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**REPORT OF FINDINGS  
FIRST QUARTER 1994  
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:***

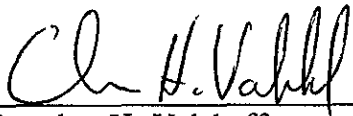
**ENVIRONMENTAL SCIENCE & ENGINEERING, INC.  
4090 NELSON AVENUE, SUITE J  
CONCORD, CALIFORNIA 94520**

**May 31, 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:

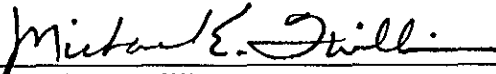


Christopher H. Valcheff  
Staff Geologist

5-31-94

DATE

UNDER THE PRIMARY REVIEW AND SUPERVISION OF:



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

5/31/94

DATE

ESE PROJECT #6-93-5181

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## 1.0 INTRODUCTION

This report presents the results of the First Quarter 1994 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 well MW-4 in February 1992 and wells MW-5 and MW-6 in October 1992, were summarized in the First Quarter 1992 Monitoring Report (1992a) and Fourth Quarter 1992 Monitoring Report (ESE, 1992b), respectively. Three additional wells (MW-7, MW-8, and MW-9) were installed in May 1993 in association with an additional subsurface investigation. The results of that investigation are summarized in the 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 March 1, 1994, 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 (TPHd) using EPA Method 3510/3520/8015. Analysis for TPHd 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-5 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, March 1, 1994. The estimated direction of ground water flow was observed to be generally to the southwest with a gradient of approximately 0.02 (104 feet/mile). 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, March 1, 1994. 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 indicate that overall concentrations of petroleum hydrocarbons in the gasoline and BTEX ranges in ground water decreased relative to the last monitoring event (December 2, 1993). This phenomenon was most notable in the sample from MW-4, which is immediately downgradient of the former fuel USTs and existing fuel dispensers for the site, and the well for which the highest TPHg and BTEX concentrations have been historically reported. Conversely, concentrations of BTEX constituents reported for the sample from MW-6 each increased relative to the December 1993 monitoring event (the TPHg concentration reported for this sample decreased relative to previous results).

With respect to diesel fuel constituents, concentrations of TPHd were shown to increase relative to December 1993 results in samples from MW-1, MW-4, MW-5, and MW-6, whereas TPHd concentrations decreased to nondetectable over the same period in samples from MW-8 and MW-9. These findings actually result in a decreased interpreted extent of petroleum hydrocarbons in ground water (Figure 4) relative to December 1993 results.

Referring to the laboratory report presented in Appendix C, it will be noted that TPHd detected in samples collected from wells directly downgradient from the former USTs and existing fuel dispenser at the site (MW-1, MW-4, MW-5, and MW-6) were quantified by Sequoia as a diesel and unidentified hydrocarbon (<C14) mixture.

The duplicate sample collected from MW-5 for QA/QC purposes (Dup; Table 1 and Appendix C) reported identical results to those for MW-5 (relative percent difference = 0.0). These results are indicative of good sample QA/QC.

#### 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 increased concentrations of petroleum hydrocarbons in the gasoline and BTEX range in the sample from well MW-6 relative to previous results suggests that dissolved fuel hydrocarbons are migrating in ground water downgradient from the site.
- The decrease in concentrations of diesel fuel constituents in samples from wells MW-8 and MW-9 relative to previous results indicates that the overall plume of petroleum hydrocarbons downgradient of the site is not migrating appreciably downgradient and is, in fact, decreasing in areal extent.
- The source for gasoline constituents (TPHg and BTEX) 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. The source for diesel fuel (TPHd) has not been ascertained, but ESE suspects that diesel fuel tanks located immediately west of the site (and unrelated to the site) may be a potential source.



## 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.

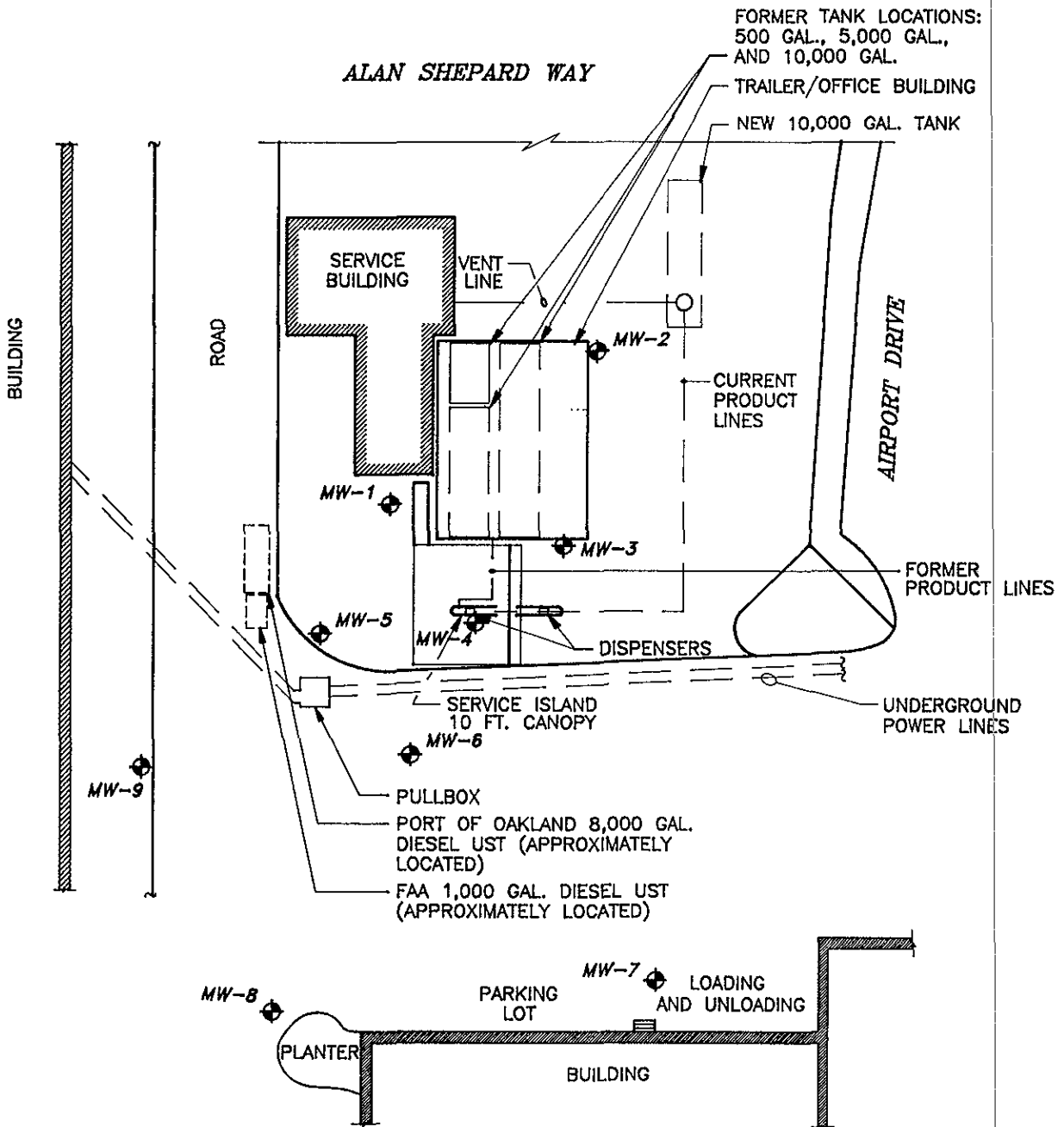
\_\_\_\_\_, 1991b, November 1991 Quarterly Monitoring Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, December 11, 1991.

\_\_\_\_\_, 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.

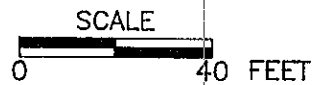
\_\_\_\_\_, 1993, Second Quarter 1993 Ground Water Monitoring and Subsurface Investigation Report for Hertz Service Center, #1 Airport Drive, Oakland, Alameda County, California, July 1, 1993.

**FIGURES**



**LEGEND**

◆ EXISTING MONITORING WELLS



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**SITE PLAN**

FIGURE NO.

**1**

4090 NELSON AVENUE, SUITE J  
CONCORD, CA 94520

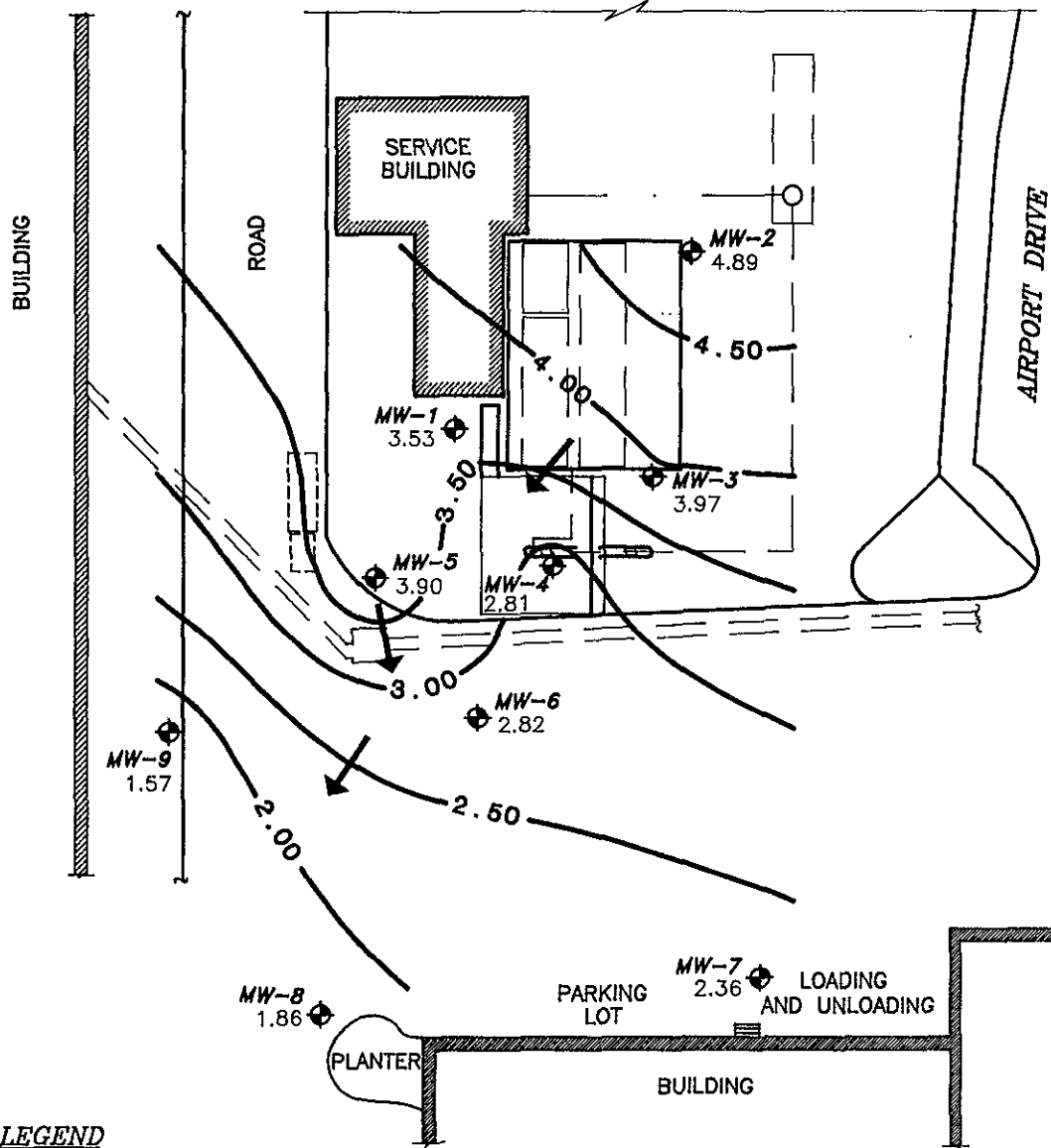
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PROJ. NO.

6-93-5181

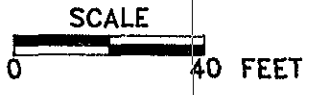


ALAN SHEPARD WAY



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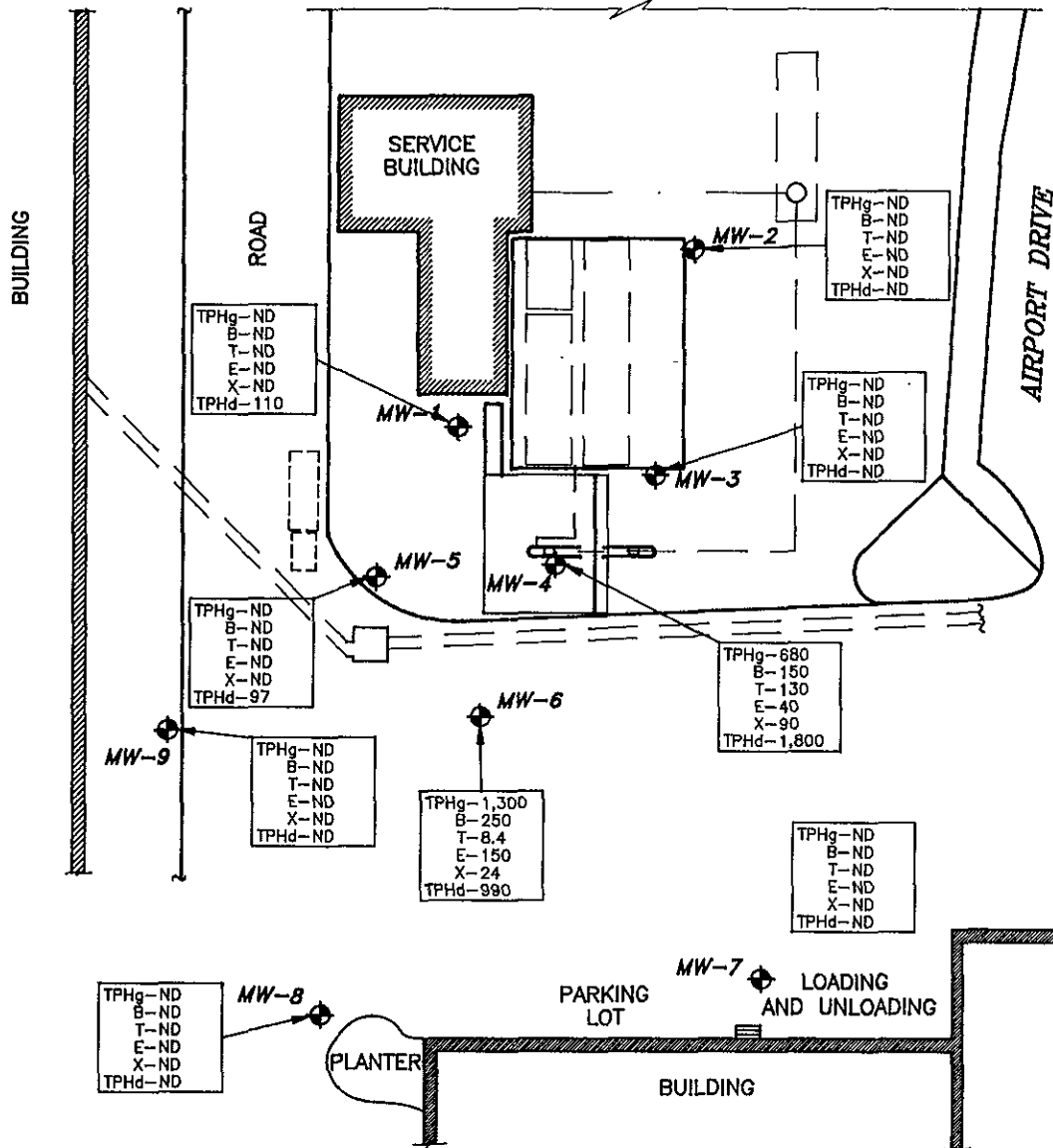
- EXISTING MONITORING WELLS AND GROUND WATER ELEVATIONS
- GROUND WATER ELEVATION CONTOUR IN FEET
- INTERPRETED GENERAL DIRECTION OF GROUND WATER FLOW



	DATE 12/93	GROUND WATER ELEVATIONS MARCH 1, 1994	FIGURE NO. <b>2</b>
	REVISED 5/94 MEQ		PROJ. NO. 6-93-5181
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE 51B14001	HERTZ/OAKLAND AIRPORT OAKLAND, CALIFORNIA	

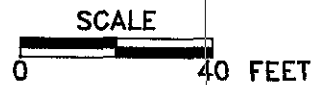


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**LEGEND**

- ◆ 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)



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**CONCENTRATIONS OF PETROLEUM  
HYDROCARBONS IN GROUND WATER  
MARCH 1, 1994**

FIGURE NO.

**3**

4090 NELSON AVENUE, SUITE J  
CONCORD, CA 94520

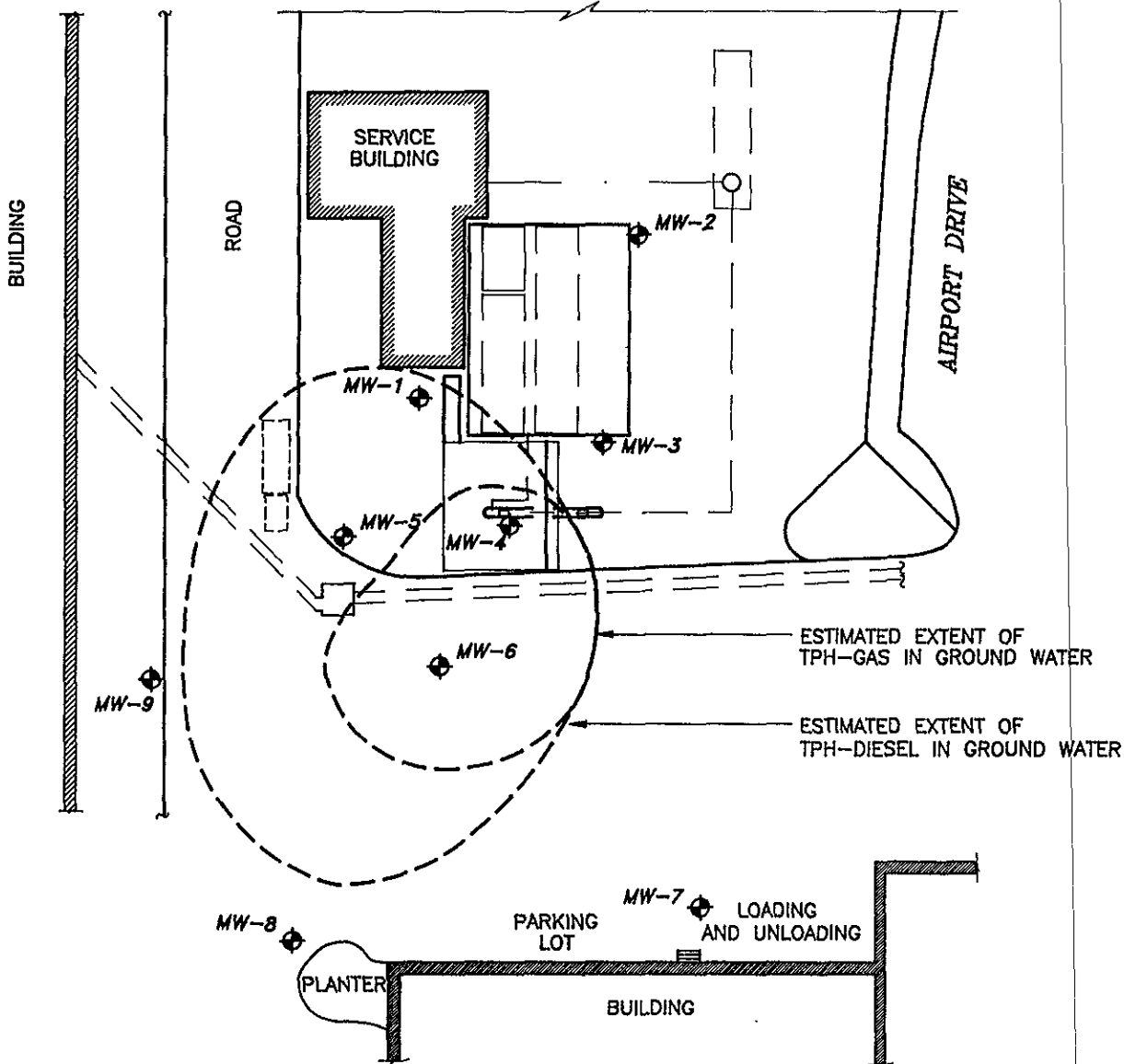
HERTZ/OAKLAND AIRPORT  
OAKLAND, CALIFORNIA

PROJ. NO.

6-93-5181



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**LEGEND**

◆ EXISTING MONITORING WELLS

SCALE  
0 40 FEET



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**APPROXIMATE EXTENT OF PETROLEUM  
HYDROCARBONS IN GROUND WATER  
MARCH 1, 1994**

HERTZ/OAKLAND AIRPORT  
OAKLAND, CALIFORNIA

FIGURE NO.

**4**

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
03/01/94	MW-1	3.53						--	ND	--	110	ND	ND	ND	ND	--	--
	MW-2	4.89						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-3	3.97						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-4	2.81						--	680	--	1,800	150	130	40	90	--	--
	MW-5	3.90						--	ND	--	97	ND	ND	ND	ND	--	--
	DUP	--						--	ND	--	97	ND	ND	ND	ND	--	--
	MW-6	2.82						--	1,300	--	990	250	8.4	150	24	--	--
	MW-7	2.36						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-8	1.86						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-9	1.57						--	ND	--	ND	ND	ND	ND	ND	--	--
TRIP	--						--	--	--	--	ND	ND	ND	ND	--	--	
12/02/93	MW-1	2.91						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-2	4.44						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-3	3.60						--	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	--	--
	MW-6	2.36						--	280	--	700	11	1.0	65	3.0	--	--
	MW-7	2.15						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-8	1.31						--	ND	--	54	ND	ND	ND	ND	--	--
	DUP	--						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-9	1.02						--	ND	--	72	ND	ND	ND	ND	--	--
TRIP	--						--	--	--	--	ND	ND	ND	ND	--	--	
05/27/93	MW-1	3.31						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-2	4.82						--	ND	--	ND	ND	ND	ND	ND	--	--
	MW-3	3.84						--	ND	--	55	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	--	--
	MW-6	2.82						--	1,300	--	960	370	ND	87	19	--	--
	MW-7	2.35						--	ND	--	76	ND	ND	ND	ND	--	--
	MW-8	1.91						--	ND	--	91	ND	ND	ND	ND	--	--
	MW-9	1.58						--	ND	--	72	ND	ND	ND	ND	--	--
	DUP (MW-9)	--						--	ND	--	85	ND	ND	ND	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 8270) (ppb)	
Date	Well		Cd	Cr	Pb	Ni	Zn		as Gasoline	as Kerosene	as Diesel	B	T	E			X
02/03/93	MW-1	3.34						--	ND	--	--	ND	ND	ND	ND	--	--
	MW-2	4.84						--	ND	--	--	ND	ND	ND	ND	--	--
	MW-3	4.03						--	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	--	--
11/05/92	MW-1	2.39						--	ND	--	--	ND	ND	ND	ND	--	--
	MW-2	4.05						--	ND	--	--	ND	ND	ND	ND	--	--
	MW-3	3.07						--	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	--	--
	MW-6	1.89						--	820	240	D	250	ND	5.9	ND	--	--
	DUP (MW-4)	--						--	14,000	--	--	2,100	1,400	370	1,100	--	--
09/01/92	MW-1	2.55						--	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						--	ND	--	--	ND	ND	ND	ND	--	--
	MW-2	4.66						--	ND	--	--	ND	ND	ND	ND	--	--
	MW-3	3.64						--	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	--	--

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			
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	ND	--	--
	MW-3	2.92						--	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-4	3.43						--	6,600	--	ND	910	1,900	280	1,700	--	--			
Historical Data Archived in ESE Report of January 1994																				

Notes:

MSL = Mean Sea Level  
 ND = Not detected  
 ppm = Parts per million  
 ppb = Parts per billion  
 -- = Not analyzed

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**



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**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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: 3.92 (ft.) WATER COLUMN: 10.96 (ft.)  or WCV: 5.37 (gal)  
DEPTH OF WELL: 14.88 (ft.) WELL CASING VOLUME: 1.29 (gal) ACTUAL VOLUME PURGED: 5.5 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1051</u>	<u>1.5</u>	<u>7.87</u>	<u>0.94</u>	<u>60.3</u>	<u>-</u>	<u>DK. COL/GREEN</u>
<u>1055</u>	<u>3.0</u>	<u>7.66</u>	<u>1.01</u>	<u>59.7</u>	<u>-</u>	<u>11</u>
<u>1057</u>	<u>4.5</u>	<u>7.59</u>	<u>1.61</u>	<u>60.6</u>	<u>-</u>	<u>.1</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 93088 DATE: 3-1-94 TIME: 0700 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-1</u>	<u>1103</u>	<u>3-1-94</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 Gullin  
Concord, CA 94529 Phone (510) 685-4055 Fax (510) 685-5823



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**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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: 3.20 (ft.)    WATER COLUMN: 10.92 (ft.)    (3) or 4 WCV: 5.35 (gal)  
DEPTH OF WELL: 14.12 (ft.)    WELL CASING VOLUME: 1.78 (gal)    ACTUAL VOLUME PURGED: 5.5 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
0738	1.5	7.23	0.94	60.0	-	CLEAR
0941	3.0	7.02	1.00	59.2	-	"
0944	4.5	7.23	1.21	59.3	-	"
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308A DATE: 3-1-94 TIME: 0700 BY: CHU  
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-2</u>	<u>0951</u>	<u>3-1-94</u>	<u>SEGNOIA</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 94529    Phone (510) 685-4053    FAX (510) 685-5323



Environmental Science & Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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: 3.69 (ft.) WATER COLUMN: 10.76 (ft.) 3 or 4 WCV: 5.27 (gal)  
DEPTH OF WELL: 14.45 (ft.) WELL CASING VOLUME: 1.76 (gal) ACTUAL VOLUME PURGED: 5.5 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1004</u>	<u>1.5</u>	<u>7.63</u>	<u>2.09</u>	<u>64.2</u>	<u>-</u>	<u>CLEAR</u>
<u>1007</u>	<u>3.0</u>	<u>7.33</u>	<u>3.01</u>	<u>64.2</u>	<u>-</u>	<u>"</u>
<u>1010</u>	<u>4.5</u>	<u>7.21</u>	<u>3.65</u>	<u>64.3</u>	<u>-</u>	<u>"</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE HYDAC UNIT# 9300B DATE: 3-1-94 TIME: 0700 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-3</u>	<u>1015</u>	<u>3-1-94</u>	<u>SEQUOIA</u>	<u>TP4-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) 685-4033 FAX (510) 685-5327



Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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

**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: 4.30 (ft.)    WATER COLUMN: 3.53 (ft.)    (3) or (4 WCV): 1.73 (gal)  
DEPTH OF WELL: 7.83 (ft.)    WELL CASING VOLUME: 0.58 (gal)    ACTUAL VOLUME PURGED: 1.75 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1109</u>	<u>0.5</u>	<u>7.63</u>	<u>1.59</u>	<u>61.6</u>	<u>-</u>	<u>GREEN/SILT/POOR</u>
<u>1110</u>	<u>1.0</u>	<u>7.38</u>	<u>1.63</u>	<u>62.8</u>	<u>-</u>	<u>.1</u>
<u>1112</u>	<u>1.5</u>	<u>7.43</u>	<u>1.67</u>	<u>63.0</u>	<u>-</u>	<u>11</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308A DATE: 3-1-94 TIME: 0700 BY: CAV  
TURBIDITY: TYPE \_\_\_\_\_ UNIT# \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ BY: \_\_\_\_\_

**PURGE METHOD**

**SAMPLE METHOD**

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

**SAMPLES COLLECTED**

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
DUPLICATE	<u>MW-4</u>	<u>1115</u>	<u>3-1-94</u>	<u>SEQUOIA</u>	<u>TP4-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Quillin



Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-S181  
DATE: MARCH 1, 1994

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

**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: 3.86 (ft.) WATER COLUMN: 6.98 (ft.) (3 or 4 WCV): 3.42 (gal)  
DEPTH OF WELL: 10.84 (ft.) WELL CASING VOLUME: 1.14 (gal) ACTUAL VOLUME PURGED: 3.50 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (x1000) (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1024</u>	<u>1.0</u>	<u>7.72</u>	<u>1.72</u>	<u>62.3</u>	<u>=</u>	<u>GREEN/SOLID</u>
<u>1026</u>	<u>2.0</u>	<u>7.33</u>	<u>2.15</u>	<u>62.6</u>	<u>=</u>	<u>"</u>
<u>1028</u>	<u>3.0</u>	<u>7.30</u>	<u>2.28</u>	<u>62.4</u>	<u>&gt;</u>	<u>"</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 3-1-94 TIME: 0700 BY: CV  
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-5</u>	<u>1037</u>	<u>3-1-94</u>	<u>SEQUOIA</u>	<u>TPH-G/STEX/TPH-D</u>
SPLIT	<u>DUP</u>	<u>1037</u>	<u>3-1-94</u>	<u>"</u>	<u>"</u>
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Quillin





Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ - OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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

**CASING DIAMETER**

2"   
4" \_\_\_\_\_  
Other \_\_\_\_\_

**SAMPLE TYPE**

Ground Water   
Surface Water \_\_\_\_\_  
Treat. Influent \_\_\_\_\_  
Treat. Effluent \_\_\_\_\_  
Other \_\_\_\_\_

**WELL VOLUMES PER UNIT**

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: 4.35 (ft.)    WATER COLUMN: 7.5 (ft.)    (3.054 WCV): 3.66 (gal)  
DEPTH OF WELL: 11.85 (ft.)    WELL CASING VOLUME: 1.22 (gal)    ACTUAL VOLUME PURGED: 4 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1047</u>	<u>0</u>	<u>7.32</u>	<u>X1000</u>	<u>63.9°</u>	_____	_____
<u>1050</u>	<u>1</u>	<u>7.20</u>	<u>3.65</u>	<u>63.2°</u>	_____	_____
<u>1053</u>	<u>2</u>	<u>6.82</u>	<u>2.93</u>	<u>64.7°</u>	_____	_____
<u>1056</u>	<u>3</u>	<u>6.80</u>	<u>3.64</u>	<u>65.6°</u>	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308A DATE: 3-1-94 TIME: 0700 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-6</u>	<u>1101</u>	<u>3-1-94</u>	<u>SEQUNDIA</u>	<u>TPH-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_

SAMPLER: Chris Valcheff

PROJECT MANAGER: Mike Quillin



Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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: 4.5-7 (ft.)    WATER COLUMN: 5.6 (ft.)    (3 or 4 WCV): 2.76 (gal)  
DEPTH OF WELL: 10.18 (ft.)    WELL CASING VOLUME: 292 (gal)    ACTUAL VOLUME PURGED: 3 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos) x1000	Temperature (F°)	Turbid. (NTU)	Other
<u>9:41</u>	<u>0</u>	<u>7.02</u>	<u>1.96</u>	<u>61.2°</u>	_____	_____
<u>9:47</u>	<u>1</u>	<u>7.11</u>	<u>1.48</u>	<u>60.4°</u>	_____	_____
<u>9:45</u>	<u>2</u>	<u>7.11</u>	<u>2.05</u>	<u>60.6°</u>	_____	_____
<u>9:48</u>	<u>3</u>	<u>6.99</u>	<u>2.01</u>	<u>61.6°</u>	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308B DATE: 3-1-94 TIME: 0700 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>1</u>	<u>MW-7</u>	<u>0950</u>	<u>3-1-94</u>	<u>SEQUOIA</u>	<u>TP4-G/BTEX/TPH-D</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_

SAMPLER: Chris Valch

PROJECT MANAGER: Mike Gullin





Environmental  
Science &  
Engineering, Inc.

**SAMPLE COLLECTION LOG**

PROJECT NAME: HERTZ-OAKLAND  
PROJECT NO.: 6-93-5181  
DATE: MARCH 1, 1994

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

**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: 4.75 (ft.) (3 or 4 WCV): 2.31 (gal)  
DEPTH OF WELL: 9.73 (ft.) WELL CASING VOLUME: 0.77 (gal) ACTUAL VOLUME PURGED: \_\_\_\_\_ (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1026</u>	<u>0</u>	<u>2.93</u>	<u>11000</u>	<u>68.6°</u>	_____	_____
<u>1027</u>	<u>1</u>	<u>2.69</u>	<u>1.57</u>	<u>67.7°</u>	_____	_____
<u>1028</u>	<u>1.5</u>	<u>2.60</u>	<u>1.46</u>	<u>68.2°</u>	_____	_____
<u>1029</u>	<u>2.5</u>	<u>2.60</u>	<u>1.16</u>	<u>68.1°</u>	_____	_____

**INSTRUMENT CALIBRATION**

pH/COND./TEMP.: TYPE HYDAC UNIT# 9308A DATE: 3-1-94 TIME: 0700 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-9</u>	<u>1031</u>	<u>3-1-94</u>	<u>SEQUOIA</u>	<u>TP4-G/BTEX/TPH-D</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: \_\_\_\_\_

SAMPLER: Chris Valcheff

4090 Nelson Avenue, Suite 1

PROJECT MANAGER Mike Quillin

Concord, CA 94520

Phone (510) 685-4035

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

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

Environmental Science & Engineering, Inc. Client Project ID: Hertz-Oakland/ 6-93-5181 Sampled: Mar 1, 1994  
 4090 Nelson Ave., Ste J Sample Matrix: Water Received: Mar 1, 1994  
 Concord, CA 94520 Analysis Method: EPA 5030/8015/8020 Reported: Mar 16, 1994  
 Attention: Mike Quillin First Sample #: 403-0080

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 403-0080 MW-1	Sample I.D. 403-0081 MW-2	Sample I.D. 403-0082 MW-3	Sample I.D. 403-0083 MW-4	Sample I.D. 403-0084 MW-5	Sample I.D. 403-0085 MW-6
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	680	N.D.	1,300
Benzene	0.5	N.D.	N.D.	N.D.	150	N.D.	250
Toluene	0.5	N.D.	N.D.	N.D.	130	N.D.	8.4
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	40	N.D.	150
Total Xylenes	0.5	N.D.	N.D.	N.D.	90	N.D.	24
Chromatogram Pattern:		--	--	--	Gasoline	--	Gasoline

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0	10
Date Analyzed:	3/14/94	3/14/94	3/14/94	3/14/94	3/14/94	3/14/94	3/14/94
Instrument Identification:	HP-4	HP-2	HP-2	HP-2	HP-2	HP-2	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	102	104	104	109	104	104	97

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

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

Environmental Science & Engineering, Inc.	Client Project ID: Hertz-Oakland/ 6-93-5181	Sampled: Mar 1, 1994
4090 Nelson Ave., Ste J	Sample Matrix: Water	Received: Mar 1, 1994
Concord, CA 94520	Analysis Method: EPA 5030/8015/8020	Reported: Mar 16, 1994
Attention: Mike Quillin	First Sample #: 403-0086	

## TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 403-0086 MW-7	Sample I.D. 403-0087 MW-8	Sample I.D. 403-0088 MW-9	Sample I.D. 403-0089 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:	3/14/94	3/14/94	3/14/94	3/14/94
Instrument Identification:	HP-4	HP-4	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	99	101	98	99

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

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 819 Striker Avenue, Suite 8 Sacramento, CA 95834 (916) 921-9600 FAX (916) 921-0100

Environmental Science & Engineering, Inc. Client Project ID: Hertz-Oakland/ 6-93-5181 Sampled: Mar 1, 1994  
 4090 Nelson Ave., Ste J Sample Matrix: Water Received: Mar 1, 1994  
 Concord, CA 94520 Analysis Method: EPA 5030/8020 Reported: Mar 16, 1994  
 Attention: Mike Quillin First Sample #: 403-0090

## BTEX DISTINCTION

Analyte	Reporting Limit μg/L	Sample I.D. 403-0090 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: 3/14/94  
 Instrument Identification: HP-4  
 Surrogate Recovery, %:  
 (QC Limits = 70-130%) 121

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

### SEQUOIA ANALYTICAL

  
 Karen L. Enstrom  
 Project Manager



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Environmental Science & Engineering, Inc. Client Project ID: Hertz-Oakland/ 6-93-5181 Sampled: Mar 1, 1994  
 4090 Nelson Ave., Ste J Sample Matrix: Water Received: Mar 1, 1994  
 Concord, CA 94520 Analysis Method: EPA 3510/3520/8015 Reported: Mar 16, 1994  
 Attention: Mike Quillin First Sample #: 403-0080

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 403-0080 MW-1	Sample I.D. 403-0081 MW-2	Sample I.D. 403-0082 MW-3	Sample I.D. 403-0083 MW-4	Sample I.D. 403-0084 MW-5	Sample I.D. 403-0085 MW-6
Extractable Hydrocarbons	50	110	N.D.	N.D.	1,800	97	990
Chromatogram Pattern:		Diesel & Unidentified Hydrocarbons (>C20)	--	--	Diesel & Unidentified Hydrocarbons (<C14)	Diesel & Unidentified Hydrocarbons (<C14)	Diesel & Unidentified Hydrocarbons (<C14)

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Extracted:	3/8/94	3/8/94	3/8/94	3/8/94	3/8/94	3/8/94
Date Analyzed:	3/16/94	3/11/94	3/11/94	3/11/94	3/11/94	3/11/94
Instrument Identification:	HP-3B	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

  
 Karen L. Enstrom  
 Project Manager



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 819 Striker Avenue, Suite 8 Sacramento, CA 95834 (916) 921-9600 FAX (916) 921-0100

Environmental Science & Engineering, Inc. Client Project ID: Hertz-Oakland/ 6-93-5181 Sampled: Mar 1, 1994  
 4090 Nelson Ave., Ste J Sample Matrix: Water Received: Mar 1, 1994  
 Concord, CA 94520 Analysis Method: EPA 3510/3520/8015 Reported: Mar 16, 1994  
 Attention: Mike Quillin First Sample #: 403-0086

## TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

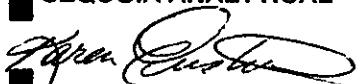
Analyte	Reporting Limit µg/L	Sample I.D. 403-0086 MW-7	Sample I.D. 403-0087 MW-8	Sample I.D. 403-0088 MW-9	Sample I.D. 403-0089 DUP
Extractable Hydrocarbons	50	N.D.	N.D.	N.D.	97
Chromatogram Pattern:		--	--	--	Diesel & Unidentified Hydrocarbons (<C14)

### Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0
Date Extracted:	3/8/94	3/8/94	3/8/94	3/8/94
Date Analyzed:	3/11/94	3/11/94	3/11/94	3/11/94
Instrument Identification:	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

  
 Karen L. Enstrom  
 Project Manager



# Sequoia Analytical

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 819 Striker Avenue, Suite 8 Sacramento, CA 95834 (916) 921-9600 FAX (916) 921-0100

Environmental Science & Engineering, Inc. Client Project ID: Hertz-Oakland/ 6-93-5181  
 4090 Nelson Ave., Ste J Matrix: Liquid  
 Concord, CA 94520  
 Attention: Mike Quillin QC Sample Group: 4030080-90 Reported: Mar 16, 1994

## QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer

MS/MSD Batch#:	4030081	4030081	4030081	4030081	BLK030894
Date Prepared:	3/14/94	3/14/94	3/14/94	3/14/94	3/8/94
Date Analyzed:	3/14/94	3/14/94	3/14/94	3/14/94	3/9/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	110	110	110	110	93
Matrix Spike Duplicate % Recovery:	110	105	105	108	83
Relative % Difference:	0.0	4.9	4.9	1.8	11

LCS Batch#:	1LCS031494	1LCS031494	1LCS031494	1LCS031494	BLK030894
Date Prepared:	3/14/94	3/14/94	3/14/94	3/14/94	3/8/94
Date Analyzed:	3/14/94	3/14/94	3/14/94	3/14/94	3/9/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A
LCS % Recovery:	105	100	101	99	93

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

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

SEQUOIA ANALYTICAL


  
 Karen L. Enstrom  
 Project Manager

DATE MARCH 1, 1994 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME HERTZ - OAKLAND  
 ADDRESS No. 1 AIRPORT DRIVE  
OAKLAND, CA  
 PROJECT NO. 6-93-5181  
 SAMPLED BY CHRIS VALCHEFF  
 LAB NAME SEQUOIA

ANALYSES TO BE PERFORMED										MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)	
TPH-G	TPH-D	BTEX								MATRIX			
MW-1	3-1-94	1103	OAKLAND	X	X	X					H <sub>2</sub> O	3	2VOAs, 1LTR 4030080A-C
MW-2		0951		X	X	X						3	0081
MW-3		1015		X	X	X						3	0082
MW-4		1115		X	X	X						3	0083
MW-5		1037		X	X	X						3	0084
MW-6		1101		X	X	X						3	0085
MW-7		0950		X	X	X						3	0086
MW-8		1012		X	X	X						3	0087
MW-9		1031		X	X	X						3	0088
DUP		1037		X	X	X						3	0089
TRIP						X						1	1VOA 0090



Environmental Science & Engineering, Inc.  
 A DILCORP Company  
 4090 Nelson Avenue Suite J Concord, CA 94520  
 Phone (510) 685-4053 Fax (510) 685-5323

RELINQUISHED BY: (signature) Chris Valcheff RECEIVED BY: (signature) Melissa Cressler  
 1. 3/1/94 date 1:35pm time  
 2. 31 TOTAL NUMBER OF CONTAINERS  
 3. REPORT RESULTS TO: MIKE WILLIAMS  
 4. SPECIAL SHIPMENT REQUIREMENTS: COLD TRANSPORT HAND DELIVER  
 5. SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):  
STANDARD TURN-AROUND-TIME  
 CHAIN OF CUSTODY SEALS  
 REC'D GOOD COND'TN/COLD  
 CONFORMS TO RECORD