413	Analysis Date:	07/31/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC76351

Analyte	Result	Reporting Limit
Benzene	ND	1.0
Toluene	ND	1.0
Ethylbenzene	ND	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

Surrogate	%Rec	Recovery Limits
1,2-Dichloroethane-d4	116	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	106	84-115

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Burns & McDonnell	Analysis Method:	EPA 8260
Project#:	96-071-1	Prep Method:	EPA 5030

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix:	Water	Prep Date:	07/31/98
Batch#:	42413	Analysis Date:	07/31/98
Units:	ug/L		
Diln Fac:	1		

BS Lab ID: QC76348

Analyte	Spike Added	BS	%Rec #	Limits
Benzene	50	54.93	110	87-117
Toluene	50	54.67	109	88-116

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	110	85-121
Toluene-d8	100	92-110
Bromofluorobenzene	101	84-115

BSD Lab ID: QC76349

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Benzene	50	55.6	111	87-117	1	10
Toluene	50	56.18	112	88-116	3	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	109	85-121
Toluene-d8	101	92-110
Bromofluorobenzene	100	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

Purgeable Aromatics by GC/MS
EPA 8020 Analyte List

Client:	Burns & McDonnell	Analysis Method:	EPA 8260
Project#:	96-071-1	Prep Method:	EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	07/22/98
Lab ID:	134723-006	Received Date:	07/23/98
Matrix:	Water	Prep Date:	07/31/98
Batch#:	42413	Analysis Date:	07/31/98
Units:	ug/L		
Diln Fac:	40		

MS Lab ID: QC76362

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	2000	<40	2113	106	80-116
Toluene	2000	<40	2077	104	82-114

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	115	85-121
Toluene-d8	99	92-110
Bromofluorobenzene	102	84-115

MSD Lab ID: QC76363

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	2000	2137	107	80-116	1	10
Toluene	2000	2117	106	82-114	2	10

Surrogate	%Rec	Limits
1,2-Dichloroethane-d4	114	85-121
Toluene-d8	98	92-110
Bromofluorobenzene	100	84-115

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

1517.19

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Laboratory: CURTIS & TOMPKINS
Address: 2323 5TH ST.
City/State/Zip: BERKELEY CA. 94710
Telephone: 510 486-0900

Attention: SCOTT KEILSTADT

Document Control No.: 072898

Lab. Reference No. or Episode No.:

Project Number: 96-071-1

Project Name: UNPAC

Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: TEH d 8015	Analysis: BTEX 8010					Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab								
EFLUENT	GW		1998			1/28/98	1200	X					5	X	X					STANDARD TURN AROUND TIME

Sampler (signature): Michael Freeman

Sampler (signature):

Special Instructions:

Relinquished By:	Date/Time	Received By:	Date/Time
1. Michael Freeman (signature)	1/28/98	J. GUERRERO (signature) 1-28-98 3:35 pm	
Relinquished By: 2. (signature)	Date/Time	Received By: (signature)	Date/Time

Condition of Shipping Container: Good ✓ Fair ☐ Poor ☐

Ice Present in Container: Yes ✓ No ☐

Comments:

061996 Form WCI-OP1

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

ANALYTICAL REPORT

Prepared for:

Burns & McDonnell
377 Oyster Point Blvd. Ste. 13
South San Francisco, CA 94080

Date: 09-SEP-98
Lab Job Number: 135139
Project ID: 96-071-1
Location: UNPAC

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135139-002	MIDFLUENT_GW	42837	08/14/98	08/20/98	08/20/98	

Matrix: Water

Analyte	Units	135139-002
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	58
Bromofluorobenzene	%REC	66

Lab #: 135139

BATCH QC REPORT

Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8020A
Prep Method: EPA 5030

METHOD BLANK

Matrix: Water
Batch#: 42837
Units: ug/L
Diln Fac: 1

Prep Date: 08/20/98
Analysis Date: 08/20/98

MB Lab ID: QC77920

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	87	53-124
Bromofluorobenzene	89	41-142

Lab #: 135139 BATCH QC REPORT Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 42837
Units: ug/Kg
Diln Fac: 1

Prep Date: 08/20/98
Analysis Date: 08/20/98

LCS Lab ID: QC77919

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	15.49	20	77	69-109
Toluene	18.8	20	94	72-116
Ethylbenzene	16.96	20	85	67-120
m,p-Xylenes	39.34	40	98	69-117
o-Xylene	18.83	20	94	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	96	53-124
Bromofluorobenzene	96	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 135139 BATCH QC REPORT Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8020A
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 135106-005
Matrix: Water
Batch#: 42837
Units: ug/L
Diln Fac: 1

Sample Date: 08/13/98
Received Date: 08/13/98
Prep Date: 08/20/98
Analysis Date: 08/20/98

MS Lab ID: QC77921

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	15.58	78	55-125
Toluene	20	<0.5	18.77	94	65-126
Ethylbenzene	20	<0.5	17.8	89	60-129
m,p-Xylenes	40	<0.5	39.99	100	68-116
o-Xylene	20	<0.5	20.05	100	69-129

Surrogate	%Rec	Limits
Trifluorotoluene	89	53-124
Bromofluorobenzene	100	41-142

MSD Lab ID: QC77922

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	15.8	79	55-125	1	11
Toluene	20	18.61	93	65-126	1	11
Ethylbenzene	20	17.24	86	60-129	3	12
m,p-Xylenes	40	40.22	101	68-116	1	11
o-Xylene	20	19.82	99	69-129	1	12

Surrogate	%Rec	Limits
Trifluorotoluene	74	53-124
Bromofluorobenzene	78	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135139-001	INFLUENT_GW	42826	08/14/98	08/19/98	09/02/98	

Matrix: Water

Analyte	Units	135139-001
Diln Fac:		2
Diesel C12-C22	ug/L	26000 H
Surrogate		
Hexacosane	%REC	99

H: Heavier hydrocarbons than indicated standard

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520
Location:	UNPAC		

METHOD BLANK

Matrix:	Water	Prep Date:	08/19/98
Batch#:	42826	Analysis Date:	08/26/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC77888

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	76	53-136

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 42826
Units: ug/L
Diln Fac: 1

Prep Date: 08/19/98
Analysis Date: 08/27/98

LCS Lab ID: QC77889

Analyte	Result	Spike Added	%Rec #	Limits
Diesel C12-C22	1598	2475	65	58-110

Surrogate	%Rec	Limits
Hexacosane	70	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520
Location:	UNPAC		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	08/11/98
Lab ID:	135055-002	Received Date:	08/11/98
Matrix:	Water	Prep Date:	08/19/98
Batch#:	42826	Analysis Date:	08/27/98
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC77890

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Diesel C12-C22	2380	<50	1623	66	58-110
Surrogate	**%Rec**	**Limits**			
Hexacosane	73	53-136			

MSD Lab ID: QC77891

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2391	1641	66	58-110	1	21
Surrogate	**%Rec**	**Limits**				
Hexacosane	73	53-136				

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

12039

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Laboratory: CURTIS & TOMPKINS
Address: 2323 5TH ST.
City/State/Zip: BERKELEY CA. 94710
Telephone: 510 486-0900
Attention: Ed KELLSTEDT

Document Control No.: 081498
Lab. Reference No. or Episode No.:

Project Number: 96-071-1
Project Name: UNPAC
Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: TEH D 8015M	Analysis: BTEX 8020					Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab								
INFLUENT	GW		1998			8/14/98	1330	X				X[2nd]	2	X						STANDARD
EFFLUENT	GW		1998			8/14/98	1340	X				X[3rd]	3		X					TURN AROUND

Sampler (signature): Michael Fuerman
Sampler (signature):

Special Instructions:

Relinquished By:	Date/Time	Received By:	Date/Time
1. Michael Fuerman (signature):	8/17/98 1550	(signature):	8/17/98 1550
Relinquished By:	Date/Time	Received By:	Date/Time
2. (signature):		(signature):	

Condition of Shipping Container: Good ✓ Fair ☐ Poor ☐
Ice Present in Container: Yes ✓ No ☐
Comments:

061996 Form WCI-OP1

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900, Fax (510) 486-0532

A N A L Y T I C A L R E P O R T

Prepared for:

Burns & McDonnell
377 Oyster Point Blvd. Ste. 13
South San Francisco, CA 94080

Date: 07-OCT-98
Lab Job Number: 135536
Project ID: 96-071-1
Location: UNPAC

Reviewed by: _____

Reviewed by: _____

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell	Analysis Method: EPA 8015M
Project#: 96-071-1	Prep Method: EPA 3520
Location: UNPAC	Cleanup Method: 3630 some

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135536-001	INFLUENT_GW	43516	09/11/98	09/21/98	09/25/98	

Matrix: Water

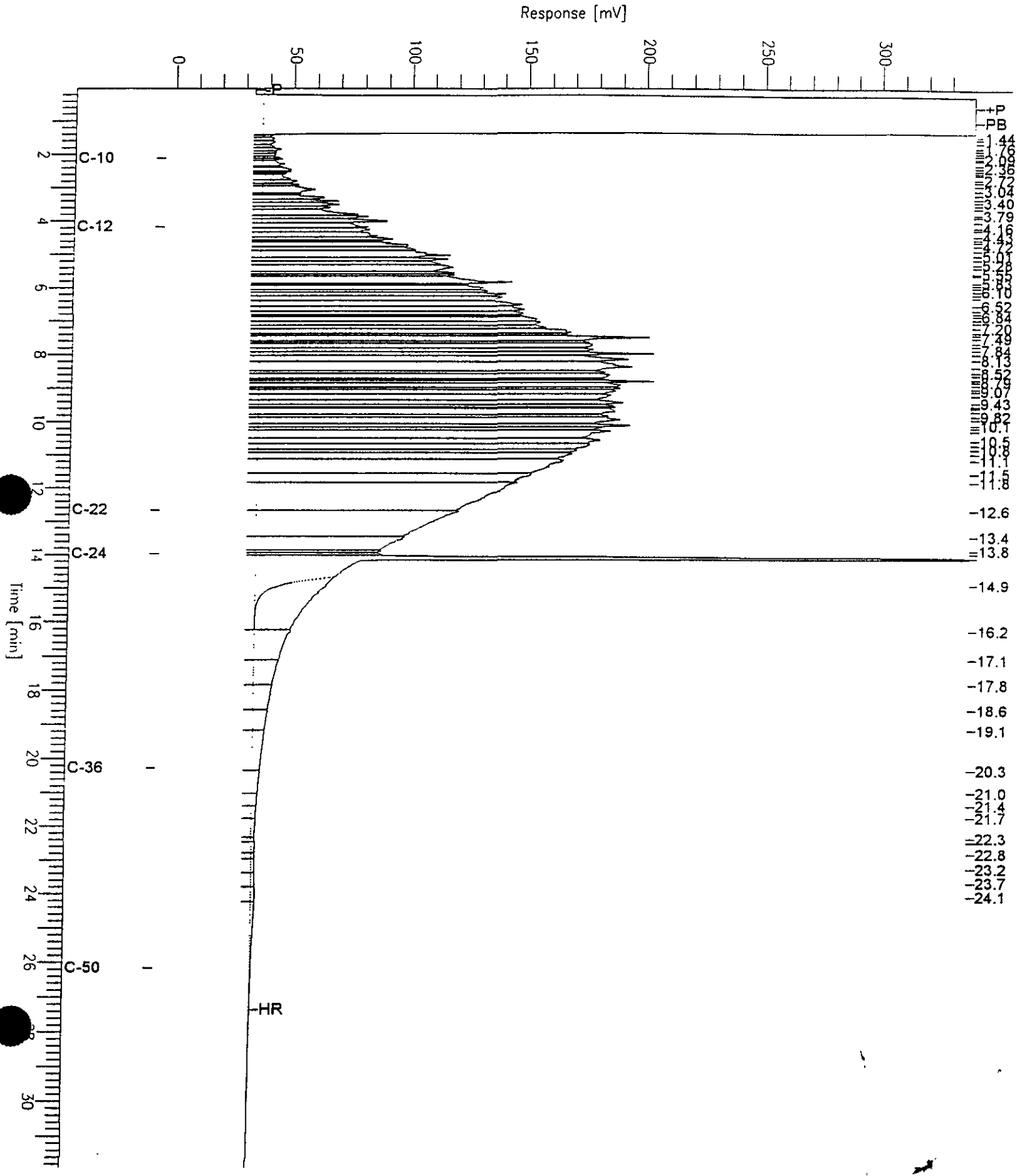
Analyte	Units	135536-001	
Diln Fac:		1	
Diesel C12-C22	ug/L	12000	YH
Surrogate			
Hexacosane	%REC	89	

Y: Sample exhibits fuel pattern which does not resemble standard
H: Heavier hydrocarbons than indicated standard

GC15 Channel B TEH

Sample Name : 135536-001,43516
FileName : C:\GC15\CHB\267B021.RAW
Method : B260TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -4 mV

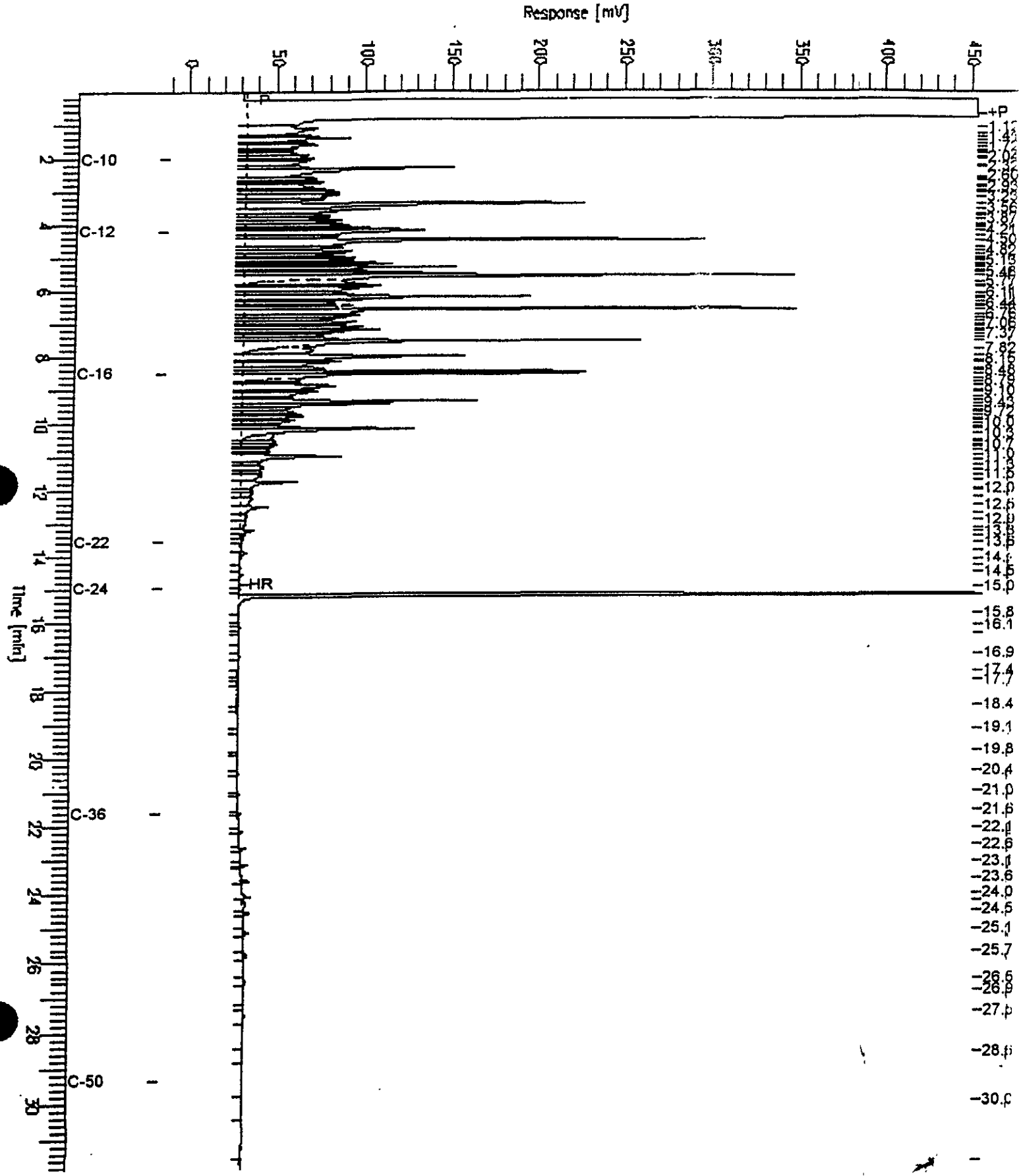
Sample #: 43516 Page 1 of 1
Date : 9/25/98 01:05 PM
Time of Injection: 9/25/98 08:25 AM
Low Point : -4.47 mV High Point : 339.82 mV
Plot Scale: 344.3 mV



Chromatogram

Sample Name : CCV,98W,5384,DS
FileName : C:\GC11\CHA\273A002.RAW
Method : ATEH236.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: -12 mV

Sample #: 500MG/L Page 1 of 1
Date : 10/1/98 07:18 AM
Time of Injection: 9/30/98 05:19 PM
Low Point : -12.07 mV High Point : 453.23 mV
Plot Scale: 465.3 mV



BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520
Location:	UNPAC	Cleanup Method:	EPA 3630 some

METHOD BLANK

Matrix:	Water	Prep Date:	09/21/98
Batch#:	43516	Analysis Date:	09/30/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC80470

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	98	53-136

BATCH QC REPORT

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520
Cleanup Method: EPA 3630 some

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 43516
Units: ug/L
Diln Fac: 1

Prep Date: 09/21/98
Analysis Date: 09/30/98

BS Lab ID: QC80471

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C12-C22	2475	1873	76	58-110

Surrogate	%Rec	Limits
Hexacosane	109	53-136

BSD Lab ID: QC80472

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C12-C22	2475	1886	76	58-110	1	21

Surrogate	%Rec	Limits
Hexacosane	106	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Curtis & Tompkins, Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135536-002	MIDFLUENT_GW	43402	09/11/98	09/17/98	09/17/98	

Matrix: Water

Analyte	Units	135536-002
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	121
Bromofluorobenzene	%REC	129

Curtis & Tompkins, Ltd.

BTXE	
Client: Burns & McDonnell	Analysis Method: EPA 8020A
Project#: 96-071-1	Prep Method: EPA 5030
Location: UNPAC	

METHOD BLANK	
Matrix: Water	Prep Date: 09/16/98
Batch#: 43402	Analysis Date: 09/16/98
Units: ug/L	
Diln Fac: 1	

MB Lab ID: QC80032

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	113	53-124
Bromofluorobenzene	116	41-142

Lab #: 135536

BATCH QC REPORT

Curtis & Jenkins Ltd.

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 43402
Units: ug/L
Diln Fac: 1

Prep Date: 09/16/98
Analysis Date: 09/16/98

LCS Lab ID: QC80031

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	15.87	20	79	69-109
Toluene	18.69	20	93	72-116
Ethylbenzene	19.88	20	99	67-120
m,p-Xylenes	40.31	40	101	69-117
o-Xylene	20.12	20	101	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	112	53-124
Bromofluorobenzene	119	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

Lab #: 135536

BATCH QC REPORT

Curtis & Tompkins Ltd.

BTXE

Client:	Burns & McDonnell	Analysis Method:	EPA 8020A
Project#:	96-071-1	Prep Method:	EPA 5030
Location:	UNPAC		

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	ZZZZZZ	Sample Date:	09/11/98
Lab ID:	135564-023	Received Date:	09/14/98
Matrix:	Water	Prep Date:	09/16/98
Batch#:	43402	Analysis Date:	09/16/98
Units:	ug/L		
Diln Fac:	1		

MS Lab ID: QC80033

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	16.84	84	55-125
Toluene	20	<0.5	19.84	99	65-126
Ethylbenzene	20	<0.5	20.83	104	60-129
m,p-Xylenes	40	<0.5	42.29	106	68-116
o-Xylene	20	<0.5	21.47	107	69-129

Surrogate	%Rec	Limits
Trifluorotoluene	122	53-124
Bromofluorobenzene	137	41-142

MSD Lab ID: QC80034

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	17.48	87	55-125	4	11
Toluene	20	20.37	102	65-126	3	11
Ethylbenzene	20	21.71	109	60-129	4	12
m,p-Xylenes	40	44.08	110	68-116	4	11
o-Xylene	20	22.4	112	69-129	4	12

Surrogate	%Rec	Limits
Trifluorotoluene	123	53-124
Bromofluorobenzene	138	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

13553

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc. 9400 Ward Parkway Kansas City, Missouri 64114 Phone: (816) 333-8787 Fax: (816) 822-3463	Laboratory CURTIS & TOMPKINS Address 2323 5TH Street City/State/Zip BERKELEY CA. 94710 Telephone 510 486-0900
Attention: Scott KELLSTEDT	
Project Number: 96-071-1	Project Name: UNIPAC
Site, Group, or SWMU Name:	

Document Control No.: 091198

Lab. Reference No. or Episode No.:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis						Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab		TEH D 8015M	BTEX 8020					
IDENT	GW		1998			9/11/98	1255	X					2	X						STANDARD
IDENT	GW		1998			9/11/98	1250	X					3		X					TURN AROUND TIME

Sampler (signature): Michael Freeman

Sampler (signature):

Special Instructions:

Relinquished By: 1. Michael Freeman (signature):	Date/Time 9/11/98 1500 hrs	Received By: (signature):	Date/Time	Condition of Shipping Container: Good ✓ Fair ☐ Poor ☐	Ice Present in Container: Yes ✓ No ☐
Relinquished By: 2. (signature):	Date/Time	Received By: (signature):	Date/Time 9/11/98	Comments:	

061996 Form WCI-OP1

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

Burns & McDonnell
377 Oyster Point Blvd. Ste. 13
South San Francisco, CA 94080

Date: 23-OCT-98
Lab Job Number: 135879
Project ID: 96-071-1
Location: N/A

Reviewed by: _____

Reviewed by: _____

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8015M
Prep Method: EPA 3520
Cleanup Method: 3630some

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135879-001	INFLUENT_GW	43942	10/02/98	10/12/98	10/18/98	
135879-002	EFFLUENT_GW	43942	10/02/98	10/12/98	10/18/98	

Matrix: Water

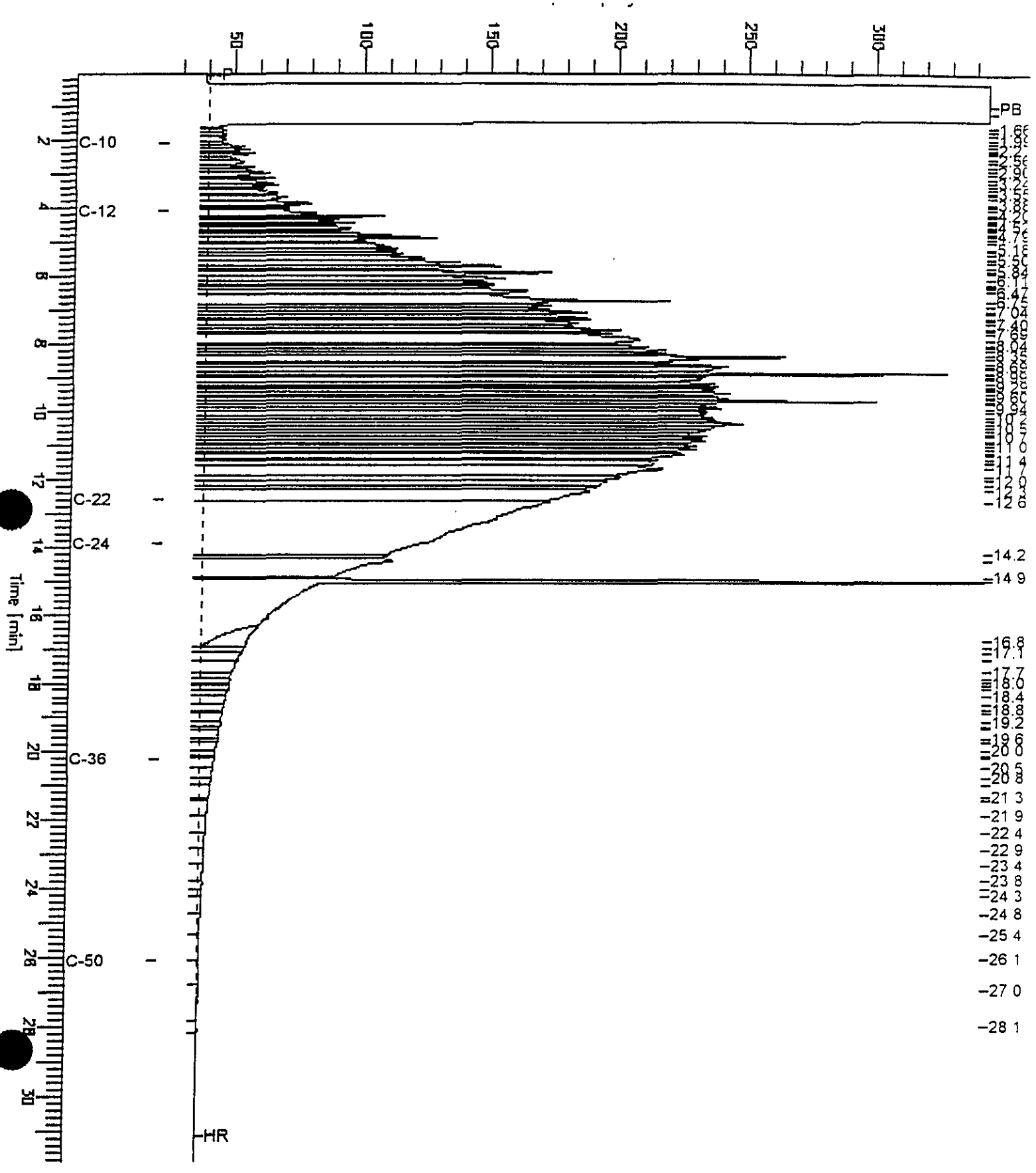
Analyte	Units	135879-001	135879-002
Diln Fac:		1	1
Diesel C12-C22	ug/L	19000 H	<50
Surrogate			
Hexacosane	%REC	91	91

H: Heavier hydrocarbons than indicated standard

GC15 Channel B TEH

Sample Name : 135879-001,43942
FileName : C:\GC15\CHB\289B068.RAW
Method : B294TEH.MTH
Start Time : 0.05 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 24 mV

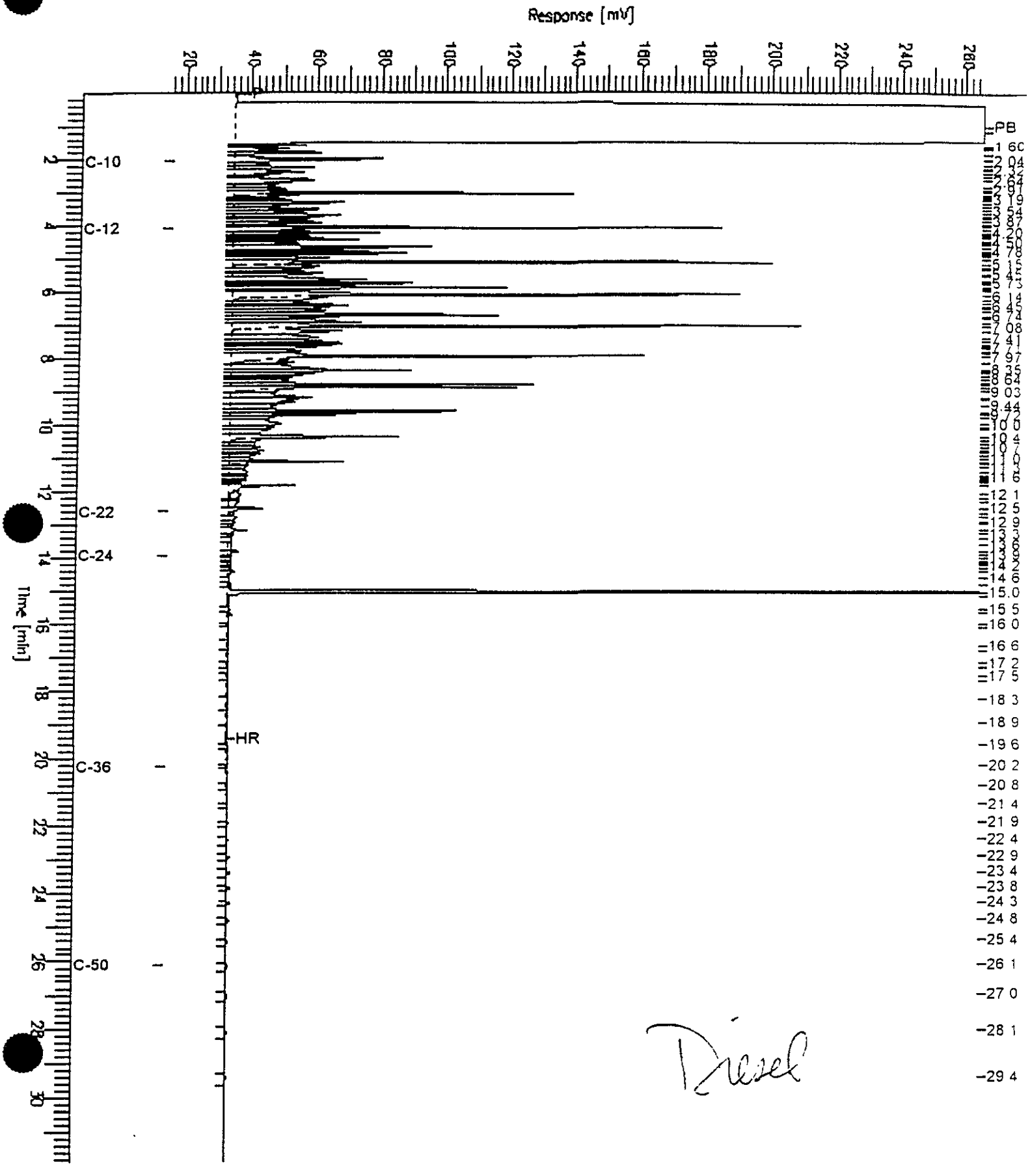
Sample #: 43942 Page 1 of 1
Date : 10/21/98 12:46 PM
Time of Injection: 10/18/98 10:44 AM
Low Point : 23.78 mV High Point : 344.73 mV
Plot Scale: 320.9 mV



GC15 Channel B TEH

Sample Name : ccv,98ws6585,ds
FileName : C:\GC15\CHB\289B008.RAW
Method : B293TEH.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 16 mV

Sample #: 500mg/l Page 1 of 1
Date : 10/20/98 03:23 PM
Time of Injection: 10/16/98 04:14 PM
Low Point : 15.76 mV High Point : 265.53 mV
Plot Scale: 249.8 mV



Diesel

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520
		Cleanup Method:	EPA 3630some

METHOD BLANK

Matrix:	Water	Prep Date:	10/12/98
Batch#:	43942	Analysis Date:	10/18/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC82046

Analyte	Result	
Diesel C12-C22	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	80	53-136

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520
		Cleanup Method:	EPA 3630some

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix:	Water	Prep Date:	10/12/98
Batch#:	43942	Analysis Date:	10/18/98
Units:	ug/L		
Diln Fac:	1		

BS Lab ID: QC82047

Analyte	Spike Added	BS	%Rec	#	Limits
Diesel C12-C22	2475	1997	81		58-110

Surrogate	%Rec	Limits
Hexacosane	101	53-136

BSD Lab ID: QC82048

Analyte	Spike Added	BSD	%Rec	#	Limits	RPD	#	Limit
Diesel C12-C22	2475	1716	69		58-110	15		21

Surrogate	%Rec	Limits
Hexacosane	88	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

BTXE

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8020A
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
135879-001	INFLUENT_GW	43890	10/02/98	10/09/98	10/09/98	
135879-002	EFFLUENT_GW	43890	10/02/98	10/09/98	10/09/98	
135879-003	MIDFLUENT_GW	43890	10/02/98	10/09/98	10/09/98	

Matrix: Water

Analyte Diln Fac:	Units	135879-001 1	135879-002 1	135879-003 1
Benzene	ug/L	0.54	<0.5	<0.5
Toluene	ug/L	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	<0.5	<0.5	<0.5
m,p-Xylenes	ug/L	<0.5	<0.5	<0.5
o-Xylene	ug/L	<0.5	<0.5	<0.5
Surrogate				
Trifluorotoluene	%REC	113	116	110
Bromofluorobenzene	%REC	132	127	117

BTXE

Client:	Burns & McDonnell	Analysis Method:	EPA 8020A
Project#:	96-071-1	Prep Method:	EPA 5030

METHOD BLANK

Matrix:	Water	Prep Date:	10/09/98
Batch#:	43890	Analysis Date:	10/09/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC81867

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	106	53-124
Bromofluorobenzene	110	41-142

BTXE

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8020A
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 43890
Units: ug/L
Diln Fac: 1

Prep Date: 10/09/98
Analysis Date: 10/09/98

LCS Lab ID: QC81866

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	18.25	20	91	69-109
Toluene	21.38	20	107	72-116
Ethylbenzene	22.31	20	112	67-120
m,p-Xylenes	45.63	40	114	69-117
o-Xylene	22.88	20	114	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	109	53-124
Bromofluorobenzene	120	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

BTXE

Client: Burns & McDonnell
Project#: 96-071-1

Analysis Method: EPA 8020A
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 135953-007
Matrix: Water
Batch#: 43890
Units: ug/L
Diln Fac: 1

Sample Date: 10/06/98
Received Date: 10/07/98
Prep Date: 10/10/98
Analysis Date: 10/10/98

MS Lab ID: QC81868

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	18.63	93	55-125
Toluene	20	<0.5	21.18	106	65-126
Ethylbenzene	20	<0.5	22.02	110	60-129
m,p-Xylenes	40	<0.5	44.17	110	68-116
o-Xylene	20	<0.5	22.45	112	69-129

Surrogate	%Rec	Limits
Trifluorotoluene	109	53-124
Bromofluorobenzene	119	41-142

MSD Lab ID: QC81869

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	18.36	92	55-125	1	11
Toluene	20	20.93	105	65-126	1	11
Ethylbenzene	20	21.98	110	60-129	0	12
m,p-Xylenes	40	43.86	110	68-116	1	11
o-Xylene	20	22.32	112	69-129	1	12

Surrogate	%Rec	Limits
Trifluorotoluene	110	53-124
Bromofluorobenzene	118	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

135879

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc. 1400 Ward Parkway Kansas City, Missouri 64114 Phone: (816) 333-8787 Fax: (816) 822-3463	Laboratory: CURTIS & TOMPKINS Address: 2323 5TH St. City/State/Zip: BERKELEY Telephone: 510 486-0900
Attention: Scott KEILSTEDT	Document Control No.: 100298 Lab. Reference No. or Episode No.:
Project Number: 96-071-1	Project Name:
Site, Group, or SWMU Name:	

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: TEH-D	Analysis: BTEX					Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab								
UFLUENT	GW		98			10-2-98	1000 HRS	X					2	X						STANDARD
FLUENT	GW		98			10-2-98	1020 HRS	X					2	X						TURN AROUND
UFLUENT	GW		98			10-2-98	1000 HRS	X					2		X					TIME
DFLUENT	GW		98			10-2-98	1010 HRS	X					2		X					
FLUENT	GW		98			10-2-98	1020 HRS	X					2		X					

Sampler (signature): Michael Truman

Sampler (signature):

Special Instructions:

Relinquished By:	Date/Time	Received By:	Date/Time
1. Michael Truman (signature):	10/2/98 1245	(signature):	10/2/98 1245
Relinquished By:	Date/Time	Received By:	Date/Time
2. (signature):		(signature)	

Condition of Shipping Container: Good [✓] Fair [ ] Poor [ ]

Ice Present in Container: Yes [✓] No [ ]

Comments:

061996 Form WCI-OP1

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

ANALYTICAL REPORT

Prepared for:

Burns & McDonnell
377 Oyster Point Blvd. Ste. 13
South San Francisco, CA 94080

Date: 23-NOV-98
Lab Job Number: 136524
Project ID: 96-071-1
Location: UNPAC

Reviewed by: _____

Reviewed by: _____

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
136524-001	INFLUENT_GW	44639	11/06/98	11/13/98	11/17/98	

Matrix: Water

Analyte	Units	136524-001
Diln Fac:		1
Diesel C10-C24	ug/L	<50
Surrogate		
Hexacosane	%REC	96

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client:	Burns & McDonnell	Analysis Method:	EPA 8015M
Project#:	96-071-1	Prep Method:	EPA 3520
Location:	UNPAC		

METHOD BLANK

Matrix:	Water	Prep Date:	11/13/98
Batch#:	44639	Analysis Date:	11/17/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC84596

Analyte	Result	
Diesel C10-C24	<50	
Surrogate	**%Rec**	**Recovery Limits**
Hexacosane	110	53-136

Curtis & Tompkins, Ltd.

TEH-Tot Ext Hydrocarbons

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8015M
Prep Method: EPA 3520

BLANK SPIKE/BLANK SPIKE DUPLICATE

Matrix: Water
Batch#: 44639
Units: ug/L
Diln Fac: 1

Prep Date: 11/13/98
Analysis Date: 11/18/98

BS Lab ID: QC84597

Analyte	Spike Added	BS	%Rec #	Limits
Diesel C10-C24	2475	2414	98	58-110

Surrogate	%Rec	Limits
Hexacosane	97	53-136

BSD Lab ID: QC84598

Analyte	Spike Added	BSD	%Rec #	Limits	RPD #	Limit
Diesel C10-C24	2475	2114	85	58-110	13	21

Surrogate	%Rec	Limits
Hexacosane	111	53-136

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8021B
Prep Method: EPA 5030

Sample #	Client ID	Batch #	Sampled	Extracted	Analyzed	Moisture
136524-002	MIDFLUENT_GW	44663	11/06/98	11/17/98	11/17/98	

Matrix: Water

Analyte	Units	136524-002
Diln Fac:		1
Benzene	ug/L	<0.5
Toluene	ug/L	<0.5
Ethylbenzene	ug/L	<0.5
m,p-Xylenes	ug/L	<0.5
o-Xylene	ug/L	<0.5
Surrogate		
Trifluorotoluene	%REC	97
Bromofluorobenzene	%REC	116

BTXE

Client:	Burns & McDonnell	Analysis Method:	EPA 8021B
Project#:	96-071-1	Prep Method:	EPA 5030
Location:	UNPAC		

METHOD BLANK

Matrix:	Water	Prep Date:	11/16/98
Batch#:	44663	Analysis Date:	11/16/98
Units:	ug/L		
Diln Fac:	1		

MB Lab ID: QC84689

Analyte	Result
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
m,p-Xylenes	<0.5
o-Xylene	<0.5

Surrogate	%Rec	Recovery Limits
Trifluorotoluene	103	53-124
Bromofluorobenzene	113	41-142

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8021B
Prep Method: EPA 5030

LABORATORY CONTROL SAMPLE

Matrix: Water
Batch#: 44663
Units: ug/L
Diln Fac: 1

Prep Date: 11/16/98
Analysis Date: 11/16/98

LCS Lab ID: QC84688

Analyte	Result	Spike Added	%Rec #	Limits
Benzene	19.39	20	97	69-109
Toluene	21.79	20	109	72-116
Ethylbenzene	21.77	20	109	67-120
m,p-Xylenes	45.07	40	113	69-117
o-Xylene	22.95	20	115	75-122

Surrogate	%Rec	Limits
Trifluorotoluene	105	53-124
Bromofluorobenzene	117	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 5 outside limits

BTXE

Client: Burns & McDonnell
Project#: 96-071-1
Location: UNPAC

Analysis Method: EPA 8021B
Prep Method: EPA 5030

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID: ZZZZZZ
Lab ID: 136384-004
Matrix: Water
Batch#: 44663
Units: ug/L
Diln Fac: 1

Sample Date: 11/02/98
Received Date: 11/03/98
Prep Date: 11/16/98
Analysis Date: 11/16/98

MS Lab ID: QC84690

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Benzene	20	<0.5	17.62	88	55-125
Toluene	20	<0.5	20.24	101	65-126
Ethylbenzene	20	<0.5	19.7	99	60-129
m,p-Xylenes	40	<0.5	42.68	107	68-116
o-Xylene	20	<0.5	21.39	107	69-129

Surrogate	%Rec	Limits
Trifluorotoluene	96	53-124
Bromofluorobenzene	119	41-142

MSD Lab ID: QC84691

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Benzene	20	17.86	89	55-125	1	11
Toluene	20	20.88	104	65-126	3	11
Ethylbenzene	20	20.31	102	60-129	3	12
m,p-Xylenes	40	44.43	111	68-116	4	11
o-Xylene	20	22.37	112	69-129	4	12

Surrogate	%Rec	Limits
Trifluorotoluene	98	53-124
Bromofluorobenzene	121	41-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 5 outside limits
ike Recovery: 0 out of 10 outside limits

136524

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Attention: SCOTT KEILSTADT

Laboratory: CURTIS & TOMPKINS
Address: 2323 5TH ST.
City/State/Zip: BERKELEY
Telephone: 510 486-0900

Document Control No.: 110698
Lab. Reference No. or Episode No.:

Project Number: 96-071-1
Project Name: UNPAC
Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: TEH D 6015M	Analysis: BTEX 8020	Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab				
INFLUENT	GW		98			11/6/98	1530	X					2	X		
MIDFLUENT	GW		98			11/6/98	1540	X					3		X	2 WEEK TURN AROUND

Sampler (signature): Michael Thomas
Sampler (signature):

Special Instructions:

Relinquished By:	Date/Time	Received By:	Date/Time
1. Michael Thomas (signature):	11/9/98	(signature)	
Relinquished By:	Date/Time	Received By:	Date/Time
2. (signature):		(signature)	11/10/98 13:

Condition of Shipping Container: Good [ ] Fair [ ] Poor [ ]
Ice Present in Container: Yes [X] No [ ]
Comments:

061996 Form WCI OP1