

ALCO
HAZMAT

94 MAR 15 PM 2: 19

**REPORT OF FINDINGS
FOURTH QUARTER 1993 GROUND WATER MONITORING
HERTZ SERVICE CENTER
NO. 1 AIRPORT DRIVE
OAKLAND, ALAMEDA COUNTY, CALIFORNIA**

ESE PROJECT #6-93-5181

PREPARED FOR:

**THE HERTZ CORPORATION
225 BRAE BOULEVARD
PARK RIDGE, NEW JERSEY 07656-0713**

PREPARED BY:

**ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
4090 NELSON AVENUE, SUITE J
CONCORD, CALIFORNIA 94520**

JANUARY 4, 1994

This report has been prepared by Environmental Science & Engineering, Inc. for the exclusive use of The Hertz Corporation as it pertains to their site located at No. 1 Airport Drive, Oakland, California. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No other warranty, express or implied, is made as to professional advice in this report.

REPORT PREPARED BY:

Ch. H. Valcheff

Christopher H. Valcheff
Staff Geologist

JAN. 5, 1994
DATE

UNDER THE PRIMARY REVIEW AND SUPERVISION OF:

Michael E. Quillin

Michael E. Quillin
Senior Hydrogeologist
California Registered Geologist No. 5315

JAN. 5, 1994
DATE

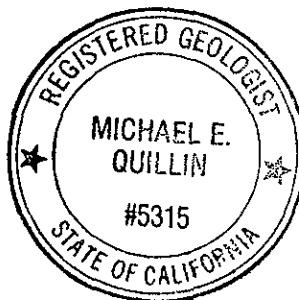


TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
2.0 GROUND WATER MONITORING	2
2.1 GROUND WATER ELEVATIONS	2
2.2 GROUND WATER SAMPLING AND ANALYSIS	2
3.0 RESULTS	3
3.1 GROUND WATER ELEVATIONS	3
3.2 GROUND WATER CHEMISTRY	3
4.0 CONCLUSIONS	5
5.0 REFERENCES	6

FIGURES

FIGURE 1.	SITE PLAN
FIGURE 2.	GROUND WATER ELEVATIONS - DECEMBER 2, 1993
FIGURE 3.	CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUND WATER - DECEMBER 2, 1993
FIGURE 4.	APPROXIMATE EXTENT OF PETROLEUM HYDROCARBONS IN GROUND WATER - DECEMBER 2, 1993

TABLE

TABLE 1.	SUMMARY OF GROUND WATER ELEVATION AND ANALYTICAL DATA
----------	--

APPENDICES

APPENDIX A.	WELL PURGING AND SAMPLING DATA
APPENDIX B.	ESE STANDARD OPERATING PROCEDURE NO. 3 FOR GROUND WATER MONITORING AND SAMPLING FROM MONITORING WELLS
APPENDIX C.	LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTATION FOR GROUND WATER SAMPLES

1.0 INTRODUCTION

This report presents the results of the Fourth Quarter 1993 ground water monitoring activities conducted by Environmental Science & Engineering, Inc. (ESE) at the Hertz Service Center, No. 1 Airport Drive, Oakland, Alameda County, California ("site"). The site is an active rental car service and fueling facility located at the Oakland International Airport (Figure 1 - Site Plan). Ground water monitoring activities included the collection of depth to ground water measurements and ground water samples from five existing onsite wells (MW-1, MW-2, MW-3, MW-4, and MW-5; Figure 1) and four existing offsite wells (MW-6, MW-7, MW-8, and MW-9; Figure 1).

ESE summarized site investigation background in the August 1991 Quarterly Monitoring Report (ESE, 1991a) and the November 1991 Quarterly Monitoring Report (ESE, 1991b). The results of additional site investigations conducted by ESE, including the installation of ground water monitoring wells MW-4, MW-5, and MW-6 at the site, were summarized in the February 1992 Quarterly Monitoring Report (1992a) and December 1992 Quarterly Monitoring Report (ESE, 1992b), respectively. Three additional wells were installed in May 1993 in association with an additional subsurface investigation. The results of this investigation are summarized in the July 1993 Second Quarter 1993 Ground Water Monitoring and Subsurface Investigation Report (ESE, 1993). ESE has conducted quarterly monitoring activities at the site since August 1991.

During the course of ESE's investigation at the site, two offsite underground storage tanks (USTs), operated by the Port of Oakland and the FAA for emergency fuel storage, were identified. These USTs, of 8000- and 1000-gallon capacity, respectively, are shown in Figure 1. ESE has not been successful in determining if those tanks are routinely tested for integrity.

2.0 GROUND WATER MONITORING

2.1 GROUND WATER ELEVATIONS

On December 2, 1993, ESE measured static water levels in the nine wells using an electric water level tape. Measurements were made relative to the surveyed datum for each well. ESE calculated relative ground water elevations for the purpose of preparing a ground water elevation contour map, from which ESE estimated the general direction and magnitude of the ground water gradient in the vicinity of the site. Field documentation for water level measurements, including well purging results, are presented in Appendix A - Well Purging and Sampling Data.

2.2 GROUND WATER SAMPLING AND ANALYSIS

Ground water samples were collected from each of the wells after they were purged of approximately three casing volumes in accordance with ESE Standard Operating Procedure (SOP) No. 3 for Ground Water Monitoring and Sampling from Monitoring Wells (Appendix B). Samples were analyzed by Sequoia Analytical (Sequoia), a State-certified laboratory, for total petroleum hydrocarbons as gasoline (TPHg) with benzene, toluene, ethylbenzene, and total xylenes (BTEX) distinction using EPA Method 5030/8015/8020, and for total extractable petroleum hydrocarbons (TEPH) using EPA Method 3510/3520/8015. Analysis for TEPH will identify diesel fuels and other non-volatile petroleum hydrocarbons not in the gasoline range.

As a measure of field quality assurance and quality control (QA/QC), ESE collected a duplicate sample from well MW-8 as a means of evaluating sample homogeneity and to provide a check on ESE's sample collection procedures. The duplicate sample also serves as check on analytical laboratory procedures. In addition, a laboratory-supplied trip blank consisting of deionized water was kept and transported to Sequoia in the same cooler with ground water samples for the purpose of evaluating ESE's sample handling and transport procedures.

3.0 RESULTS

3.1 GROUND WATER ELEVATIONS

Table 1 presents a historical summary of ground water elevation data, including that for the current monitoring event. Ground water elevations for the current monitoring event are contoured in Figure 2 - Ground Water Elevations, December 2, 1993. The estimated direction of ground water flow was observed to be to the southwest with a gradient of approximately 100 feet/mile (0.02). The general direction of ground water flow is consistent with previous findings; however, the magnitude of the gradient is generally lower than previously reported.

No free phase product was observed in any of the wells.

3.2 GROUND WATER CHEMISTRY

Current analytical results are summarized with historical data in Table 1 and graphically presented in Figure 3 - Concentrations of Petroleum Hydrocarbons in Ground Water, December 2, 1993. The laboratory report and chain of custody documentation are presented in Appendix C - Laboratory Reports and Chain of Custody Documentation for Ground Water Samples. Based on these results, the inferred extent of petroleum hydrocarbons in ground water in the vicinity of the site is approximated in Figure 4.

The results presented in Table 1 and Figures 3 and 4 indicate that overall concentrations of petroleum hydrocarbons in ground water decreased relative to the last monitoring event (May 27, 1993). The highest concentrations of TPHg, BTEX, and TPHd currently and historically occur in samples from MW-4, which is immediately downgradient of the former fuel USTs and existing fuel dispensers for the site. TPHg and BTEX are also present in the sample from offsite and downgradient well MW-6. As shown in Figure 4, TPHd occurs to a larger extent downgradient of the site, having been detected in wells MW-5, MW-6, MW-8, and MW-9 in addition to MW-4.

Referring to the laboratory report presented in Appendix C, it will be noted that TEPH detected in samples collected from wells directly downgradient from the former USTs and existing fuel dispenser at the site (MW-4 and MW-6) were quantified by Sequoia as non-diesel (MW-4) and diesel and non-diesel mixtures (MW-6), indicating that the TEPH fraction in these samples may be dominantly weathered gasoline rather than true diesel fuel. Alternatively, TEPH detected in wells downgradient of the Port of Oakland and FAA diesel USTs (MW-5, MW-8, and MW-9) were quantified by Sequoia as diesel with discrete peaks.

Both tank pits had release

exp.

4.0 CONCLUSIONS

- Consistent with previous findings, the direction of ground water flow beneath the site is toward the southwest. This will be the general direction of migration for dissolved petroleum hydrocarbons in ground water, which is consistent with the observed plume of hydrocarbons in ground water at the site.
- The reduced gradient noted for the current monitoring period will tend to limit migration of dissolved petroleum hydrocarbons in ground water relative to previous quarters.
- The source for gasoline constituents (TPHg and BTEX) and TEPH quantified as non-diesel mixtures detected in ground water samples from wells MW-4 and MW-6 at the site appears to be the area of the former Hertz USTs and/or the existing fuel dispensers.
- Historical records indicate that Hertz has not stored or dispensed diesel fuel at the site. As a result, the petroleum hydrocarbons quantified as diesel fuel in ground water samples from onsite well MW-5 and offsite wells MW-8 and MW-9 cannot be attributed to the Hertz site. The most likely source or sources for these hydrocarbons are the Port of Oakland and FAA diesel USTs located adjacent to and immediately west of the site.
- Reductions in concentrations of petroleum hydrocarbons noted relative to the previous monitoring event suggest that further downgradient migration of dissolved petroleum hydrocarbons in ground water is not occurring, and that natural attenuation by microbial activity, dilution, and/or dispersion is occurring to a limited degree.

5.0 REFERENCES

Environmental Science & Engineering, Inc. (ESE), 1991a, August 1991 Quarterly Monitoring Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, September 16, 1991.

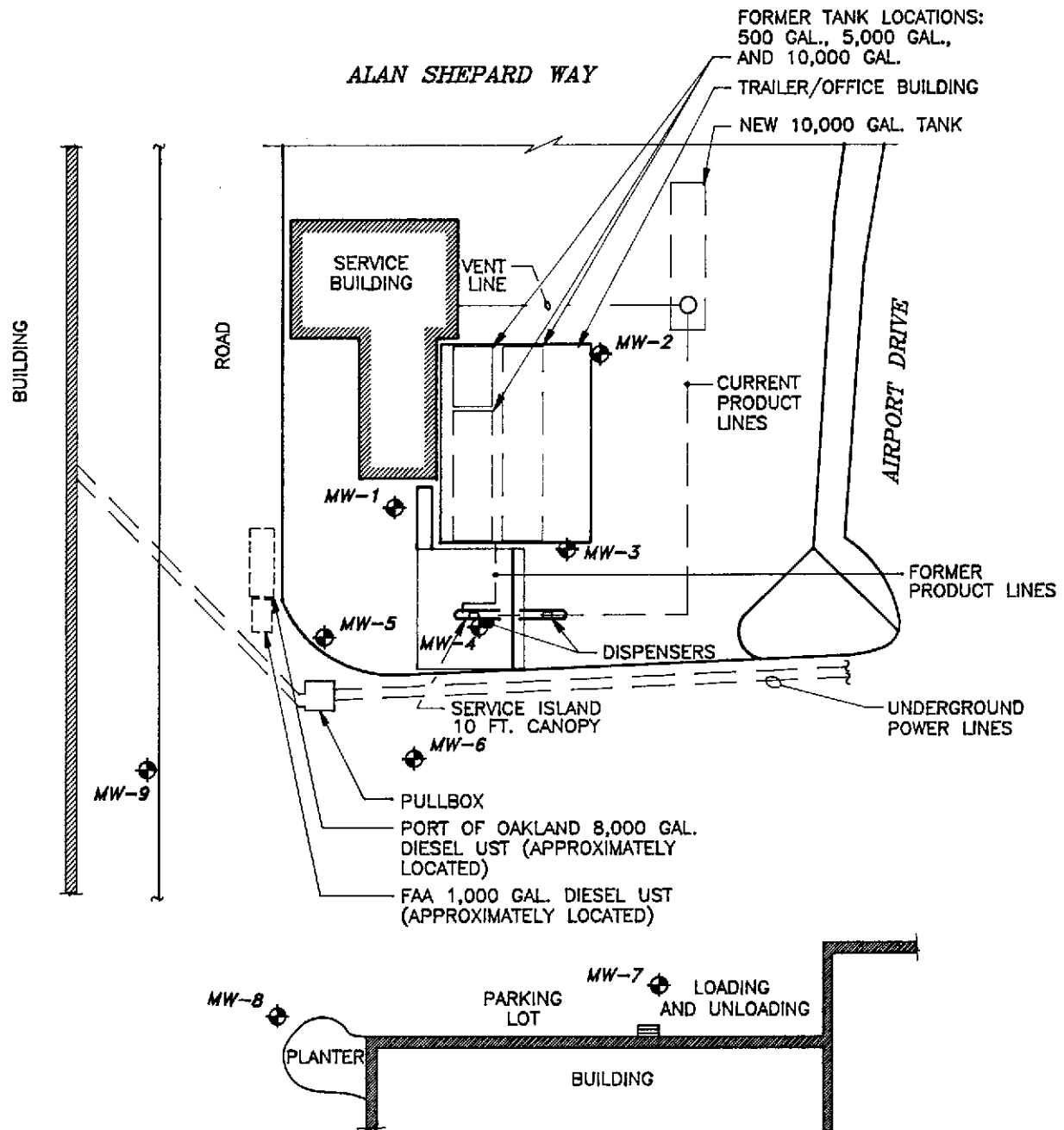
_____, 1991b, November 1991 Quarterly Monitoring Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, December 11, 1991.

_____, 1992a, February 1992 Quarterly Monitoring Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, March 24, 1992.

_____, 1992b, December 1992 Quarterly Monitoring Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, December 9, 1992.

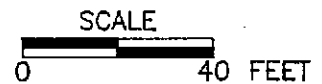
_____, 1993, Second Quarter 1993 Ground Water Monitoring and Subsurface Investigation Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, July 1, 1993.

FIGURES



LEGEND

◆ EXISTING MONITORING WELLS



**Environmental
Science &
Engineering, Inc.**

DATE
1/94

REVISED

CAD FILE
51814004

SITE PLAN

FIGURE NO.

1

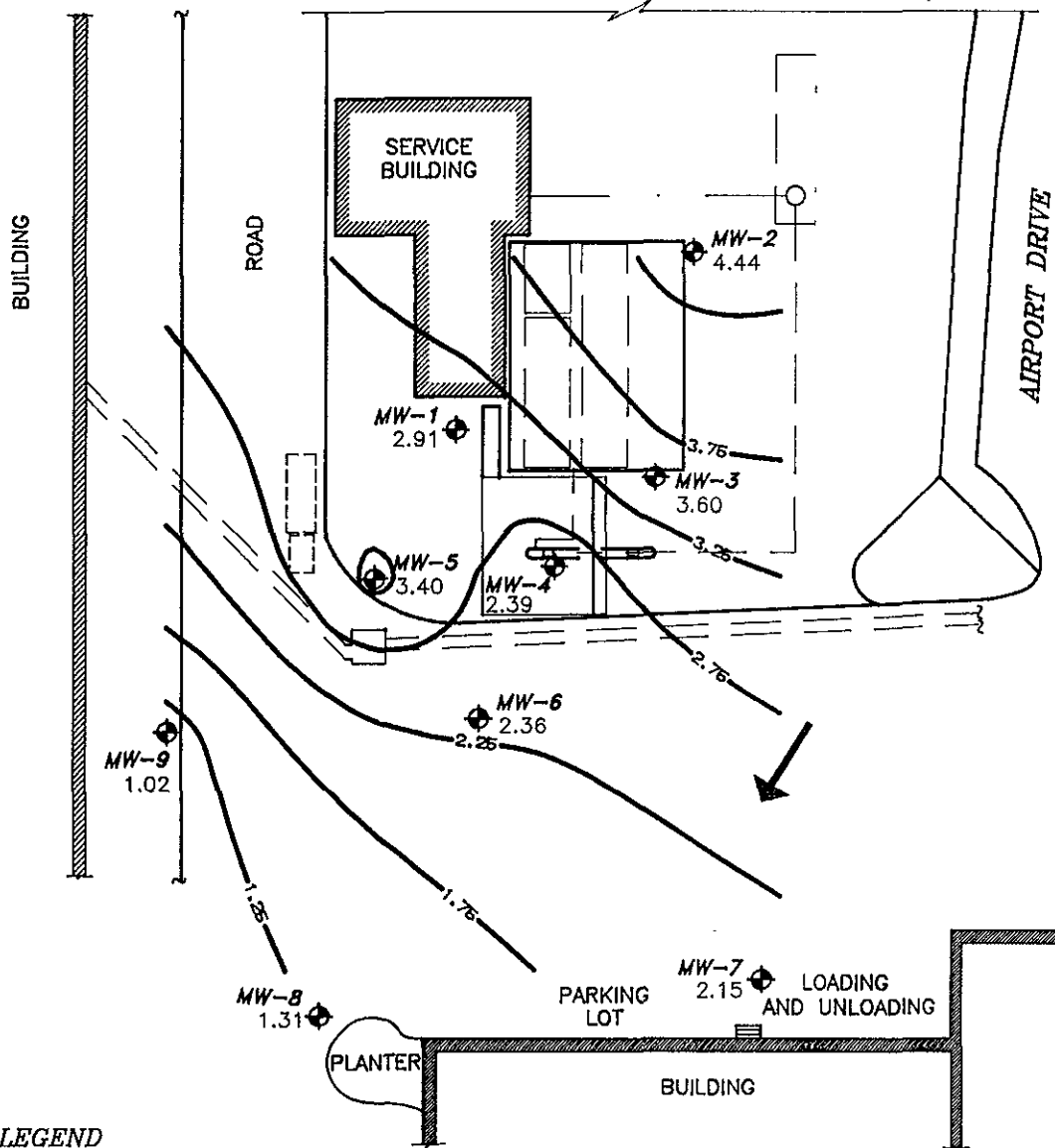
4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

PROJ. NO.
6-93-5181



ALAN SHEPARD WAY



LEGEND

- ◆ EXISTING MONITORING WELLS AND GROUND WATER ELEVATIONS
- GROUND WATER ELEVATION CONTOUR IN FEET (DEC. 2, 1993)
- ← INTERPRETED GENERAL DIRECTION OF GROUND WATER FLOW (DEC. 2, 1993)



Environmental Science & Engineering, Inc.

DATE

12/93

REVISED

CAD FILE

51814001

**GROUND WATER ELEVATIONS
DECEMBER 2, 1993**

FIGURE NO.

2

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

PROJ. NO.

6-93-5181

~ 24 yrs ago

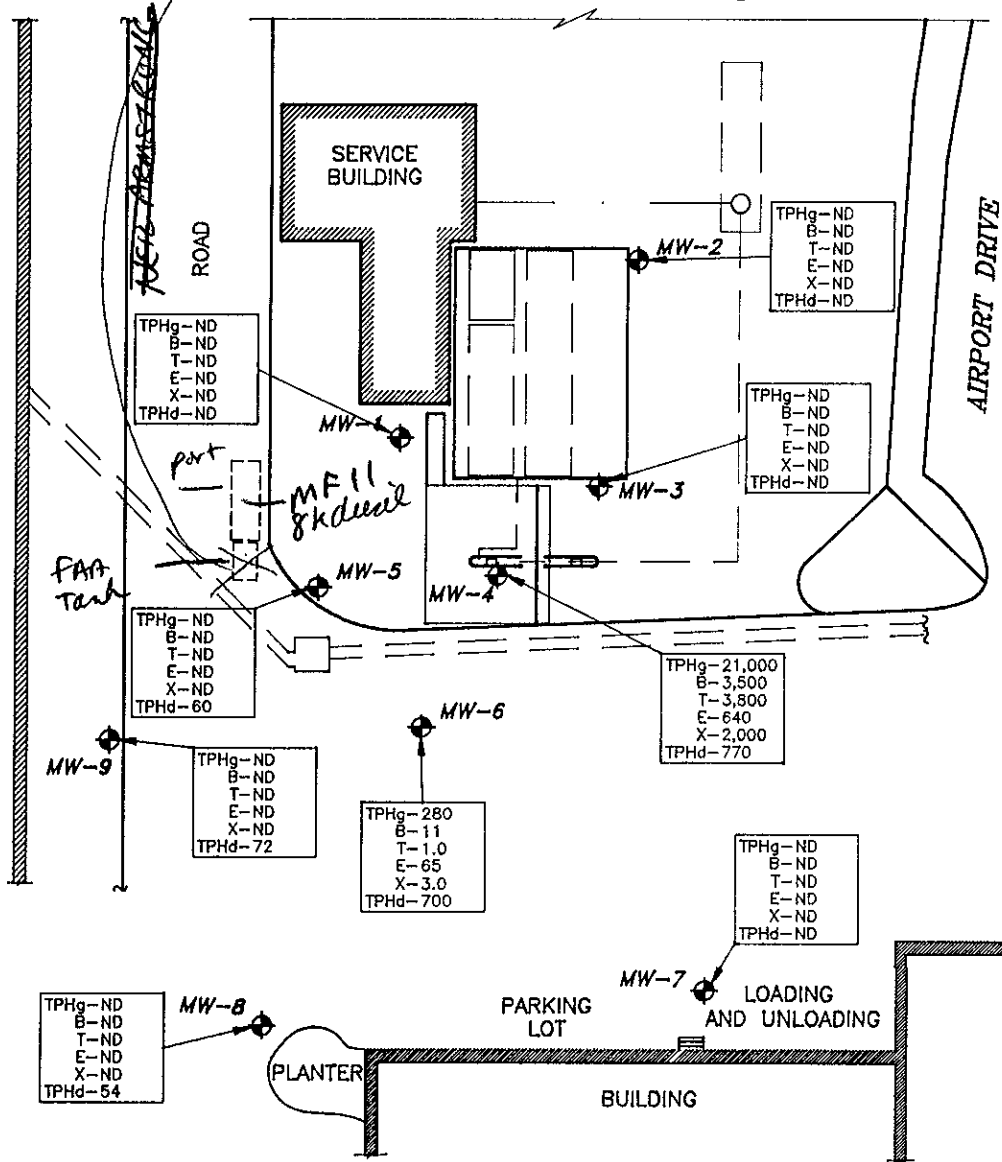
Removal FAA: Charles Chomness
nope!
Bld #1104

Oct 93
last precision test



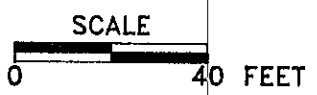
ALAN SHEPARD WAY

BUILDING



LEGEND

- ◆ EXISTING MONITORING WELLS
- TPHg TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (ppb)
- B BENZENE (ppb)
- T TOLUENE (ppb)
- E ETHYLBENZENE (ppb)
- X TOTAL XYLENES (ppb)
- TPHd TOTAL PETROLEUM HYDROCARBONS AS DIESEL (ppb)



Environmental Science & Engineering, Inc.

DATE
1/94

REVISED

CAD FILE
51814002

**CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUND WATER
DECEMBER 2, 1993**

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

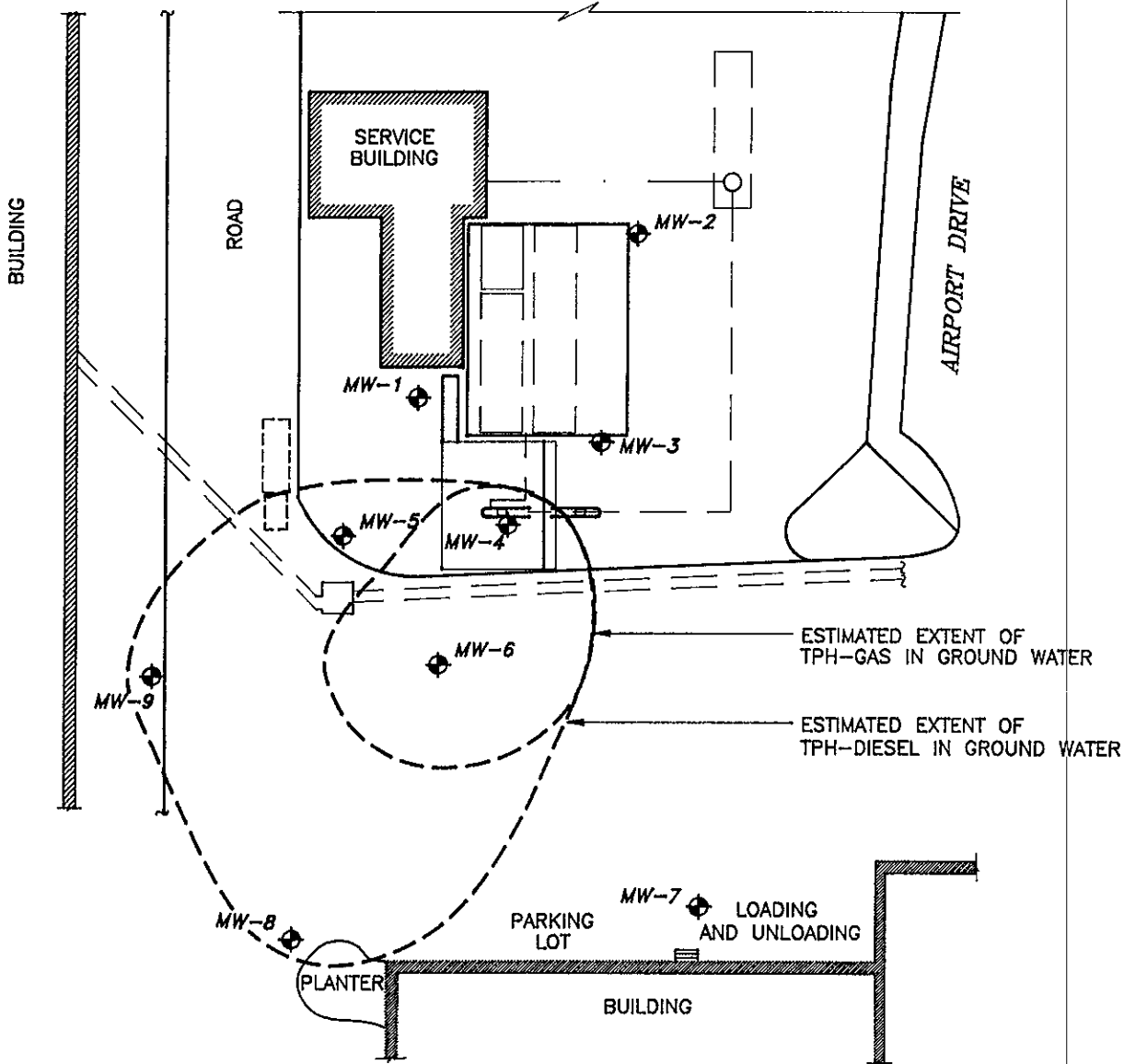
FIGURE NO.
3

PROJ. NO.
6-93-5181

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520



ALAN SHEPARD WAY



LEGEND

◆ EXISTING MONITORING WELLS



**Environmental
Science &
Engineering, Inc.**

DATE
1/94

REVISED

**APPROXIMATE EXTENT OF PETROLEUM
HYDROCARBONS IN GROUND WATER
DECEMBER 2, 1993**

FIGURE NO.

4

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

CAD FILE
51814003

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

PROJ. NO.
6-93-5181

TABLE

TABLE 1

SUMMARY OF GROUND WATER ELEVATION AND ANALYTICAL DATA

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

Ground Water		Ground Water Elevation (feet above MSL)	Metals (ppm)					Oil & Grease (ppm)	Total Petroleum Hydrocarbons (ppb)						Purgeable Halocarbons (EPA 8010) (ppb)	Semi-Volatile Organics (EPA 8270) (ppb)				
Date	Well		Cd	Cr	Pb	Ni	Zn		as Gasoline	as Kerosene	as Diesel	B	T	E			X			
12/02/93	MW-1	2.91	Not Analyzed					ND	--	ND	ND	ND	ND	ND	--	--				
	MW-2	4.44						ND	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-3	3.60						ND	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-4	2.39						21,000	--	770	3,500	3,800	640	2,000	--	--	--	--		
	MW-5	3.40						ND	--	60	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-6	2.36						280	--	700	11	1.0	65	3.0	--	--	--	--		
	MW-7	2.15						ND	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-8	1.31						ND	--	54	ND	ND	ND	ND	ND	ND	ND	--	--	
	DUP	--						ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-9	1.02						ND	--	72	ND	ND	ND	ND	ND	ND	ND	ND	--	--
TRIP	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
05/27/93	MW-1	3.31	Not Analyzed					ND	--	ND	ND	ND	ND	ND	--	--				
	MW-2	4.82						ND	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-3	3.84						ND	--	55	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-4	2.78						48,000	--	4,900	6,300	7,200	1,600	6,800	--	--	--	--		
	MW-5	3.88						ND	--	75	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-6	2.82						1,300	--	960	370	ND	87	19	--	--	--	--		
	MW-7	2.35						ND	--	76	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-8	1.91						ND	--	91	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-9	1.58						ND	--	72	ND	ND	ND	ND	ND	ND	ND	--	--	
	DUP (MW-9)	--						ND	--	85	ND	ND	ND	ND	ND	ND	ND	--	--	
02/03/93	MW-1	3.34	Not Analyzed					ND	--	--	ND	ND	ND	ND	--	--				
	MW-2	4.84						ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-3	4.03						ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--	
	MW-4	2.89						50,000	--	--	4,700	5,000	1,500	6,600	--	--	--	--		
	MW-5	--						--	--	--	--	--	--	--	--	--	--	--		
	MW-6	2.90						330	--	--	120	2.8	19	5.3	--	--	--	--		
	DUP (MW-6)	--						2,100	--	--	110	5.2	19	14	--	--	--	--		

TABLE 1 (Continued...)

SUMMARY OF GROUND WATER ELEVATION AND ANALYTICAL DATA

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

Ground Water		Ground Water Elevation (feet above MSL)	Metals (ppm)					Oil & Grease (ppm)	Total Petroleum Hydrocarbons (ppb)						Purgeable Halocarbons (EPA 8010) (ppb)	Semi-Volatile Organics (EPA 8270) (ppb)				
Date	Well		Cd	Cr	Pb	Ni	Zn		as Gasoline	as Kerosene	as Diesel	B	T	E			X			
11/05/92	MW-1	2.39	Not Analyzed					--	ND	--	--	ND	ND	ND	ND	--	--			
	MW-2	4.05						--	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-3	3.07						--	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-4	1.88						--	24,000	--	--	2,600	3,300	510	2,100	--	--	--	--	--
	MW-5	3.00						--	ND	ND	170	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-6	1.89						--	820	240	D	250	ND	5.9	ND	ND	ND	ND	--	--
	DUP (MW-4)	--						--	14,000	--	--	2,100	1,400	370	1,100	--	--	--	--	--
09/01/92	MW-1	2.55	Not Analyzed					--	ND	--	--	ND	ND	ND	ND	--	--			
	MW-2	4.15						--	56	--	--	2.0	3.0	0.8	3.1	--	--	--	--	
	MW-3	3.21						--	ND	--	--	1.1	1.6	ND	1.9	--	--	--	--	
	MW-4	3.14						--	120,000	--	--	8,800	14,000	2,100	11,000	--	--	--	--	
	DUP (MW-2)	--						--	68	--	--	2.8	4.2	1.0	4.3	--	--	--	--	
05/13/92	MW-1	2.93	Not Analyzed					--	ND	--	--	ND	ND	ND	ND	--	--			
	MW-2	4.66						--	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-3	3.64						--	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-4	3.57						--	62,000	--	--	3,400	5,200	990	5,200	--	--	--	--	
	DUP	--						--	61,000	--	--	3,300	5,200	920	5,200	--	--	--	--	
	TRIP	--						--	ND	--	--	ND	ND	ND	ND	--	--	--	--	
02/18/92	MW-1	3.06	Not Analyzed					--	ND	--	ND	ND	ND	ND	ND	--	--			
	MW-2	3.86						--	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-3	2.92						--	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-4	3.43						--	6,600	--	--	ND	910	1,900	280	1,700	--	--		
11/12/91	MW-1	3.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	All ND	All ND					
	MW-2	3.86	ND	ND	ND	ND	ND	ND	ND	52+	ND	ND	ND	All ND	All ND					
	MW-3	2.92	7.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	All ND	All ND					

TABLE 1 (Continued...)

SUMMARY OF GROUND WATER ELEVATION AND ANALYTICAL DATA

HERTZ/OAKLAND AIRPORT
OAKLAND, CALIFORNIA

Ground Water		Ground Water Elevation (feet above MSL)	Metals (ppm)					Oil & Grease (ppm)	Total Petroleum Hydrocarbons (ppb)					Purgeable Halocarbons (EPA 8010) (ppb)	Semi-Volatile Organics (EPA 3270) (ppb)	
Date	Well		Cd	Cr	Pb	Ni	Zn		as Gasoline	as Kerosene	as Diesel	B	T			E
08/20/91	MW-1	2.30			All ND			ND	ND	ND	ND	ND	ND	ND	All ND	All ND
	MW-2	4.09			All ND			ND	ND	ND	ND	ND	ND	ND	All ND	All ND
	MW-3	3.06			All ND			ND	ND	ND	ND	MD	ND	ND	All ND	All ND
Historical Data Archived in ESE Report of March 1993																

Notes:

- MSL = Mean Sea Level
- ND = Not detected
- = Not analyzed
- ppm = Parts per million
- ppb = Parts per billion
- B = Benzene
- T = Toluene
- E = Ethylbenzene
- X = Total Xylenes
- + = Detection limit for TPH-D is 50 ppb. Duplicate sample analyzed contained ND or <50 ppb.
- D = Diesel range not reported. Quantified as kerosene range.

APPENDIX A

WELL PURGING AND SAMPLING DATA



Environmental Science & Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: 10-93-5181
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-1
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 4.34 (ft.) WATER COLUMN: 10.34 (ft.) (3) Dr. WCV: 5.06 (gal)
DEPTH OF WELL: 14.88 (ft.) WELL CASING VOLUME: 1.69 (gal) ACTUAL VOLUME PURGED: 5.25 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1010</u>	<u>0</u>	<u>7.97</u>	<u>1.27</u>	<u>63.7</u>	<u>-</u>	<u>CRACK-51074</u>
<u>1013</u>	<u>2.0</u>	<u>7.48</u>	<u>1.30</u>	<u>63.7</u>	<u>-</u>	<u>"</u>
<u>1016</u>	<u>4.0</u>	<u>7.52</u>	<u>1.36</u>	<u>63.5</u>	<u>-</u>	<u>"</u>
<u>1018</u>	<u>5.25</u>	<u>7.55</u>	<u>1.38</u>	<u>63.6</u>	<u>-</u>	<u>"</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 7308A DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

Displacement Pump Other- DISP. BAIER
 Bailer (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-1</u>	<u>1150</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Gullin



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: 6-93-5781
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-2
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 3.65 (ft.) WATER COLUMN: 10.47 (ft.) B or A WCV: 5.13 (gal)
DEPTH OF WELL: 14.12 (ft.) WELL CASING VOLUME: 1.70 (gal) ACTUAL VOLUME PURGED: 5.23 (gal)

TIME	Volume (GAL)	pH (Units)	EC ^{At 25°C} (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0945</u>	<u>0</u>	<u>7.82</u>	<u>1.35</u>	<u>65.8</u>	<u>-</u>	<u>CCGAL</u>
<u>0949</u>	<u>2.0</u>	<u>7.52</u>	<u>1.51</u>	<u>63.6</u>	<u>-</u>	<u>"</u>
<u>0953</u>	<u>4.0</u>	<u>7.55</u>	<u>2.01</u>	<u>63.3</u>	<u>-</u>	<u>"</u>
<u>0956</u>	<u>6.25</u>	<u>7.53</u>	<u>2.02</u>	<u>63.5</u>	<u>-</u>	<u>"</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308A DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

SAMPLE METHOD

Displacement Pump Other- DISP. BAILER Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Teflon/PVC/SS) Submersible Pump Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
	<u>MW-2</u>	<u>1130</u>	<u>12-2-93</u>	<u>SEGN01A</u>	<u>TPH-G/BTEX/TPH-D</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Gullin



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: 6-93-5181
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-3
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 4.06 (ft.) WATER COLUMN: 10.39 (ft.) or 4 WCV: 5.09 (gal)
DEPTH OF WELL: 14.45 (ft.) WELL CASING VOLUME: 1.00 (gal) ACTUAL VOLUME PURGED: 5.25 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0927</u>	<u>0</u>	<u>7.95</u>	<u>2.47</u>	<u>69.7</u>	<u>-</u>	<u>GAB-0002</u>
<u>0930</u>	<u>0.5</u>	<u>7.33</u>	<u>7.72</u>	<u>69.7</u>	<u>-</u>	<u>"</u>
<u>0932</u>	<u>3.0</u>	<u>7.59</u>	<u>3.39</u>	<u>70.8</u>	<u>-</u>	<u>"</u>
_____	<u>4.5</u>	<u>7.42</u>	<u>5.64</u>	<u>70.6</u>	<u>-</u>	<u>"</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# Y3084 DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

Displacement Pump Other- DISP. BAILER
 Bailer (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-3</u>	<u>1140</u>	<u>12-2-93</u>	<u>SENOIDA</u>	<u>TPH-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Gullin



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: 6-93-5181
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-4
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GUILIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 4.72 (ft.) WATER COLUMN: 3.11 (ft.) ((3) or 4/WCV): 1.52 (gal)
DEPTH OF WELL: 7.83 (ft.) WELL CASING VOLUME: 0.51 (gal) ACTUAL VOLUME PURGED: 2.0 (gal)

TIME	Volume (GAL)	pH (Units)	EC (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0915</u>	<u>0</u>	<u>7.22</u>	<u>2.70</u>	<u>68.4</u>	<u>-</u>	<u>CLEAR-OAGL</u>
<u>0916</u>	<u>0.5</u>	<u>6.78</u>	<u>2.79</u>	<u>69.4</u>	<u>-</u>	<u>"</u>
<u>0917</u>	<u>1.0</u>	<u>6.83</u>	<u>2.69</u>	<u>69.8</u>	<u>-</u>	<u>"</u>
<u>0918</u>	<u>1.5</u>	<u>6.85</u>	<u>2.65</u>	<u>69.3</u>	<u>-</u>	<u>"</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308A DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

Displacement Pump Other- DISP. BAILER
 Bailer (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-4</u>	<u>1210</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff
4090 Nelson Avenue, Suite 1

PROJECT MANAGER: Mike Guillin
Phone (510) 685-4057 Fax (510) 685-5325



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: 6-93-5181
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-5
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 4.36 (ft.) WATER COLUMN: 6.48 (ft.) (3) or #WCV: 3.17 (gal)
DEPTH OF WELL: 10.84 (ft.) WELL CASING VOLUME: 1.06 (gal) ACTUAL VOLUME PURGED: 3.25 (gal)

TIME	Volume (GAL)	pH (Units)	EC (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1025</u>	<u>0</u>	<u>7.93</u>	<u>1.06</u>	<u>66.5</u>	<u>-</u>	<u>CEGAR</u>
<u>1027</u>	<u>1.00</u>	<u>7.46</u>	<u>1.70</u>	<u>67.2</u>	<u>-</u>	<u>"</u>
<u>1029</u>	<u>2.00</u>	<u>7.34</u>	<u>3.16</u>	<u>69.2</u>	<u>-</u>	<u>"</u>
<u>1032</u>	<u>3.00</u>	<u>7.35</u>	<u>3.26</u>	<u>68.8</u>	<u>-</u>	<u>"</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT # 9308A DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT # _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

SAMPLE METHOD

Displacement Pump Other: DISP. BAILER Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Teflon/PVC/SS) Submersible Pump Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
	<u>MW-5</u>	<u>1200</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/BTEX/TPH-D</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Gullin



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: _____
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-6
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 4.81 (ft.) WATER COLUMN: 7.04 (ft.) (3) or 4(WCV): 3.5 (gal)
DEPTH OF WELL: 11.85 (ft.) WELL CASING VOLUME: 1.15 (gal) ACTUAL VOLUME PURGED: 4.0 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0950</u>	<u>0</u>	<u>7.03</u>	<u>X1000</u>	<u>69.6°</u>		
<u>0951</u>	<u>1</u>	<u>7.03</u>	<u>5.02</u>	<u>70.5°</u>		
<u>0952</u>	<u>2</u>	<u>6.99</u>	<u>7.51</u>	<u>71.3°</u>		
<u>0955</u>	<u>3.5</u>	<u>7.17</u>	<u>8.39</u>	<u>71.7°</u>		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT # 93088 DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

___ Displacement Pump Other- DISP. BAILER
___ Bailer (Teflon/PVC/SS) ___ Submersible Pump

SAMPLE METHOD

___ Bailer (Teflon/PVC/SS) ___ Dedicated
 Bailer (Disposable) ___ Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
	<u>MW-6</u>	<u>1120</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/STEX/TPH-D</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Gullin



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: _____
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-7
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 4.78 (ft.) WATER COLUMN: 5.40 (ft.) (3 or 4 WCV): 2.64 (gal)
DEPTH OF WELL: 10.18 (ft.) WELL CASING VOLUME: 0.88 (gal) ACTUAL VOLUME PURGED: 3.0 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1010</u>	<u>0</u>	<u>8.03</u>	<u>X1000</u> <u>2.12</u>	<u>67.7°</u>	<u>-</u>	_____
<u>1011</u>	<u>1</u>	<u>7.79</u>	<u>2.53</u>	<u>66.9°</u>	<u>-</u>	_____
<u>1012</u>	<u>2</u>	<u>7.61</u>	<u>3.20</u>	<u>67.1°</u>	<u>-</u>	_____
<u>1013</u>	<u>3</u>	<u>7.58</u>	<u>3.43</u>	<u>66.8°</u>	<u>-</u>	_____

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

___ Displacement Pump Other: DISP. BAILER
___ Bailer (Teflon/PVC/SS) ___ Submersible Pump

SAMPLE METHOD

___ Bailer (Teflon/PVC/SS) ___ Dedicated
 Bailer (Disposable) ___ Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-7</u>	<u>1100</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/STEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Gullin



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: _____
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-8
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 5.44 (ft.) WATER COLUMN: 6.11 (ft.) (3) or 4 WCV: 2.99 (gal)
DEPTH OF WELL: 11.55 (ft.) WELL CASING VOLUME: 0.998 (gal) ACTUAL VOLUME PURGED: 3 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>0920</u>	<u>0</u>	<u>8.42</u>	<u>X1000</u>	<u>67.9°</u>		
<u>0921</u>	<u>1</u>	<u>7.79</u>	<u>3.98</u>	<u>70.4°</u>		
<u>0922</u>	<u>2</u>	<u>7.35</u>	<u>6.15</u>	<u>71.4°</u>		
<u>0923</u>	<u>3</u>	<u>7.31</u>	<u>9.31</u>	<u>71.3°</u>		

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 93083 DATE: 12-2-93 TIME: 0900 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

____ Displacement Pump Other- DISP. BAILER
____ Bailer (Teflon/PVC/SS) ____ Submersible Pump

SAMPLE METHOD

____ Bailer (Teflon/PVC/SS) ____ Dedicated
 Bailer (Disposable) ____ Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPPLICATE	<u>MW-8</u>	<u>1050</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/BTEX/TPH-D</u>
SPLIT	<u>DUP</u>	<u>1050</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/BTEX/TPH-D</u>
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff PROJECT MANAGER: Mike Gullin
4000 Nelson Avenue, Suite 1 Concord, CA 94520 Phone (510) 685-405 Fax (510) 685-5023



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND
PROJECT NO.: _____
DATE: DECEMBER 2, 1993

SAMPLE LOCATION I.D.: MW-9
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: MIKE GULLIN

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: NA (ft.) PRODUCT THICKNESS: NA (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 5.59 (ft.) WATER COLUMN: 4.2 (ft.) (3) or (4) WCV: 2.06 (gal)
DEPTH OF WELL: 9.43 (ft.) WELL CASING VOLUME: 0.69 (gal) ACTUAL VOLUME PURGED: 2.27 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>09:33</u>	<u>0</u>	<u>7.60</u>	<u>X1000</u>	<u>73.10</u>	_____	_____
<u>09:34</u>	<u>1</u>	<u>7.58</u>	<u>1.50</u>	<u>73.60</u>	_____	_____
<u>09:35</u>	<u>2</u>	<u>7.79</u>	<u>0.84</u>	<u>73.30</u>	_____	_____

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 93083 DATE: 12-2-93 TIME: 0800 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

SAMPLE METHOD

___ Displacement Pump Other - DISP. BAILER ___ Bailer (Teflon/PVC/SS) ___ Dedicated
___ Bailer (Teflon/PVC/SS) ___ Submersible Pump Bailer (Disposable) ___ Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-9</u>	<u>1110</u>	<u>12-2-93</u>	<u>SEQUOIA</u>	<u>TPH-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valcheff PROJECT MANAGER: Mike Gullin
4090 Nelson Avenue, Suite 1 Concord, CA 94520 Phone (510) 685-4055 Fax (510) 685-5223

APPENDIX B

**ESE STANDARD OPERATING PROCEDURE NO. 3
FOR GROUND WATER MONITORING AND
SAMPLING FROM MONITORING WELLS**

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 3
FOR GROUND-WATER MONITORING AND SAMPLING FROM MONITORING WELLS

Environmental Science & Engineering, Inc. (ESE) typically performs ground-water monitoring at project sites on a quarterly basis. As part of the monitoring program an ESE staff member will first gauge the depth to water and free product (if present) in each well, then collect ground-water samples from each well. Depth to water measurements are taken by lowering an electric fiberglass tape measure into the well and recording the occurrence of water in feet below a fixed datum set on the top of the well-casing. If free-phase liquid hydrocarbons (free product) are known or suspected to be present in the well, then an electric oil/water interface probe is used to determine the depth to the occurrence of ground-water and the free product in feet below the fixed datum on the top of the well-casing. Depth to water and depth to product measurements are measured and recorded within an accuracy of 0.005-foot. The electric tape and the electric oil/water interface probe are washed with an Alconox® detergent and tap water solution then rinsed with tap water between uses in different wells.

Ground-water samples are collected from a well subsequent to purging a minimum of three to four well-casing volumes of ground water from the well, if the well bails dry prior to the removal of the required minimum volume, then the samples are collected upon the recovery of the ground water in that well to 80% of its initial static level. Ground water is typically purged from monitoring wells using either a hand-operated positive displacement pump, constructed of polyvinylchloride (PVC); a new (precleaned), disposable polyethylene bailer; or, a variable-flow submersible pump, constructed of stainless steel and Teflon®. The hand pumps and the submersible pumps are cleaned between each use with an Alconox® detergent and tap water solution followed by a tap water rinse. During the well purging process the conductivity, pH and temperature of the ground water are monitored by the ESE staff member. Ground-water samples are collected from the well subsequent to the stabilization of the of the conductivity, pH and temperature of the purge water, and the removal of four well-casing volumes of ground-water (unless the well bails dry). The parameters are deemed to have stabilized when two consecutive measurements are within 10% of each other, for each respective parameter. The temperature, pH, conductivity and purge volume measurements, and observations of water clarity and sediment content will be documented by the ESE staff member on ESE Ground-Water Sampling Data Forms.

Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or plastic containers (if sample preservatives are required, they are added to the empty containers at the laboratory prior to the sampling event). The containers are filled carefully so that no headspace is present to avoid volatilization of the sample. The filled sample containers are then labeled and placed in a cooler with ice for transport under chain of custody documentation to the designated analytical laboratory. The ESE staff member will document the time and method of sample collection, and the type of sample containers and preservatives (if any) used. These facts will appear on the ESE Ground-Water Sampling Data Forms. ESE will collect a duplicate ground-water sample from one well for every ten wells sampled at each site. The duplicate will be a blind sample (its well designation will be unknown to the laboratory). The duplicate sample is for Quality Assurance and Quality Control (QA/QC) purposes, and provides a check on ESE sampling procedures and laboratory sample handling procedures. When VOCs are included in the laboratory analyses, ESE will include a trip blank, if required, in the cooler with the ground-water samples for analysis for the identical VOCs. The trip blank is supplied by the laboratory and consists of deionized water. The trip blank is for QA/QC purposes and provides a check on both ESE and laboratory sample handling and storage procedures. Since disposable bailers are used for sample collection, and are not reused, no equipment blank (rinsate) samples are collected.

APPENDIX C

**LABORATORY REPORTS AND
CHAIN OF CUSTODY DOCUMENTATION
FOR GROUND WATER SAMPLES**



SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc.
4090 Nelson Ave., Ste J
Concord, CA 94520
Attention: Mike Quillin

Client Project ID: Hertz-Oakland/6-93-5181
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 312-0119

Sampled: Dec 2, 1993
Received: Dec 2, 1993
Reported: Dec 17, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 312-0119 MW-1	Sample I.D. 312-0120 MW-2	Sample I.D. 312-0121 MW-3	Sample I.D. 312-0122 MW-4	Sample I.D. 312-0123 MW-5	Sample I.D. 312-0124 MW-6
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	21,000	N.D.	280
Benzene	0.5	N.D.	N.D.	N.D.	3,500	N.D.	11
Toluene	0.5	N.D.	N.D.	N.D.	3,800	N.D.	1.0
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	640	N.D.	65
Total Xylenes	0.5	N.D.	N.D.	N.D.	2,000	N.D.	3.0
Chromatogram Pattern:		--	--	--	Gasoline	--	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	12/10/93	12/10/93	12/10/93	12/11/93	12/10/93	12/10/93
Instrument Identification:	HP-2	HP-2	HP-2	HP-5	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	105	103	105	91	102	107

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

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc.
4090 Nelson Ave., Ste J
Concord, CA 94520
Attention: Mike Quillin

Client Project ID: Hertz-Oakland/6-93-5181
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 312-0125

Sampled: Dec 2, 1993
Received: Dec 2, 1993
Reported: Dec 17, 1993

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 312-0125 MW-7	Sample I.D. 312-0126 MW-8	Sample I.D. 312-0127 MW-9	Sample I.D. 312-0128 DUP
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.
Benzene	0.5	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.

Chromatogram Pattern: -- -- -- --

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Analyzed:	12/10/93	12/10/93	12/11/93	12/10/93
Instrument Identification:	HP-2	HP-2	HP-5	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	103	105	91	102

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

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc.
4090 Nelson Ave., Ste J
Concord, CA 94520
Attention: Mike Quillin

Client Project ID: Hertz-Oakland/6-93-5181
Sample Matrix: Water
Analysis Method: EPA 5030/8020
First Sample #: 312-0129

Sampled: Dec 2, 1993
Received: Dec 2, 1993
Reported: Dec 17, 1993

BTEX DISTINCTION

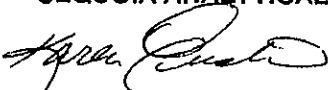
Analyte	Reporting Limit µg/L	Sample I.D. 312-0129 Trip
Benzene	0.5	N.D.
Toluene	0.5	N.D.
Ethyl Benzene	0.5	N.D.
Total Xylenes	0.5	N.D.

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	12/10/93
Instrument Identification:	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	104

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

SEQUOIA ANALYTICAL


Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc. 4090 Nelson Ave., Ste J Concord, CA 94520 Attention: Mike Quillin	Client Project ID: Hertz-Oakland/6-93-5181 Sample Matrix: Water Analysis Method: EPA 3510/3520/8015 First Sample #: 312-0119	Sampled: Dec 2, 1993 Received: Dec 2, 1993 Reported: Dec 17, 1993
--	---	---

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 312-0119 MW-1	Sample I.D. 312-0120 MW-2	Sample I.D. 312-0121 MW-3	Sample I.D. 312-0122 MW-4	Sample I.D. 312-0123 MW-5	Sample I.D. 312-0124 MW-6
Extractable Hydrocarbons	50	N.D.	N.D.	N.D.	770	60	700
Chromatogram Pattern:		--	--	--	Non-Diesel Mixture (<C14)	Diesel and Discrete Peaks	Diesel and Non-Diesel Mixture (<C14)

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	12/8/93	12/8/93	12/8/93	12/8/93	12/8/93	12/8/93
Date Analyzed:	12/14/93	12/14/93	12/14/93	12/14/93	12/14/93	12/14/93
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3B	HP-3B	HP-3B

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

SEQUOIA ANALYTICAL



Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc.
4090 Nelson Ave., Ste J
Concord, CA 94520
Attention: Mike Quillin

Client Project ID: Hertz-Oakland/6-93-5181
Sample Matrix: Water
Analysis Method: EPA 3510/3520/8015
First Sample #: 312-0125

Sampled: Dec 2, 1993
Received: Dec 2, 1993
Reported: Dec 17, 1993

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 312-0125 MW-7	Sample I.D. 312-0126 MW-8	Sample I.D. 312-0127 MW-9	Sample I.D. 312-0128 DUP
Extractable Hydrocarbons	50	N.D.	54	72	N.D.
Chromatogram Pattern:		--	Diesel and Discrete Peak	Diesel and Discrete Peak	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	12/8/93	12/8/93	12/8/93	12/8/93
Date Analyzed:	12/14/93	12/14/93	12/14/93	12/14/93
Instrument Identification:	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

Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

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

Environmental Science & Engineering, Inc.
4090 Nelson Ave., Ste J
Concord, CA 94520
Attention: Mike Quillin

Client Project ID: Hertz-Oakland/6-93-5181
Matrix: Liquid

QC Sample Group: 3120119-29

Reported: Dec 17, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Analyst:	J.F.	J.F.	J.F.	J.F.	K. Wirner

MS/MSD Batch#:	3120455	3120455	3120455	3120455	BLK120893
Date Prepared:	12/10/93	12/10/93	12/10/93	12/10/93	12/8/93
Date Analyzed:	12/10/93	12/10/93	12/10/93	12/10/93	12/14/93
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3B
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	100	100	100	100	95
Matrix Spike Duplicate % Recovery:	105	95	100	102	92
Relative % Difference:	4.9	5.1	0.0	2.0	3.6

LCS Batch#:	-	-	-	-	BLK120893
Date Prepared:	-	-	-	-	12/8/93
Date Analyzed:	-	-	-	-	12/ 13-14 /93
Instrument I.D.#:	-	-	-	-	HP-3B
LCS % Recovery:	-	-	-	-	95

% Recovery Control Limits:					
71-133	72-128	72-130	71-120	28-122	

Please Note:

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

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

DATE 12-2-93 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME HERTZ - OAKLAND

ADDRESS No. 1 AIRPORT ROAD
OAKLAND, CA

PROJECT NO. 6-93-S181

SAMPLED BY CHRIS VALCHEFF

LAB NAME SEQUOIA ANALYTICAL

ANALYSES TO BE PERFORMED

MATRIX

MATRIX

MATRIX

NUMBER OF CONTAINERS



Environmental Science & Engineering, Inc.

4090 Nelson Avenue
Suite J
Concord, CA 94520

Phone (510) 685-4053
Fax (510) 685-5323

REMARKS
(CONTAINER, SIZE, ETC.)

SAMPLE #	DATE	TIME	LOCATION	TPH-G	BTEX	TPH-D						MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
MW-1	12-2-93	1150	OAKLAND	X	X	X						H ₂ O	3	2VOAs, 1LTR 312019A-C
MW-2		1130		X	X	X							3	0120
MW-3		1140		X	X	X							3	0121
MW-4		1210		X	X	X							3	0122
MW-5		1200		X	X	X							3	0123
MW-6		1120		X	X	X							3	0124
MW-7		1100		X	X	X							3	0125
MW-8		1050		X	X	X							3	0126
MW-9		1110		X	X	X							3	0127
DUP		1050		X	X	X							3	0128
TRIP					X								2	2VOAs 0129 A-L

RELINQUISHED BY: (signature) 1. <i>[Signature]</i>	RECEIVED BY: (signature) <i>[Signature]</i>	date 12-2-93	time 1:50pm	32	TOTAL NUMBER OF CONTAINERS
2.				REPORT RESULTS TO: MIKE GILLIN	SPECIAL SHIPMENT REQUIREMENTS COLD TRANSPORT HAND DELIVER
3.					
4.					
5.					SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
STANDARD TAT

CHAIN OF CUSTODY SEALS
REC'D GOOD COND'TN/COLD
CONFORMS TO RECORD