



**VIA CERTIFIED MAIL
Return Receipt Requested**

*The Hertz Corporation
225 Brae Boulevard, Park Ridge, NJ 07656-0713*

January 13, 1998

Mr. Barney Chan
Alameda County
Environmental Health Services
1131 Harbor Bay Pkwy., #250
Alameda, CA 94502-6577

2260

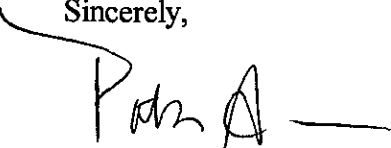
**Re: Hertz Service Center
#1 Airport Drive
Oakland, California**

Dear Mr. Chan:

Attached for your review is the *Quarterly Groundwater Monitoring Report Fourth Quarter 1997* for the above referenced location. The quarterly sampling and report were completed by Clearwater Group, Inc. in accordance with an Alameda County Health Services directive.

If you have any questions or require additional information, I may be contacted at (201)307-2526.

Sincerely,



Patricia A. Woods
Sr. Project Manager
Environmental Affairs

Attachment

cc: file,w/o atch

11oaklnd

93 JAN 21 AM 8:35
MAIL ROOM
FACILITY

CLEARWATER

G R O U P, I N C.

Environmental Services

QUARTERLY GROUNDWATER MONITORING REPORT FOURTH QUARTER 1997

Hertz Service Center, 1 Airport Drive, Oakland, California
January 5, 1998

BACKGROUND

The property, located adjacent to the passenger terminal at Oakland International Airport, is currently used as a rental car service facility. Reports previously submitted by Environmental Science & Engineering, Inc. (ESE) indicate that one underground storage tank (UST) is present at the site, and that three USTs have been removed from the facility. Two additional USTs, located adjacent to the property, are used by the Port of Oakland and the Federal Aviation Administration for fuel storage.

Nine monitoring wells were installed as part of the site investigation; groundwater monitoring has been conducted since December, 1993. In accordance with a directive from the Alameda County Environmental Health Services (EHS), a minimum of two monitoring wells (MW-4 and MW-6) will be monitored on a quarterly basis, and wells MW-5, MW-7, MW-8, and MW-9 will be monitored annually during the first quarter.

GROUNDWATER MONITORING AND SAMPLING ACTIVITIES (FOURTH QUARTER, 1997)

Date of groundwater sampling:	December 3, 1997
Wells gauged:	MW-1 through MW-4, MW-6, MW-7 and MW-9
Wells purged and sampled:	MW-1, MW-4, MW-6, and MW-9
Analytes tested:	TPHg, BTEX, MTBE
Laboratory:	American Environmental Network (Pleasant Hill, CA)

GROUNDWATER MONITORING AND SAMPLING RESULTS

Depth to groundwater:	2.95 to 4.40 feet below top of casing
Flow direction:	Southwest
TPHg concentration range:	<50 µg/l (MW-1, MW-6, and MW-9) to 6,400 µg/l (MW-4)
Benzene concentration range:	<0.5 µg/l (MW-1 and MW-9) to 1,500 µg/l (MW-4)
MTBE concentration range:	<5 µg/l (MW-1, MW-6, and MW-9) to 160 µg/l (MW-4)

PROJECT STATUS

One monitoring well (MW-4) was analyzed by EPA Method 8260 for Methyl-tert Butyl Ether as required by the EHS. Three monitoring wells (MW-4, MW-6, and MW-9) were analyzed for nitrates, sulfates, and ferrous iron. In addition, dissolved oxygen and oxidation-reduction potentials were recorded in each of the sampled wells. Monitoring well MW-5 was inaccessible, therefore, depth to water measurements were not collected. The EHS has approved the *Workplan for Remediation Services* dated June 13, 1997. This workplan proposes baseline groundwater sampling, the application of Oxygen Release Compound, and subsequent groundwater monitoring. Baseline data was collected during this quarterly monitoring event.

Results: O₂ is low & lower w/ MW 4
Redox pot: " & " " " (neg) → confirms the need for O₂ addn.

APPENDIX

- Site Location Map (Figure 1)
- Site Plan (Figure 2)
- Groundwater Contour Map - 12/3/97 (Figure 3)
- Hydrocarbon Distribution Map - 12/3/97 (Figure 4)
- Groundwater Elevations and Analytical Results (Table 1)
- Clearwater Gauging Data/Purge Calculations and Well Purging Data
- Certified Laboratory Reports, Chromatograms, and Chain-of-Custody Form
- Clearwater Groundwater Monitoring and Sampling Protocols

CERTIFICATION

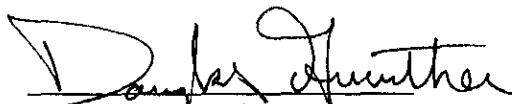
This report was prepared under the supervision of a professional registered geologist at Clearwater Group, Inc. All statements, conclusions, and recommendations are based solely upon field observations by Clearwater Group, Inc. and analyses performed by a State-certified laboratory related to the work performed by Clearwater Group, Inc.

It is possible that variations in the soil or groundwater conditions exist beyond the points explored in this investigation. Also, site conditions are subject to change at some time in the future due to variations in rainfall, temperature, regional water usage or other factors.


The service performed by Clearwater Group, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.


Clearwater Group, Inc. includes in this report chemical analytical data from a State-certified laboratory. These analyses are performed according to procedures suggested by the U.S. EPA and the State of California. Clearwater Group, Inc. is not responsible for laboratory errors in procedure or result reporting.

Prepared by:

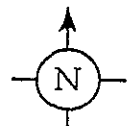
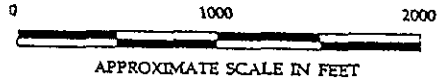
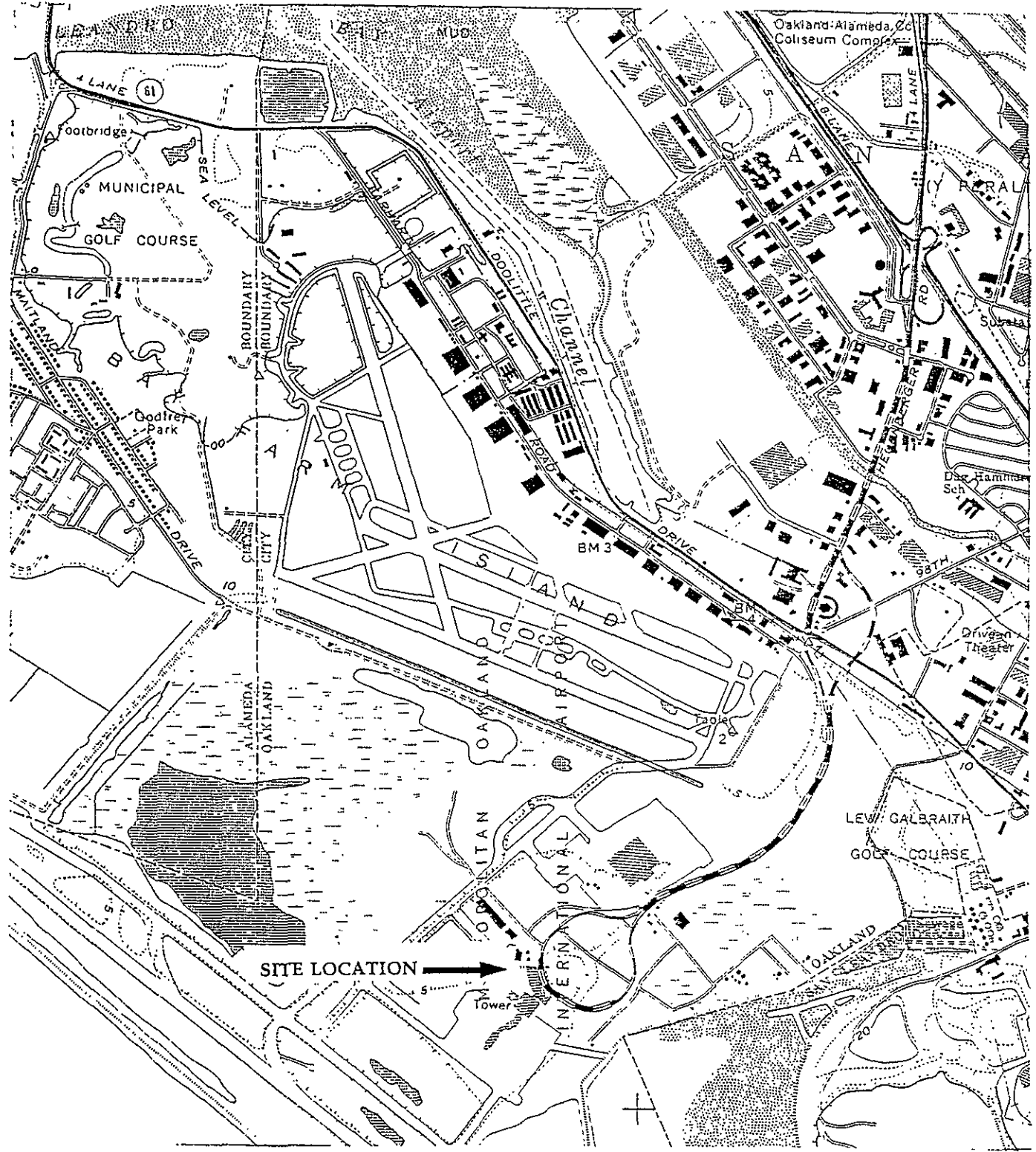

Douglas C. Guenther
Project Geologist

Reviewed by:


Brian Gwinn, R.G.
Senior Geologist



FIGURES



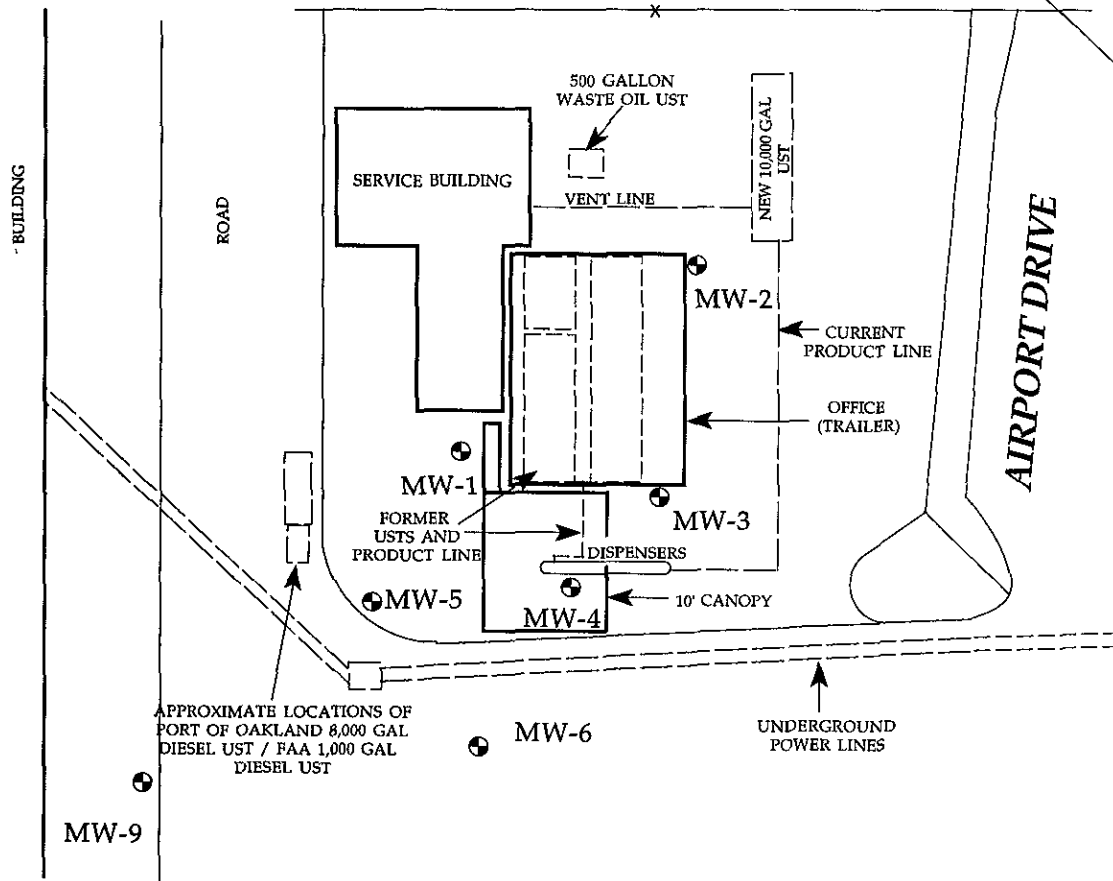
BASE MAP FROM U.S.G.S. 7.5 MINUTE SERIES: SAN LEANDRO, CALIFORNIA

SITE LOCATION MAP
 Hertz Service Center,
 1 Airport Drive,
 Oakland, California

CLEARWATER GROUP, INC.

Project No. C-156	Figure Date 10/96	Figure 1
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ALAN SHEPARD WAY



MW-9

APPROXIMATE LOCATIONS OF
PORT OF OAKLAND 8,000 GAL
DIESEL UST / FAA 1,000 GAL
DIESEL UST

PARKING LOT

MW-8



MW-7

LOADING AREA

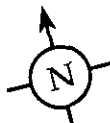
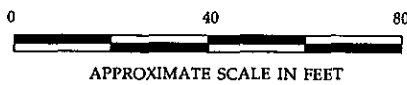
PLANTER

BUILDING

EXPLANATION

-  GROUNDWATER MONITORING WELL
-  FENCELINE

SITE PLAN BASED ON MAP BY ESE, INC.
JANUARY 4, 1994



SITE PLAN
Hertz Service Center,
1 Airport Drive,
Oakland, California

CLEARWATER GROUP, INC.

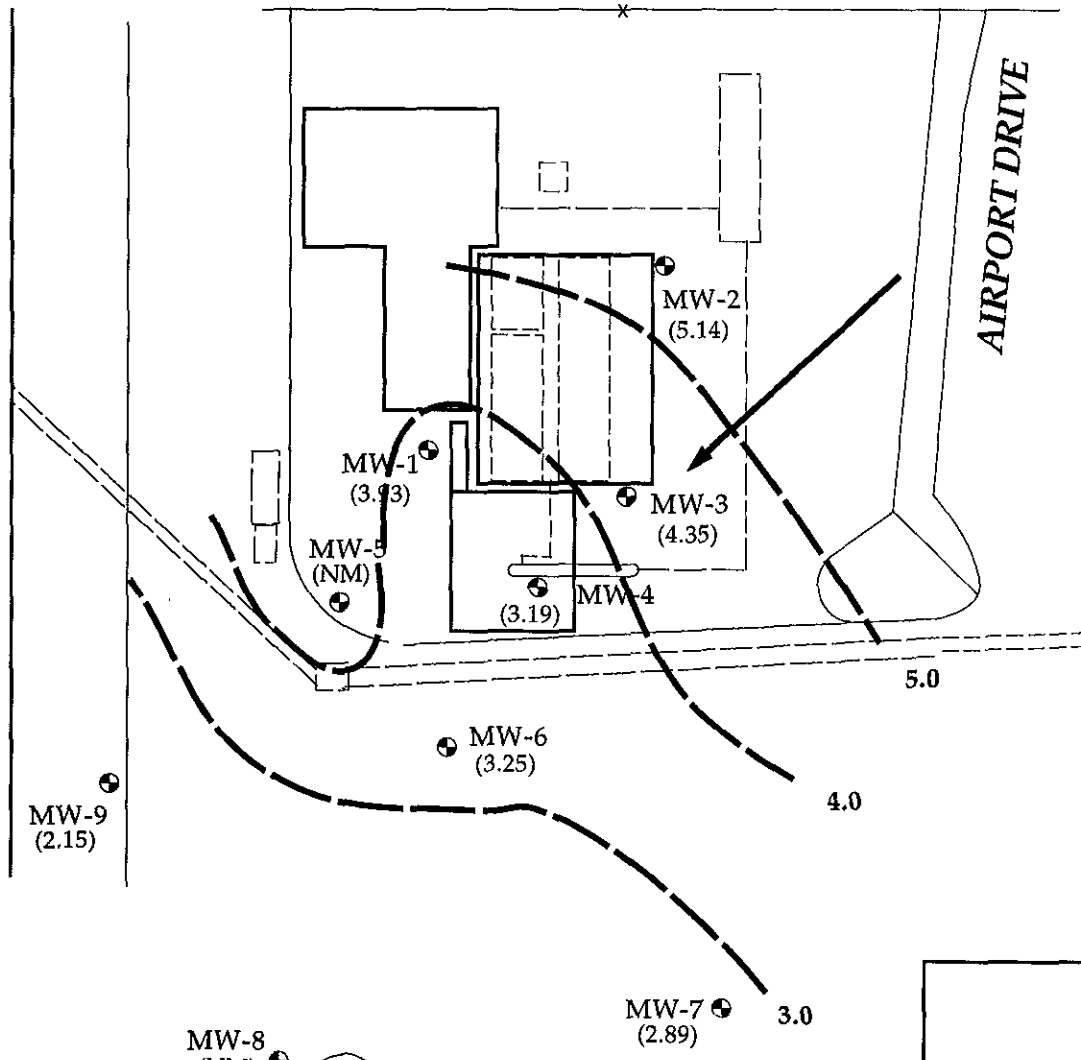
Project No.
C-156

Figure Date
10/96

Figure
2

ALAN SHEPARD WAY

AIRPORT DRIVE



EXPLANATION

- GROUNDWATER MONITORING WELL
- MW-2
(2.15) GROUNDWATER ELEVATION (IN FEET) - REFERENCED TO MEAN SEA LEVEL
- NM GROUNDWATER ELEVATION NOT MEASURED
- 4.0 GROUNDWATER ELEVATION CONTOUR - CONTOUR INTERVAL 1.0 FEET
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
GRADIENT = 0.02 FT/FT

SITE PLAN BASED ON MAP BY ESE, INC.
JANUARY 4, 1994

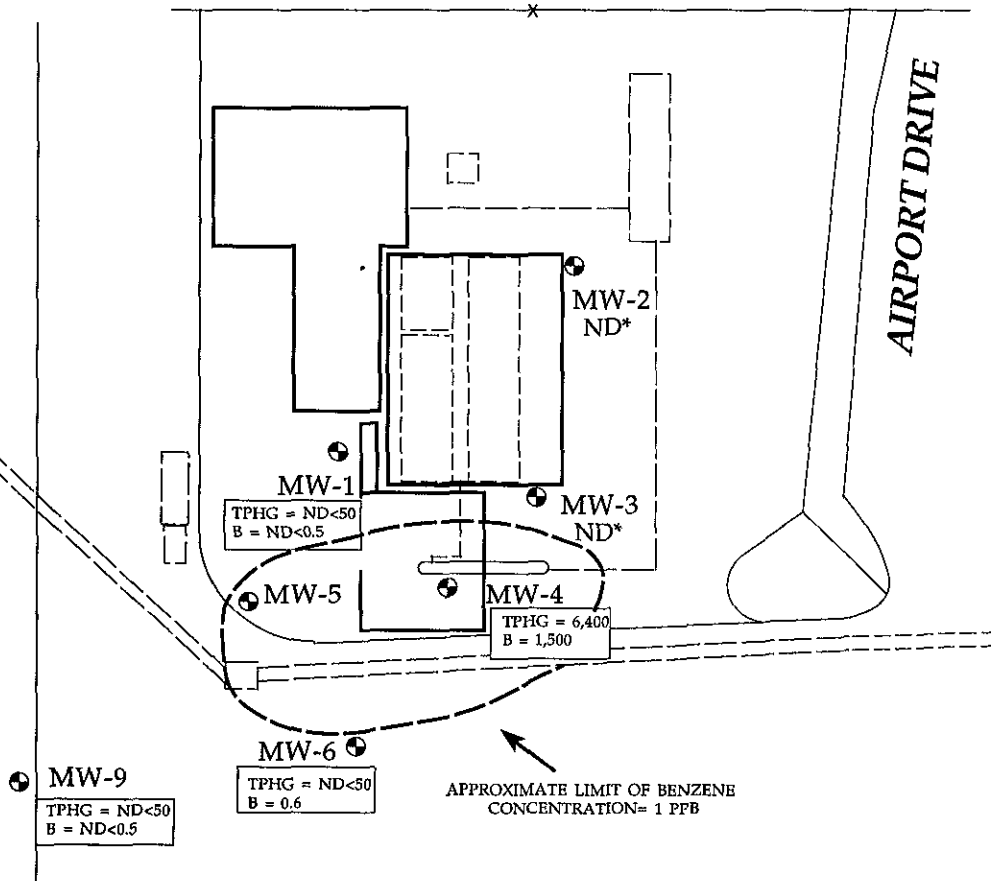
GROUNDWATER CONTOUR MAP- 12/03/97
Hertz Service Center,
1 Airport Drive,
Oakland, California

CLEARWATER GROUP, INC.

Project No. C-156	Figure Date 12/97	Figure 3
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ALAN SHEPARD WAY

AIRPORT DRIVE



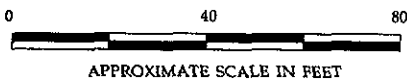
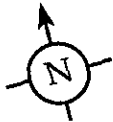
APPROXIMATE LIMIT OF BENZENE CONCENTRATION = 1 PPB

EXPLANATION

- MW-2** GROUNDWATER MONITORING WELL

TPHG = ND<50
B = 0.6

CONCENTRATIONS OF TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHG) & BENZENE (B) DETECTED IN GROUNDWATER SAMPLES - IN PARTS PER BILLION. SAMPLES COLLECTED ON 12/3/97. ND-COMPOUND NOT DETECTED.
- ND*** TPHG AND BENZENE CONCENTRATIONS NOT DETECTABLE (ON THE BASIS OF HISTORICAL ANALYTICAL DATA)
- APPROXIMATE EXTENT OF BENZENE GROUNDWATER CONCENTRATION = 1 PPB



SITE PLAN BASED ON MAP BY ESE, INC. JANUARY 4, 1994

HYDROCARBON DISTRIBUTION MAP
12/03/97

Hertz Service Center,
1 Airport Drive,
Oakland, California

CLEARWATER GROUP, INC.

Project No. C-156	Figure Date 12/97	Figure 4
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TABLES

Table 1
GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS

Hertz Service Center
 1 Airport Drive
 Oakland, California

MW-No.	Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	TPHd (ppb)
MW-1	8/20/91	7.45	5.15	2.30	ND	ND	ND	ND	ND	--	ND
	11/12/91	7.45	4.39	3.06	ND	ND	ND	ND	ND	--	ND
	2/18/92	7.45	4.39	3.06	ND	ND	ND	ND	ND	--	ND
	5/13/92	7.45	4.52	2.93	ND	ND	ND	ND	ND	--	--
	9/1/92	7.45	4.90	2.55	ND	ND	ND	ND	ND	--	--
	11/5/92	7.45	5.06	2.39	ND	ND	ND	ND	ND	--	--
	2/3/93	7.45	4.11	3.34	ND	ND	ND	ND	ND	--	--
	5/27/93	7.45	4.14	3.31	ND	ND	ND	ND	ND	--	ND
	12/2/93	7.45	4.54	2.91	ND	ND	ND	ND	ND	--	ND
	9/17/96	7.45	4.09	3.36	--	--	--	--	--	--	--
	11/27/96	7.45	3.82	3.63	--	--	--	--	--	--	--
	2/14/97	7.45	3.29	4.16	--	--	--	--	--	--	--
	12/3/97	7.45	3.52	3.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<2	ND<5	--
MW-2	8/20/91	8.09	4.00	4.09	ND	ND	ND	ND	ND	--	ND
	11/12/91	8.09	4.23	3.86	ND	ND	ND	ND	ND	--	52
	2/18/92	8.09	4.23	3.86	ND	ND	ND	ND	ND	--	ND
	5/13/92	8.09	3.43	4.66	ND	ND	ND	ND	ND	--	--
	9/1/92	8.09	3.94	4.15	56	2.0	3.0	0.8	3.1	--	--
	11/5/92	8.09	4.04	4.05	ND	ND	ND	ND	ND	--	--
	2/3/93	8.09	3.25	4.84	ND	ND	ND	ND	ND	--	--
	5/27/93	8.09	3.27	4.82	ND	ND	ND	ND	ND	--	ND
	12/2/93	8.09	3.65	4.44	ND	ND	ND	ND	ND	--	ND
	9/17/96	8.09	3.35	4.74	--	--	--	--	--	--	--
	11/27/96	8.09	3.18	4.91	--	--	--	--	--	--	--
	2/14/97	8.09	2.65	5.44	--	--	--	--	--	--	--
	12/3/97	8.09	2.95	5.14	--	--	--	--	--	--	--
MW-3	8/20/91	7.66	4.60	3.06	ND	ND	ND	ND	ND	--	ND
	11/12/91	7.66	4.74	2.92	ND	ND	ND	ND	ND	--	ND
	2/18/92	7.66	4.74	2.92	ND	ND	ND	ND	ND	--	ND
	5/13/92	7.66	4.02	3.64	ND	ND	ND	ND	ND	--	--
	9/1/92	7.66	4.45	3.21	ND	1.1	1.6	ND	1.9	--	--
	11/5/92	7.66	4.59	3.07	ND	ND	ND	ND	ND	--	--

Table 1
GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS

Hertz Service Center
1 Airport Drive
Oakland, California

MW-No.	Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	TPHd (ppb)
MW-3	2/3/93	7.66	3.63	4.03	ND	ND	ND	ND	ND	--	--
	5/27/93	7.66	3.82	3.84	ND	ND	ND	ND	ND	--	55
	12/2/93	7.66	4.06	3.60	ND	ND	ND	ND	ND	--	ND
	9/17/96	7.66	3.76	3.90	--	--	--	--	--	--	--
	11/27/96	7.66	3.58	4.08	--	--	--	--	--	--	--
	2/14/97	7.66	3.01	4.65	--	--	--	--	--	--	--
	12/3/97	7.66	3.31	4.35	--	--	--	--	--	--	--
MW-4	2/18/92	7.11	3.68	3.43	6,600	910	1,900	280	1,700	--	ND
	5/13/92	7.11	3.54	3.57	62,000	3,400	5,200	990	5,200	--	--
	9/1/92	7.11	3.97	3.14	120,000	8,800	14,000	2,100	11,000	--	--
	11/5/92	7.11	5.23	1.88	24,000	2,600	3,300	510	2,100	--	--
	2/3/93	7.11	4.22	2.89	50,000	4,700	5,000	1,500	6,600	--	--
	5/27/93	7.11	4.33	2.78	48,000	6,300	7,200	1,600	6,800	--	4,900
	12/2/93	7.11	4.72	2.39	21,000	3,500	3,800	640	2,000	--	770
	9/17/96	7.11	4.38	2.73	16,000	4,300	1,900	750	1,900	100	220
	11/27/96	7.11	4.20	2.91	14,000	5,100	2,600	1,300	2,500	ND<300	ND<200
	2/14/97 (b,c)	7.11	3.58	3.53	19,000	3,300	3,100	980	2,600	150	210
12/3/97	7.11	3.92	3.19	6,400	1,500	0,640	520	0,890	160	--	
MW-5	11/5/92	7.76	4.76	3.00	ND	ND	ND	ND	ND	--	170
	2/3/93	7.76	--	--	--	--	--	--	--	--	--
	5/27/93	7.76	3.88	3.88	ND	ND	ND	ND	ND	--	75
	12/2/93	7.76	4.36	3.40	ND	ND	ND	ND	ND	--	60
	9/17/96	7.76	3.99	3.77	--	--	--	--	--	--	--
	11/27/96	7.76	3.80	3.96	--	--	--	--	--	--	--
	2/14/97 (b)	7.76	3.16	4.60	100	1.2	ND<0.5	0.8	ND<2	95	860
	12/3/97	7.76	--	--	--	--	--	--	--	--	--
MW-6	11/5/92	7.17	5.28	1.89	820	250	ND	5.9	ND	--	--
	2/3/93	7.17	4.27	2.90	330	120	2.8	19	5.3	--	--
	5/27/93	7.17	4.35	2.82	1,300	370	ND	87	19	--	960
	12/2/93	7.17	4.81	2.36	280	11	1.0	65	3.0	--	700
	9/17/96	7.17	4.39	2.78	ND<50	1.0	0.5	ND<0.5	ND<2.0	ND<5	270

Table 1
GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS

Hertz Service Center
1 Airport Drive
Oakland, California

MW-No.	Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHg (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	TPHd (ppb)
MW-6	11/27/96	7.17	4.23	2.94	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<2.0	7	ND<50
	2/14/97 (b)	7.17	3.57	3.60	50	0.9	ND<0.5	ND<0.5	ND<2.0	9	600
	12/3/97	7.17	3.92	3.25	ND<50	0.6	ND<0.5	ND<0.5	ND<2.0	ND<5	--
MW-7	5/27/93	6.93	4.58	2.35	ND	ND	ND	ND	ND	--	76
	12/2/93	6.93	4.78	2.15	ND	ND	ND	ND	ND	--	ND
	9/17/96	6.93	4.52	2.41	--	--	--	--	--	--	--
	11/27/96	6.93	4.35	2.58	--	--	--	--	--	--	--
	2/14/97 (b)	6.93	3.70	3.23	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<2	ND<5	140
	12/3/97	6.93	4.04	2.89	--	--	--	--	--	--	--
MW-8	5/27/93	6.75	4.84	1.91	ND	ND	ND	ND	ND	--	91
	12/2/93	6.75	5.44	1.31	ND	ND	ND	ND	ND	--	54
	9/17/96 (a)	6.75	--	--	--	--	--	--	--	--	--
	11/27/96 (a)	6.75	--	--	--	--	--	--	--	--	--
	2/14/97 (a)	6.75	--	--	--	--	--	--	--	--	--
	Not Located										
MW-9	5/27/93	6.55	4.97	1.58	ND	ND	ND	ND	ND	--	72
	12/2/93	6.55	5.53	1.02	ND	ND	ND	ND	ND	--	72
	9/17/96	6.55	4.95	1.60	--	--	--	--	--	--	--
	11/27/96	6.55	--	--	--	--	--	--	--	--	--
	2/14/97 (b)	6.55	4.16	2.39	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<2	ND<5	130
	12/3/97	6.55	4.40	2.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<2	ND<5	--

Notes:

- TOC Elevation at the north side of the top of the well casing referenced to mean sea level (wells were surveyed by others)
- DTW Depth to water
- GWE Groundwater elevation
- TPHg Total petroleum hydrocarbons as gasoline using EPA Method 8015 (modified)
- TPHd Total petroleum hydrocarbons as diesel fuel using EPA Method 8015 (modified)
- BTEX Benzene, toluene, ethylbenzene and total xylenes using EPA Method 8020 (modified)
- MTBE Methyl tert butyl ether using EPA Method 8020 (modified)
- ppb Parts per billion (micrograms per liter)

Table 1
GROUNDWATER ELEVATIONS AND ANALYTICAL RESULTS

Hertz Service Center
1 Airport Drive
Oakland, California

- Not tested, not measured
- ND Not detected in concentrations at or above laboratory reporting limit (indicated if available).
- (a) MW-8 could not be located (well may have been paved over)
- (b) Laboratory chromatograms indicate that samples may contain weathered diesel fuel or a light oil
- (c) Reporting limits elevated because of high levels of target compounds; MTBE included in gasoline result

Analytical results prior to September 17, 1996 were taken from the *Report of Findings, Fourth Quarter 1993 Ground Water Monitoring* by Environmental Science & Engineering (January 4, 1994). Analytical results for metals, oil and grease, halogenated volatile compounds and semi-volatile organics are not included in this table.

APPENDIX A

WELL PURGING DATA

Job No.: C-156 Location: Hertz, Oakland Apt Date: 12-3-97 Tech: RA

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time: 1400	Sample for: (circle)		
MW-9	1340	0	67.5	0.39	7.11		TPHg	TPHd TPHmo	
Calc. purge volume		1	68.1	0.38	7.50		BTEX	MTBE 8010	
		2 1/2	67.9	0.41	7.60		Other:		
3.0	1345	3 1/2	68.4	0.41	7.66		Sampling Method:		
							Dedicated / Disposable bailer		
COMMENTS: color, turbidity, recharge, etc.							Purging Method:		
<i>tan, mod, fair, fine sand in p. water</i>							PVC bailer / Pump		

DO = ~~1.5~~ 3.2
Eh = 140

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time: 1440	Sample for: (circle)		
MW-6	1420	0	66.5	3.01	7.30		TPHg	TPHd TPHmo	
Calc. purge volume		1 1/2	66.9	3.32	7.50		BTEX	MTBE 8010	
		3	68.1	3.48	7.52		Other:		
3.7	1426	4	68.8	3.49	7.56		Sampling Method:		
							Dedicated / Disposable bailer		
COMMENTS: color, turbidity, recharge, etc.							Purging Method:		
<i>greenish-grey, high, good</i>							PVC bailer / Pump		

DO = 1.5
Eh = -35

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time: 1540	Sample for: (circle)		
MW-1	1515	0	63.8	0.88	7.71		TPHg	TPHd TPHmo	
Calc. purge volume		2	64.5	0.99	7.77		BTEX	MTBE 8010	
		4	64.7	1.05	7.80		Other:		
5.5	1523	6	65.4	1.07	7.85		Sampling Method:		
							Dedicated / Disposable bailer		
COMMENTS: color, turbidity, recharge, etc.							Purging Method:		
<i>grey, mod, good</i>							PVC bailer / Pump		

DO = 3.5
Eh = 25

WELL PURGING DATA

SHEET 2 OF 2

Job No.: C-156 Location: Hertz, Oakland Apt Date: 12-3-97 Tech: RA

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time: 1615 1615	Sample for: (circle)
MW-4	1550	0	63.2	1.50	7.51		<input checked="" type="checkbox"/> TPHg <input type="checkbox"/> TPHd <input type="checkbox"/> TPHmo <input checked="" type="checkbox"/> BTEX <input checked="" type="checkbox"/> MTBE <input type="checkbox"/> 8010 Other: 8260 MTBE conf. n.
Calc. purge volume		Well dry after 1/2 gal purged. Waited 2 mins. purged 1 gal more.					
2.0	1600	@ 2 1/2	64.0	1.77	7.63		Sampling Method: <input checked="" type="checkbox"/> Dedicated / <input type="checkbox"/> Disposable bailer Purging Method: <input checked="" type="checkbox"/> PVC bailer / <input type="checkbox"/> Pump
COMMENTS: color, turbidity, recharge, etc. black, mod, poor.							

Do = 1.0
Eh = -150

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time: 1750	Sample for: (circle)
							<input type="checkbox"/> TPHg <input type="checkbox"/> TPHd <input type="checkbox"/> TPHmo <input type="checkbox"/> BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> 8010 Other:
Calc. purge volume							
							Sampling Method: <input type="checkbox"/> Dedicated / <input type="checkbox"/> Disposable bailer Purging Method: <input type="checkbox"/> PVC bailer / <input type="checkbox"/> Pump
COMMENTS: color, turbidity, recharge, etc.							

WELL No.	TIME (24-hr)	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time:	Sample for: (circle)
							<input type="checkbox"/> TPHg <input type="checkbox"/> TPHd <input type="checkbox"/> TPHmo <input type="checkbox"/> BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> 8010 Other:
Calc. purge volume							
							Sampling Method: <input type="checkbox"/> Dedicated / <input type="checkbox"/> Disposable bailer Purging Method: <input type="checkbox"/> PVC bailer / <input type="checkbox"/> Pump
COMMENTS: color, turbidity, recharge, etc.							

APPENDIX B

RECEIVED DEC 22 1997

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

CLEARWATER GROUP, INC.
520 THIRD ST., STE. 104
OAKLAND, CA 94607

ATTN: RUARY ALLAN
CLIENT PROJ. ID: C-156
CLIENT PROJ. NAME: HERTZ CAR RNTL

REPORT DATE: 12/18/97

DATE(S) SAMPLED: 12/03/97

DATE RECEIVED: 12/04/97

AEN WORK ORDER: 9712065


PROJECT SUMMARY:

On December 4, 1997, this laboratory received 4 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

CLEARWATER GROUP, INC.

SAMPLE ID: MW-1
AEN LAB NO: 9712065-01
AEN WORK ORDER: 9712065
CLIENT PROJ. ID: C-156

DATE SAMPLED: 12/03/97
DATE RECEIVED: 12/04/97
REPORT DATE: 12/18/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5 ug/L		12/09/97
Toluene	108-88-3	ND	0.5 ug/L		12/09/97
Ethylbenzene	100-41-4	ND	0.5 ug/L		12/09/97
Xylenes, Total	1330-20-7	ND	2 ug/L		12/09/97
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05 mg/L		12/09/97
Methyl t-Butyl Ether	1634-04-4	ND	5 ug/L		12/09/97

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

CLEARWATER GROUP, INC.

SAMPLE ID: MW-4
 AEN LAB NO: 9712065-02
 AEN WORK ORDER: 9712065
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 12/03/97
 DATE RECEIVED: 12/04/97
 REPORT DATE: 12/18/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1500 *	3 ug/L		12/09/97
Toluene	108-88-3	640 *	3 ug/L		12/09/97
Ethylbenzene	100-41-4	520 *	3 ug/L		12/09/97
Xylenes, Total	1330-20-7	890 *	10 ug/L		12/09/97
Purgeable HCs as Gasoline	5030/GCFID	6.4 *	0.3 mg/L		12/09/97
Methyl t-Butyl Ether	1634-04-4	160 *	30 ug/L		12/09/97
#Digestion, Metals by ICP	EPA 3010	-	Prep Date		12/09/97
Iron	EPA 6010	0.5 *	0.1 mg/L		12/10/97
#Anion Sample Prep.		-	Prep date		12/04/97
Nitrate as Nitrogen	EPA 300	ND	0.1 mg/L		12/04/97
Sulfate	EPA 300	70 *	0.5 mg/L		12/04/97
Methyl t-Butyl Ether	GC/MS	PRESENT	50 ug/L		12/17/97

RLs for g/BTEX & MTBE elevated due to high levels of target compounds. Samples run at dilution.

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

CLEARWATER GROUP, INC.

SAMPLE ID: MW-6
 AEN LAB NO: 9712065-03
 AEN WORK ORDER: 9712065
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 12/03/97
 DATE RECEIVED: 12/04/97
 REPORT DATE: 12/18/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.6 *	0.5 ug/L		12/09/97
Toluene	108-88-3	ND	0.5 ug/L		12/09/97
Ethylbenzene	100-41-4	ND	0.5 ug/L		12/09/97
Xylenes, Total	1330-20-7	ND	2 ug/L		12/09/97
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05 mg/L		12/09/97
Methyl t-Butyl Ether	1634-04-4	ND	5 ug/L		12/09/97
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	12/09/97
Iron +2	EPA 6010	0.4 *	0.1 mg/L		12/10/97
#Anion Sample Prep.		-		Prep date	12/04/97
Nitrate as Nitrogen	EPA 300	ND	0.1 mg/L		12/04/97
Sulfate	EPA 300	150 *	0.5 mg/L		12/15/97

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

CLEARWATER GROUP, INC.

SAMPLE ID: MW-9
 AEN LAB NO: 9712065-04
 AEN WORK ORDER: 9712065
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 12/03/97
 DATE RECEIVED: 12/04/97
 REPORT DATE: 12/18/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	12/09/97
Toluene	108-88-3	ND	0.5	ug/L	12/09/97
Ethylbenzene	100-41-4	ND	0.5	ug/L	12/09/97
Xylenes, Total	1330-20-7	ND	2	ug/L	12/09/97
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	12/09/97
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	12/09/97
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	12/09/97
Iron	EPA 6010	ND	0.1	mg/L	12/10/97
#Anion Sample Prep.		-		Prep date	12/04/97
Nitrate as Nitrogen	EPA 300	ND	0.1	mg/L	12/04/97
Sulfate	EPA 300	1.0 *	0.5	mg/L	12/04/97

ND = Not detected at or above the reporting limit
 * = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9712065
CLIENT PROJECT ID: C-156

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spikes(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analyses.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behaviour, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrument performance.

D: Surrogates diluted out.

I: Interference.

!: Indicates result outside of established laboratory QC limits.

WORK ORDER: 9712065

QUALITY CONTROL REPORT

PAGE QR-2

ANALYSIS: Major Anions

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank			LAB ID: IC_BLNK			INSTR RUN: IC\971204000000/1/			
INSTRUMENT: Dionex ion chromatograph			PREPARED:			BATCH ID: IC120497			
UNITS: mg/L			ANALYZED: 12/04/97			DILUTION: 1.000000			
METHOD:									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Chloride, C1	ND		0.5						
Nitrate, NO3-N	ND		0.1						
Nitrite, NO2-N	ND		0.1						
Sulfate, SO4	ND		0.5						

SAMPLE TYPE: Blank-Method/Media blank			LAB ID: IC_BLNK			INSTR RUN: IC\971215000000/1/			
INSTRUMENT: Dionex ion chromatograph			PREPARED:			BATCH ID: IC121597			
UNITS: mg/L			ANALYZED: 12/15/97			DILUTION: 1.000000			
METHOD:									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Chloride, C1	ND		0.5						
Sulfate, SO4	ND		0.5						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank			LAB ID: IC_LCD			INSTR RUN: IC\971204000000/3/1			
INSTRUMENT: Dionex ion chromatograph			PREPARED:			BATCH ID: IC120497			
UNITS: mg/L			ANALYZED: 12/04/97			DILUTION: 1.000000			
METHOD:									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Chloride, C1	9.61	ND	0.5	10.0	96.1	80	120		
Nitrate, NO3-N	2.05	ND	0.1	2.00	103	80	120		
Nitrite, NO2-N	1.96	ND	0.1	2.00	98.0	80	120		
Sulfate, SO4	9.06	ND	0.5	10.0	90.6	80	120		

SAMPLE TYPE: Spike-Method/Media blank			LAB ID: IC_LCS			INSTR RUN: IC\971204000000/2/1			
INSTRUMENT: Dionex ion chromatograph			PREPARED:			BATCH ID: IC120497			
UNITS: mg/L			ANALYZED: 12/04/97			DILUTION: 1.000000			
METHOD:									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Chloride, C1	10.0	ND	0.5	10.0	100	80	120		
Nitrate, NO3-N	2.06	ND	0.1	2.00	103	80	120		
Nitrite, NO2-N	1.96	ND	0.1	2.00	98.0	80	120		
Sulfate, SO4	9.23	ND	0.5	10.0	92.3	80	120		

SAMPLE TYPE: Spike-Method/Media blank			LAB ID: IC_LCD			INSTR RUN: IC\971215000000/3/1			
INSTRUMENT: Dionex ion chromatograph			PREPARED:			BATCH ID: IC121597			
UNITS: mg/L			ANALYZED: 12/15/97			DILUTION: 1.000000			
METHOD:									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Chloride, C1	9.71	ND	0.5	10.0	97.1	80	120		
Sulfate, SO4	9.19	ND	0.5	10.0	91.9	80	120		

SAMPLE TYPE: Spike-Method/Media blank			LAB ID: IC_LCS			INSTR RUN: IC\971215000000/2/1			
INSTRUMENT: Dionex ion chromatograph			PREPARED:			BATCH ID: IC121597			
UNITS: mg/L			ANALYZED: 12/15/97			DILUTION: 1.000000			
METHOD:									
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Chloride, C1	9.68	ND	0.5	10.0	96.8	80	120		
Sulfate, SO4	9.17	ND	0.5	10.0	91.7	80	120		

WORK ORDER: 9712065

QUALITY CONTROL REPORT

PAGE QR-3

ANALYSIS: Major Anions

MATRIX: Water

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate		LAB ID: IC_LCR		INSTR RUN: IC\971204000000/4/2				
INSTRUMENT: Dionex ion chromatograph		PREPARED:		BATCH ID: IC120497				
UNITS: mg/L		ANALYZED: 12/04/97		DILUTION: 1.000000				
METHOD:								
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Chloride, Cl	9.61	10.0	0.5				3.98	15
Nitrate, NO3-N	2.05	2.06	0.1				0.487	15
Nitrite, NO2-N	1.96	1.96	0.1				0	15
Sulfate, SO4	9.06	9.23	0.5				1.86	15

SAMPLE TYPE: Method Spike Sample Duplicate		LAB ID: IC_LCR		INSTR RUN: IC\971215000000/4/2				
INSTRUMENT: Dionex ion chromatograph		PREPARED:		BATCH ID: IC121597				
UNITS: mg/L		ANALYZED: 12/15/97		DILUTION: 1.000000				
METHOD:								
ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)	RPD (%)	RPD LIMIT (%)
						LOW HIGH		
Chloride, Cl	9.71	9.68	0.5				0.309	15
Sulfate, SO4	9.19	9.17	0.5				0.218	15

WORK ORDER: 9712065

QUALITY CONTROL REPORT

PAGE QR-4

ANALYSIS: Metals Scan by ICP

MATRIX: Water

METHOD BLANK SAMPLES

SAMPLE TYPE: Blank-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_PBW_A
 PREPARED:
 ANALYZED: 12/10/97

INSTR RUN: ICP\971210161900/1/
 BATCH ID: IFW120997-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	ND	0.005						
Al	Aluminum	ND	0.1						
As	Arsenic	ND	0.04						
Ba	Barium	ND	0.01						
Be	Beryllium	ND	0.002						
Ca	Calcium	ND	0.2						
Cd	Cadmium	ND	0.005						
Co	Cobalt	ND	0.005						
Cr	Chromium	ND	0.01						
Cu	Copper	ND	0.01						
Fe	Iron	ND	0.1						
K	Potassium	ND	0.1						
Mg	Magnesium	ND	0.04						
Mn	Manganese	ND	0.005						
Mo	Molybdenum	ND	0.01						
Na	Sodium	ND	0.5						
Ni	Nickel	ND	0.01						
Pb	Lead	ND	0.04						
Sb	Antimony	ND	0.02						
Se	Selenium	ND	0.07						
Tl	Thallium	ND	0.05						
V	Vanadium	ND	0.005						
Zn	Zinc	ND	0.01						

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCD_A
 PREPARED:
 ANALYZED: 12/10/97

INSTR RUN: ICP\971210161900/3/1
 BATCH ID: IFW120997-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag	Silver	0.0245	ND	0.005	0.0250	98.0	72	127	
Al	Aluminum	1.04	ND	0.1	1.00	104	89	116	
As	Arsenic	0.443	ND	0.04	0.400	111	75	125	
Ba	Barium	1.06	ND	0.01	1.00	106	91	120	
Be	Beryllium	0.0264	ND	0.002	0.0250	106	82	119	
Ca	Calcium	10.6	ND	0.2	10.0	106	80	120	
Cd	Cadmium	0.0518	ND	0.005	0.0500	104	84	120	
Co	Cobalt	0.280	ND	0.005	0.250	112	96	120	
Cr	Chromium	0.105	ND	0.01	0.100	105	85	128	
Cu	Copper	0.130	ND	0.01	0.125	104	86	123	
Fe	Iron	0.515	ND	0.1	0.500	103	84	133	
K	Potassium	10.2	ND	0.1	10.0	102	80	120	
Mg	Magnesium	10.3	ND	0.04	10.0	103	80	120	
Mn	Manganese	0.282	ND	0.005	0.250	113	93	122	
Mo	Molybdenum	0.213	ND	0.01	0.200	107	89	117	
Na	Sodium	10.1	ND	0.5	10.0	101	80	120	
Ni	Nickel	0.263	ND	0.01	0.250	105	92	121	
Pb	Lead	0.554	ND	0.04	0.500	111	90	122	
Sb	Antimony	0.530	ND	0.02	0.500	106	82	113	
Se	Selenium	0.515	ND	0.07	0.500	103	75	125	
Tl	Thallium	0.541	ND	0.05	0.500	108	85	115	
V	Vanadium	0.270	ND	0.005	0.250	108	91	118	
Zn	Zinc	0.262	ND	0.01	0.250	105	90	121	

WORK ORDER: 9712065

QUALITY CONTROL REPORT

PAGE QR-5

ANALYSIS: Metals Scan by ICP

MATRIX: Water

LABORATORY CONTROL SAMPLES

SAMPLE TYPE: Spike-Method/Media blank
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCS_A
 PREPARED:
 ANALYZED: 12/10/97

INSTR RUN: ICP\971210161900/2/1
 BATCH ID: IFW120997-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	0.0227	ND	0.005	0.0250	90.8	72	127		
Al Aluminum	0.994	ND	0.1	1.00	99.4	89	116		
As Arsenic	0.405	ND	0.04	0.400	101	75	125		
Ba Barium	1.03	ND	0.01	1.00	103	91	120		
Be Beryllium	0.0261	ND	0.002	0.0250	104	82	119		
Ca Calcium	10.3	ND	0.2	10.0	103	80	120		
Cd Cadmium	0.0488	ND	0.005	0.0500	97.6	84	120		
Co Cobalt	0.273	ND	0.005	0.250	109	96	120		
Cr Chromium	0.0991	ND	0.01	0.100	99.1	85	128		
Cu Copper	0.127	ND	0.01	0.125	102	86	123		
Fe Iron	0.494	ND	0.1	0.500	98.8	84	133		
K Potassium	9.92	ND	0.1	10.0	99.2	80	120		
Mg Magnesium	9.99	ND	0.04	10.0	99.9	80	120		
Mn Manganese	0.274	ND	0.005	0.250	110	93	122		
Mo Molybdenum	0.202	ND	0.01	0.200	101	89	117		
Na Sodium	9.85	ND	0.5	10.0	98.5	80	120		
Ni Nickel	0.255	ND	0.01	0.250	102	92	121		
Pb Lead	0.534	ND	0.04	0.500	107	90	122		
Sb Antimony	0.506	ND	0.02	0.500	101	82	113		
Se Selenium	0.480	ND	0.07	0.500	96.0	75	125		
Tl Thallium	0.505	ND	0.05	0.500	101	85	115		
V Vanadium	0.264	ND	0.005	0.250	106	91	118		
Zn Zinc	0.255	ND	0.01	0.250	102	90	121		

LABORATORY CONTROL DUPLICATES

SAMPLE TYPE: Method Spike Sample Duplicate
 INSTRUMENT: TJA Enviro 36
 UNITS: mg/L
 METHOD:

LAB ID: IFW_LCR_A
 PREPARED:
 ANALYZED: 12/10/97

INSTR RUN: ICP\971210161900/4/2
 BATCH ID: IFW120997-A
 DILUTION: 1.000000

ANALYTE	RESULT	REF RESULT	REPORTING LIMIT	SPIKE VALUE	RECOVERY (%)	REC LIMITS (%)		RPD (%)	RPD LIMIT (%)
						LOW	HIGH		
Ag Silver	0.0245	0.0227	0.005					7.63	10
Al Aluminum	1.04	0.994	0.1					4.52	10
As Arsenic	0.443	0.405	0.04					8.96	15
Ba Barium	1.06	1.03	0.01					2.87	10
Be Beryllium	0.0264	0.0261	0.002					1.14	10
Ca Calcium	10.6	10.3	0.2					2.87	15
Cd Cadmium	0.0518	0.0488	0.005					5.96	10
Co Cobalt	0.280	0.273	0.005					2.53	10
Cr Chromium	0.105	0.0991	0.01					5.78	10
Cu Copper	0.130	0.127	0.01					2.33	10
Fe Iron	0.515	0.494	0.1					4.16	10
K Potassium	10.2	9.92	0.1					2.78	10
Mg Magnesium	10.3	9.99	0.04					3.06	10
Mn Manganese	0.282	0.274	0.005					2.88	10
Mo Molybdenum	0.213	0.202	0.01					5.30	10
Na Sodium	10.1	9.85	0.5					2.51	10
Ni Nickel	0.263	0.255	0.01					3.09	10
Pb Lead	0.554	0.534	0.04					3.68	10
Sb Antimony	0.530	0.506	0.02					4.63	10
Se Selenium	0.515	0.480	0.07					7.04	15
Tl Thallium	0.541	0.505	0.05					6.88	10
V Vanadium	0.270	0.264	0.005					2.25	10
Zn Zinc	0.262	0.255	0.01					2.71	10

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9712065

INSTRUMENT: E

MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
12/09/97	MW-1	01	104
12/09/97	MW-4	02	101
12/09/97	MW-6	03	103
12/09/97	MW-7	04	103
QC Limits:			70-130

DATE ANALYZED: 12/09/97
 SAMPLE SPIKED: 9712065-04
 INSTRUMENT: E

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	100	91	6	70-130	20
Toluene	100	98	6	70-130	20
Ethylbenzene	100	101	6	70-130	20
Total Xylenes	300	97	6	70-130	20

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

Reporting Information:

1. Client: HERTZ CAR RENTAL
 Address: 1 AIRPORT DRIVE
OAKLAND CA
 Contact: _____
 Alt. Contact: _____

American Environmental Network

3440 Vincent Road, Pleasant Hill, CA 94523
 Phone (510) 930-9090
 FAX (510) 930-0256



REQUEST FOR ANALYSIS / CHAIN OF CUSTODY

Lab Job Number: 9712065
 Lab Destination: _____
 Date Samples Shipped: _____
 Lab Contact: _____
 Date Results Required: _____
 Date Report Required: _____
 Client Phone No.: _____
 Client FAX No.: _____

Address Report To:

2. CLEARWATER GROUP INC
520 THIRD ST #104
OAKLAND CA 94607

Send Invoice To:

3. AS 2

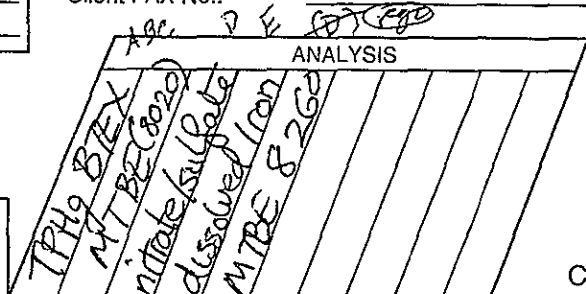
FNOR6

C-35-3 R-35-1

Send Report To: 1 or 2 (Circle one)

Client P.O. No.: @ Client Project I.D. No.: C-156

Sample Team Member (s) _____



Lab Number	Client Sample Identification	Air Volume	Date/Time Collected	Sample Type*	Pres.	No. of Cont.	Type of Cont.	ANALYSIS					Comments / Hazards		
1A-C	MW-1		12-3, 1540	7	HCl/none	3	var.	X	X						
2A-F	MW-4		1615		HCl/none	6		X	X	X	X	X			8260 on MW-4 for MTBE confirmation only
3A-E	MW-6		1440			5		X	X	X	X				
4A-E	MW-9		1400			5		X	X	X	X				Dissolved iron samples were filtered (0.45µm) in field.

Relinquished by: (Signature) <u>[Signature]</u>	DATE <u>12-3-97</u>	TIME <u>1515</u>	Received by: (Signature) <u>[Signature]</u>	DATE <u>12/4/97</u>	TIME <u>1155</u>
Relinquished by: (Signature) <u>[Signature]</u>	DATE <u>12/4/97</u>	TIME <u>1705</u>	Received by: (Signature) <u>[Signature]</u>	DATE <u>12/4/97</u>	TIME <u>1705</u>
Relinquished by: (Signature) _____	DATE _____	TIME _____	Received by: (Signature) _____	DATE _____	TIME _____
Method of Shipment			Lab Comments		

*Sample type (Specify): 1) 37mm 0.8 µm MCEF 2) 25mm 0.8 µm MCEF 3) 25mm 0.4 µm polycarb. filter
 4) PVC filter, diam. _____ pore size _____ 5) Charcoal tube 6) Silica gel tube 7) Water 8) Soil 9) Bulk Sample
 10) Other _____ 11) Other _____

APPENDIX C

CLEARWATER GROUP, INC.

Groundwater Monitoring and Sampling Field Procedures

Groundwater Monitoring

Prior to beginning, a decontamination area is established. Decontamination procedures consist of scrubbing downhole equipment in an Alconox® solution wash (wash solution is pumped through any purging pumps used), and rinsing in a first rinse of potable water and a second rinse of potable water or deionized water if the latter is required. Any non-dedicated down hole equipment is decontaminated prior to use.

Prior to purging and sampling a well, the static water level is measured to the nearest 0.01 feet with an electronic water sounder. Depth to bottom is typically measured once per year, at the request of the project manager, and during Clearwater's first visit to a site. If historical analytical data are not available, with which to establish a reliable order of increasing well contamination, the water sounder and tape will be decontaminated between each well. If floating separate-phase hydrocarbons (SPH) are suspected or observed, SPH is collected using a clear, open-ended product bailer, and the thickness is measured to the nearest 0.01 feet in the bailer. SPH may alternatively be measured with an electronic interface probe. Any monitoring well containing a measurable thickness of SPH before or during purging is not additionally purged and no sample is collected from that well. Wells containing a hydrocarbon sheen are sampled unless otherwise specified by the project manager. Field observations such as well integrity as well as water level measurements and floating product thicknesses are noted on the Gauging Data/Purge Calculations form.

Well Purging

Each monitoring well to be sampled is purged using either a PVC bailer or a submersible pump. Physical parameters (pH, temperature and conductivity) of the purge water are monitored during purging activities to assess if the water sample collected is representative of the aquifer. If required, parameters such as dissolved oxygen, turbidity, salinity etc. are also measured. Samples are considered representative if parameter stability is achieved. Stability is defined as a change of less than 0.25 pH units, less than 10% change in conductivity in micro mhos, and less than 1.0 degree centigrade (1.8 degrees Fahrenheit) change in temperature. Parameters are measured in a discreet sample decanted from the bailer separately from the rest of the purge water. Parameters are measured at least four times during purging; initially, and at volume intervals of one well volume. Purging continues until three well casing volumes have been removed or until the well completely dewater. Wells which dewater or demonstrate a slow recharge, may be sampled after fewer than three well volumes have been removed. Well purging information is recorded on the Purge Data sheet. All meters used to measure parameters are calibrated daily. Purge water is sealed, labeled, and stored on site in D.O.T.-approved 55-gallon drums. After being chemically profiled, the water is removed to an appropriate disposal facility by a licensed waste hauler.

Groundwater Sample Collection

Groundwater samples are collected immediately after purging or, if purging rate exceeds well recharge rate, when the well has recharged to at least 80% of its static water level. If recharge is extremely slow, the well is allowed to recharge for at least two hours, if practicable, or until sufficient volume has accumulated for sampling. The well is sampled within 24 hours of purging or repurged. Samples are collected using polyethylene bailers, either disposable or dedicated to the well. Samples being analyzed for compounds most sensitive to volatilization are collected first. Water samples are placed in appropriate laboratory-supplied containers, labeled, documented on a chain of custody form and placed on ice in a cooler for transport to a state-certified analytical laboratory. Analytical detection limits match or surpass standards required by relevant local or regional guidelines.

Quality Assurance Procedures

To prevent contamination of the samples, CGI personnel adhere to the following procedures in the field:

- A new, clean pair of latex gloves are put on prior to sampling each well.
- Wells are gauged, purged and groundwater samples are collected in the expected order of increasing degree of contamination based on historical analytical results.
- All purging equipment will be thoroughly decontaminated between each well, using the procedures previously described at the beginning of this section.
- During sample collection for volatile organic analysis, the amount of air passing through the sample is minimized. This helps prevent the air from stripping the volatiles from the water. Sample bottles are filled by slowly running the sample down the side of the bottle until there is a convex meniscus over the mouth of the bottle. The lid is carefully screwed onto the bottle such that no air bubbles are present within the bottle. If a bubble is present, the cap is removed and additional water is added to the sample container. After resealing the sample container, if bubbles still are present inside, the sample container is discarded and the procedure is repeated with a new container.

Laboratory and field handling procedures may be monitored, if required by the client or regulators, by including quality control (QC) samples for analysis with the groundwater samples. Examples of different types of QC samples are as follows:

- Trip blanks are prepared at the analytical laboratory by laboratory personnel to check field handling procedures. Trip blanks are transported to the project site in the same manner as the laboratory-supplied sample containers to be filled. They are not opened, and are returned to the laboratory with the samples collected. Trip blanks are analyzed for purgable organic compounds.
- Equipment blanks are prepared in the field to determine if decontamination of field sampling equipment has been effective. The sampling equipment used to collect the groundwater samples is rinsed with distilled water which is then decanted into laboratory-supplied containers. The equipment blanks are transported to the laboratory, and are analyzed for the same chemical constituents as the samples collected at the site.
- Duplicates are collected at the same time that the standard groundwater samples are being collected and are analyzed for the same compounds in order to check the reproducibility of laboratory data. They are typically only collected from one well per sampling event. The duplicate is assigned an identification number that will not associate it with the source well.

Generally, trip blanks and field blanks check field handling and transportation procedures. Duplicates check laboratory procedures. The configuration of QC samples is determined by CGI depending on site conditions and regulatory requirements.