

VIA CERTIFIED MAIL
Return Receipt Requested

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March 10, 1997

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

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:

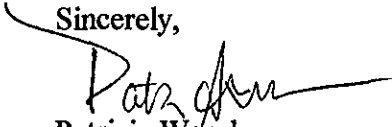
Attached for your files is a copy of the Quarterly Groundwater Monitoring Report for the Hertz property at the International Airport in Oakland, California. The report presents groundwater monitoring and sampling data for the first quarter 1996.

In accordance with a July 11, 1996 letter from the Alameda County Environmental Health Services (EHS), monitoring wells MW-4, MW-5, MW-6, MW-7 and MW-9 were sampled and gauged by Clearwater Group, Inc. The results of sampling, conducted on February 14, September 17, 1997, are discussed in the report.

As requested by the EHS, the chromatograms for the diesel fuel analysis are included in the analytical reports. Please note the groundwater sample with the highest concentration of diesel fuel was collected from MW-5, which is closest to the diesel fuel tanks owned by the Federal Aviation Administration and the Port of Oakland. In your July 11, 1996 letter to Hertz you stated that if there is evidence of a diesel release from the offsite diesel tanks, monitoring for this parameter may be suspended. Accordingly, I respectfully request that EHS exclude TPHd as a sampling parameter.

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

Sincerely,


Patricia Woods
Project Manager
Environmental Affairs

cc: file



QUARTERLY GROUNDWATER MONITORING REPORT
FIRST QUARTER 1997
Hertz Service Center, 1 Airport Drive, Oakland, California
March 6, 1997

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, 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 (FIRST QUARTER, 1997)

Date of groundwater sampling:	February 14, 1997
Wells gauged:	MW-1 through MW-7 and MW-9
Wells purged and sampled:	MW-4, MW-5, MW-6, MW-7, and MW-9
Analytes tested:	TPHd, TPHg, BTEX, MTBE
Laboratory:	American Environmental Network (Pleasant Hill, CA)

GROUNDWATER MONITORING AND SAMPLING RESULTS

Depth to groundwater:	2.65 to 4.16 feet below top of casing
Flow direction:	Southwest
TPHd concentration range:	130 µg/l (MW-9) to 860 µg/l (MW-5)
TPHg concentration range:	<50 µg/l (MW-7 and MW-9) to 19,000 µg/l (MW-4)
Benzene concentration range:	<0.5 µg/l (MW-7 and MW-9) to 3,300 µg/l (MW-4)
MTBE concentration range:	<5 µg/l (MW-7 and MW-9) to 150 µg/l (MW-4)

PROJECT STATUS

Chromatograms indicate that samples contained weathered diesel or a light oil; water levels and groundwater samples cannot be collected from MW-8 because apparently the well has been paved over.

APPENDIX

- Site Location Map (Figure 1)
- Site Plan (Figure 2)
- Groundwater Contour Map - 2/14/97 (Figure 3)
- Hydrocarbon Distribution Map - 2/14/97 (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

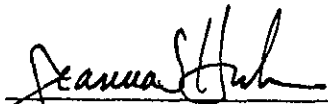
This report was prepared under the supervision of a professional registered geologist at Clearwater Group, Inc. All statements, conclusions, and recommendations are based solely upon field observations by Clearwater Group, Inc. and analyses performed by a State-certified laboratory related to the work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

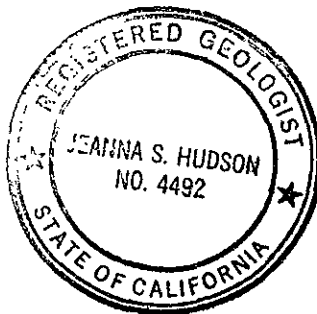
The service performed by Clearwater Group, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

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:



Jeanna S. Hudson, R.G.
Senior Geologist



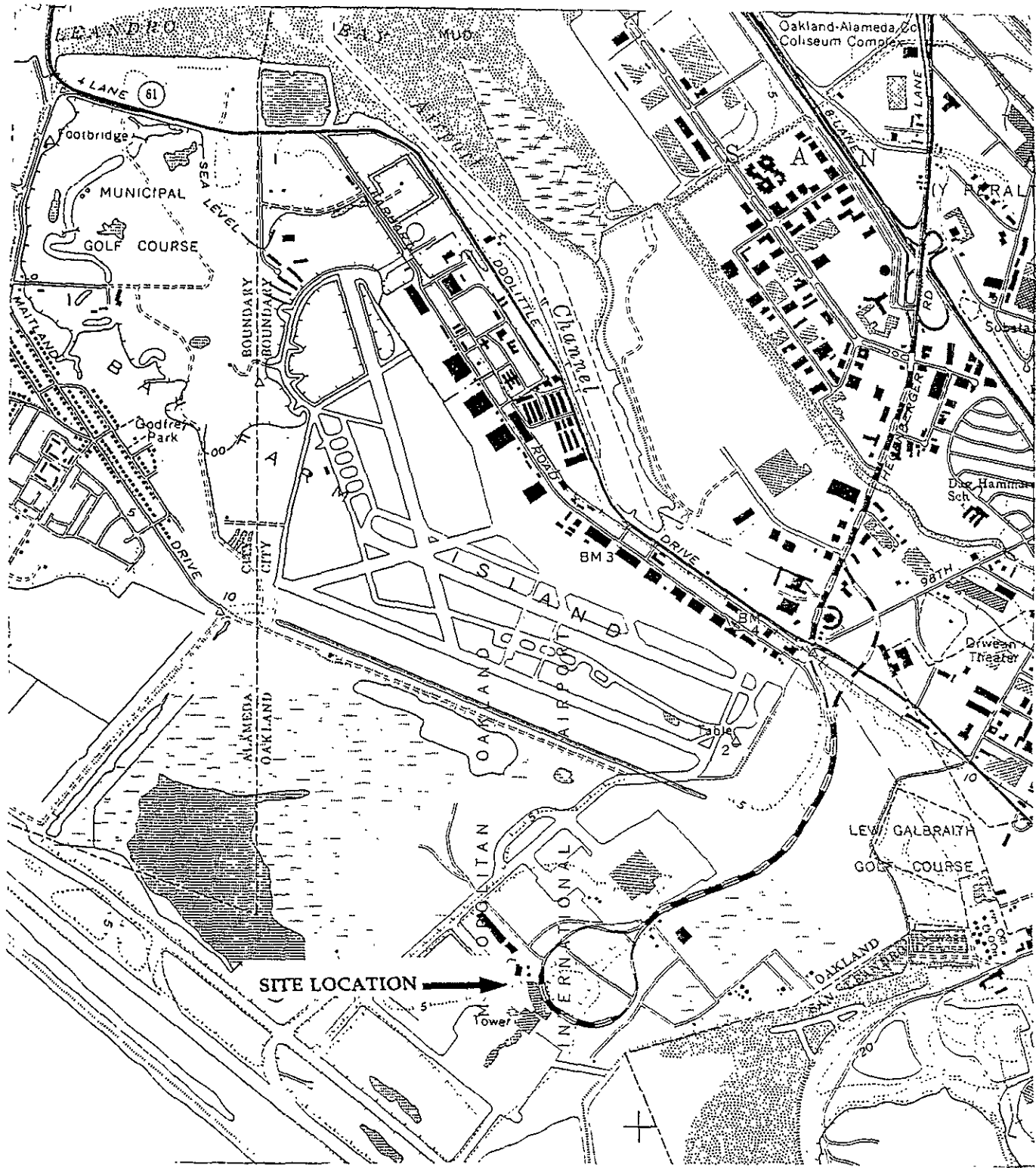
Reviewed by:



Brian Gwinn, R.G.
Senior Geologist



APPENDIX



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

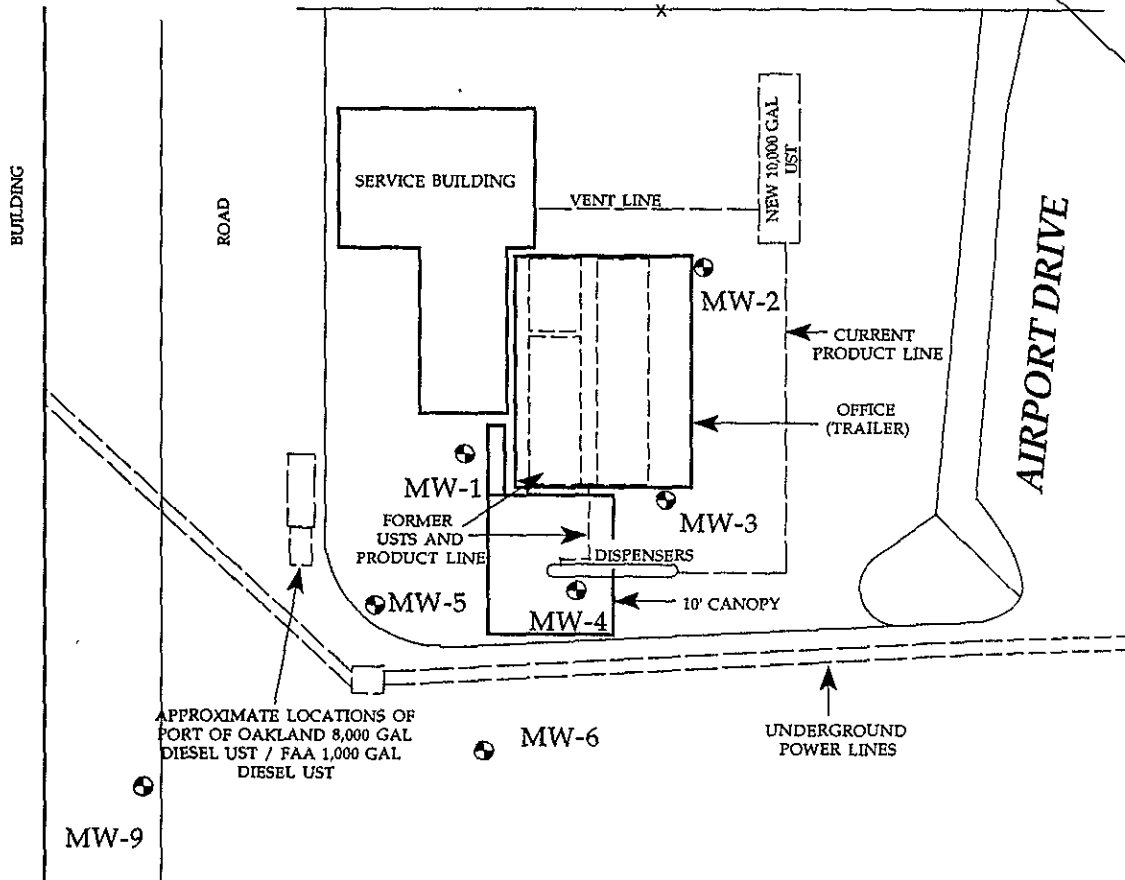
CLEARWATER GROUP, INC.

Project No.
 C-156

Figure Date
 10/96

Figure
 1

ALAN SHEPARD WAY



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

PARKING LOT

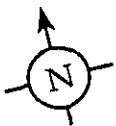
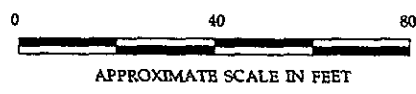
MW-8

MW-7

LOADING AREA

PLANTER

BUILDING



EXPLANATION	
	GROUNDWATER MONITORING WELL
	FENCELINE

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

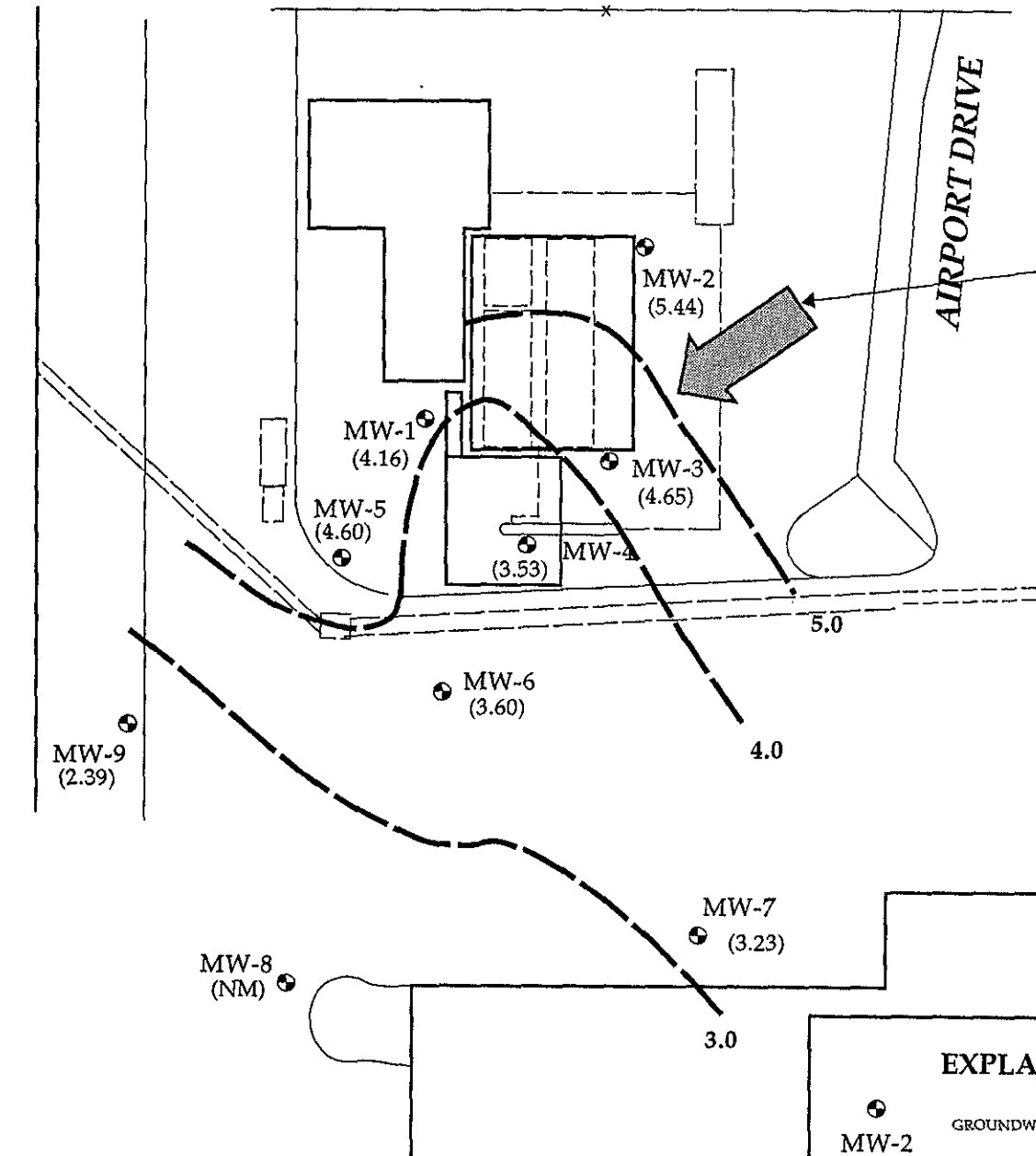
SITE PLAN
Hertz Service Center,
1 Airport Drive,
Oakland, California

CLEARWATER GROUP, INC.		
Project No. C-156	Figure Date 10/96	Figure 2

ALAN SHEPARD WAY

AIRPORT DRIVE

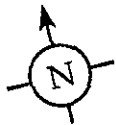
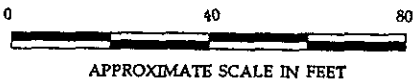
GENERALIZED DIRECTION OF GROUNDWATER FLOW



EXPLANATION

- ⊕ GROUNDWATER MONITORING WELL
- MW-2 GROUNDWATER ELEVATION (IN FEET) - REFERENCED TO MEAN SEA LEVEL
- (2.41)
- NM GROUNDWATER ELEVATION NOT MEASURED
- 4.0 - - - GROUNDWATER ELEVATION CONTOUR - CONTOUR INTERVAL 1.0 FEET

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



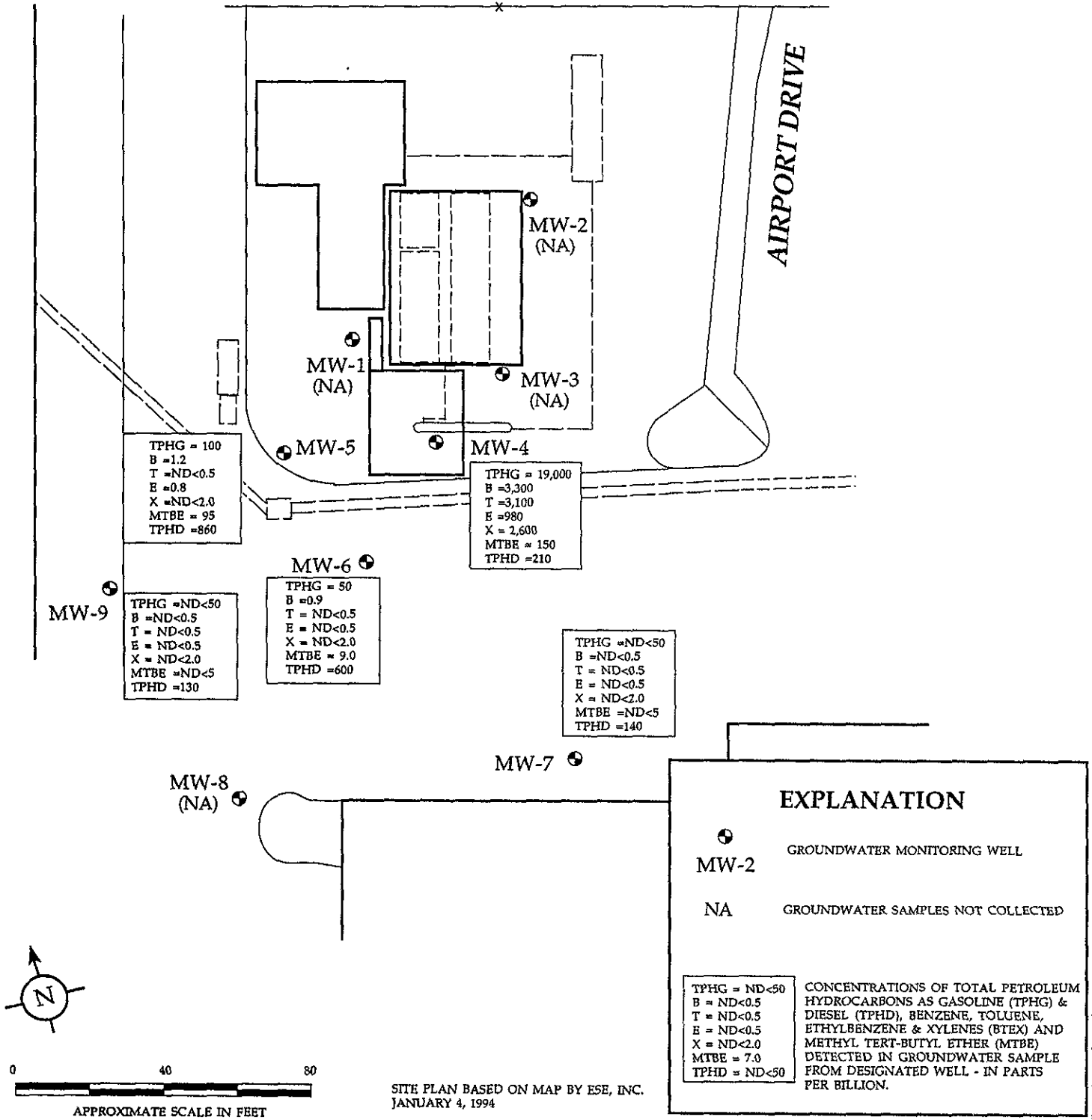
GROUNDWATER CONTOUR MAP- 2/14/97
Hertz Service Center,
1 Airport Drive,
Oakland, California

CLEARWATER GROUP, INC.

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

AIRPORT DRIVE



TPHG = 100
B = 1.2
T = ND<0.5
E = 0.8
X = ND<2.0
MTBE = 95
TPHD = 860

TPHG = 19,000
B = 3,300
T = 3,100
E = 980
X = 2,600
MTBE = 150
TPHD = 210

TPHG = 50
B = 0.9
T = ND<0.5
E = ND<0.5
X = ND<2.0
MTBE = 9.0
TPHD = 600

TPHG = ND<50
B = ND<0.5
T = ND<0.5
E = ND<0.5
X = ND<2.0
MTBE = ND<5
TPHD = 130

TPHG = ND<50
B = ND<0.5
T = ND<0.5
E = ND<0.5
X = ND<2.0
MTBE = ND<5
TPHD = 140

MW-9

MW-6

MW-7

MW-8 (NA)

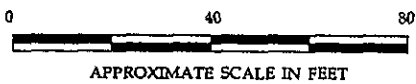
MW-1 (NA)

MW-3 (NA)

MW-2 (NA)

MW-5

MW-4



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

HYDROCARBON DISTRIBUTION MAP

2/14/97

Hertz Service Center,
1 Airport Drive,
Oakland, California

CLEARWATER GROUP, INC.

Project No. C-156	Figure Date 3/97	Figure 4
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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	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	
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	--	--
	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

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	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	--	--	--	--	--	--	--
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	
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
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
	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
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

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-7	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
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	--	--	--	--	--	--	--	--	--
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

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 ter butyl ether using EPA Method 8020 (modified)
- ppb Parts per billion (micrograms per liter)
- 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.

WELL GAUGING DATA/PURGE CALCULATIONS

Job No.: C-156 Location: Hertz, Oakland Airport Date: 2-14-97 Tech(s): IRA

WELL NO.	DIAM (in)	DTB (ft)	DTW (ft)	ST (ft)	CV (gal)	PV (gal)	SPL (ft)	NOTES
MW-1	2		3.29					
2			2.65					
3			3.01					
4		8.04	3.58	4.46	0.871	2.2		
5		11.04	3.16	7.88	1.26	3.8		
6		11.60	3.57	8.03	1.29	3.9		
7		10.20	3.70	6.50	1.04	3.2		
9		10.51	4.16	6.35	1.02	3.1		

Explanation:
 DIAM = Well Diameter
 DTB = Depth to Bottom
 DTW = Depth to Water
 ST = Saturated Thickness (DTB-DTW)
 CV = Casing Volume (ST x cf)
 PV = Purge Volume (standard 3 x CV, well development 10 x CV)
 SPL = Thickness of Separate Phase Liquid

Conversion Factors (cf)
 2 inch diameter well cf = 0.16 gal/ft
 4 inch diameter well cf = 0.65 gal/ft
 6 inch diameter well cf = 1.44 gal/ft

CLEARWATER GROUP, INC.
 520 Third St., Ste. 104
 Oakland, California 94607
 Phone: (510) 893-5160
 Fax: (510) 893-5947

WELL PURGING DATA

SHEET 1 OF 2

Job No.: C-156 Location: Hertz, Oakland Airport Date: 2-14-97 Tech: RA

WELL No.	TIME	VOLUME (gal)	TEMP. (deg. ^c)	COND. (mS/cm)	pH	Sample time: 1450 Sample for: (circle)
MW-9	1232	0	20.0	0.495	7.32	(TPHg) (TPHd)
Calc. purge volume		1	19.8	0.480	7.22	(BTEX) 8010
		2	19.8	0.471	7.18	Other:
3.1	1242	3 1/2	19.7	0.468	7.16	Sampling Method:
Well dry @ 3 gal purged						Dedicated / (Disposable bailer)
COMMENTS: color, turbidity, recharge, etc.						Purging Method:
tan, high (fine sand), poor - 1/2 in						(PVC bailer) / Pump

WELL No.	TIME	VOLUME (gal)	TEMP. (deg. ^c)	COND. (mS/cm)	pH	Sample time: 1508 Sample for: (circle)
MW-7	1300	0	18.7	1.188	7.19	(TPHg) (TPHd)
Calc. purge volume		1	17.5	1.203	7.10	(BTEX) 8010
		2	16.9	1.355	7.11	Other:
3.2	1310	3 1/2	16.6	1.288	7.05	Sampling Method:
						Dedicated / (Disposable bailer)
COMMENTS: color, turbidity, recharge, etc.						Purging Method:
tan, moderate, fair						(PVC bailer) / Pump

WELL No.	TIME	VOLUME (gal)	TEMP. (deg. ^c)	COND. (mS/cm)	pH	Sample time: 1520 Sample for: (circle)
MW-5	1324	0	17.7	0.465	7.49	(TPHg) (TPHd)
Calc. purge volume		1 1/2	18.0	0.600	7.27	(BTEX) 8010
		3	18.1	1.596	7.20	Other:
3.8	1332	4	18.0	2.000	7.21	Sampling Method:
						Dedicated / (Disposable bailer)
COMMENTS: color, turbidity, recharge, etc.						Purging Method:
tan, moderate, fair						(PVC bailer) / Pump

WELL PURGING DATA

SHEET 2 OF 2

Job No.: C-156 Location: Hertz, Oakland Airport Date: 2-14-97 Tech: RA

WELL No.	TIME	VOLUME (gal)	TEMP. (deg. ^c)	COND. (mS/cm)	pH	Sample time: 1530 Sample for: (circle)
MW-6	1345	0	19.0	3.790	—	TPHg TPHd
Calc. purge volume		1 1/2	18.6	3.250	—	BTEX 8010
		3	18.1	4.120	—	Other:
3.9	1356	4 1/2	18.2	3.880	—	Sampling Method: Dedicated / Disposable bailer
COMMENTS: color, turbidity, recharge, etc.						Purging Method:
light green-grey moderate, fair-good						PVC bailer / Pump

WELL No.	TIME	VOLUME (gal)	TEMP. (deg. ^c)	COND. (mS/cm)	pH	Sample time: 1540 Sample for: (circle)
MW-4	1408	0	17.9	2.590	—	TPHg TPHd
Calc. purge volume		1	17.6	2.800	—	BTEX 8010
		1 1/2	17.4	2.720	—	Other:
2.2					—	Sampling Method: Dedicated / Disposable bailer
dry @ 1 1/2 gal purged						Purging Method:
COMMENTS: color, turbidity, recharge, etc.						PVC bailer / Pump
dark grey, low-mach, poor						

WELL No.	TIME	VOLUME (gal)	TEMP. (deg. F.)	COND. (mS/cm)	pH	Sample time: Sample for: (circle)
						TPHg TPHd
Calc. purge volume						BTEX 8010
						Other:
						Sampling Method: Dedicated / Disposable bailer
COMMENTS: color, turbidity, recharge, etc.						Purging Method:
						PVC bailer / Pump

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

RECEIVED MAR 03 1997

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

P.O. NUMBER: C-156

REPORT DATE: 02/28/97

DATE(S) SAMPLED: 02/14/97

DATE RECEIVED: 02/14/97

AEN WORK ORDER: 9702172

PROJECT SUMMARY:

On February 14, 1997, this laboratory received 5 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

RECEIVED MAR 03 1997

CLEARWATER GROUP, INC.

SAMPLE ID: MW-4
 AEN LAB NO: 9702172-01
 AEN WORK ORDER: 9702172
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 02/14/97
 DATE RECEIVED: 02/14/97
 REPORT DATE: 02/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	3,300 *	5	ug/L	02/25/97
Toluene	108-88-3	3,100 *	5	ug/L	02/25/97
Ethylbenzene	100-41-4	980 *	5	ug/L	02/25/97
Xylenes, Total	1330-20-7	2,600 *	20	ug/L	02/25/97
Purgeable HCs as Gasoline	5030/GCFID	19 *	0.5	mg/L	02/25/97
Methyl t-Butyl Ether	1634-04-4	150 *	50	ug/L	02/25/97
#Extraction for TPH	EPA 3510	-		Extrn Date	02/20/97
TPH as Diesel	GC-FID	0.21 *	0.05	mg/L	02/22/97

RLs elevated for gas/BTEX/MTBE due to high levels of target compounds; sample run dilute. MTBE included in gasoline result. See page 7 for further comments.

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

CLEARWATER GROUP, INC.

SAMPLE ID: MW-5
 AEN LAB NO: 9702172-02
 AEN WORK ORDER: 9702172
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 02/14/97
 DATE RECEIVED: 02/14/97
 REPORT DATE: 02/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1.2 *	0.5	ug/L	02/25/97
Toluene	108-88-3	ND	0.5	ug/L	02/25/97
Ethylbenzene	100-41-4	0.8 *	0.5	ug/L	02/25/97
Xylenes, Total	1330-20-7	ND	2	ug/L	02/25/97
Purgeable HCs as Gasoline	5030/GCFID	0.10 *	0.05	mg/L	02/25/97
Methyl t-Butyl Ether	1634-04-4	95 *	5	ug/L	02/25/97
#Extraction for TPH	EPA 3510	-		Extrn Date	02/20/97
TPH as Diesel	GC-FID	0.86 *	0.05	mg/L	02/22/97

See page 7 for comments pertaining to this sample.

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: 9702172-03
 AEN WORK ORDER: 9702172
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 02/14/97
 DATE RECEIVED: 02/14/97
 REPORT DATE: 02/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.9 *	0.5 ug/L		02/26/97
Toluene	108-88-3	ND	0.5 ug/L		02/26/97
Ethylbenzene	100-41-4	ND	0.5 ug/L		02/26/97
Xylenes, Total	1330-20-7	ND	2 ug/L		02/26/97
Purgeable HCs as Gasoline	5030/GCFID	0.05 *	0.05 mg/L		02/26/97
Methyl t-Butyl Ether	1634-04-4	9 *	5 ug/L		02/26/97
#Extraction for TPH	EPA 3510	-		Extrn Date	02/20/97
TPH as Diesel	GC-FID	0.60 *	0.05 mg/L		02/22/97

See page 7 for comments pertaining to this sample.

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

CLEARWATER GROUP, INC.

SAMPLE ID: MW-7
 AEN LAB NO: 9702172-04
 AEN WORK ORDER: 9702172
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 02/14/97
 DATE RECEIVED: 02/14/97
 REPORT DATE: 02/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	02/27/97
Toluene	108-88-3	ND	0.5	ug/L	02/27/97
Ethylbenzene	100-41-4	ND	0.5	ug/L	02/27/97
Xylenes, Total	1330-20-7	ND	2	ug/L	02/27/97
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	02/27/97
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	02/27/97
#Extraction for TPH	EPA 3510	-		Extrn Date	02/20/97
TPH as Diesel	GC-FID	0.14 *	0.05	mg/L	02/22/97

See page 7 for comments pertaining to this sample.

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: 9702172-05
 AEN WORK ORDER: 9702172
 CLIENT PROJ. ID: C-156

DATE SAMPLED: 02/14/97
 DATE RECEIVED: 02/14/97
 REPORT DATE: 02/28/97

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	02/25/97
Toluene	108-88-3	ND	0.5	ug/L	02/25/97
Ethylbenzene	100-41-4	ND	0.5	ug/L	02/25/97
Xylenes, Total	1330-20-7	ND	2	ug/L	02/25/97
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	02/25/97
Methyl t-Butyl Ether	1634-04-4	ND	5	ug/L	02/25/97
#Extraction for TPH	EPA 3510	-		Extrn Date	02/27/97
TPH as Diesel	GC-FID	0.13 *	0.05	mg/L	02/22/97

See page 7 for comments pertaining to this sample.

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9702172

CLIENT PROJECT ID: C-156

Quality Control Summary

Samples appear to contain very weathered diesel or a light oil (by 3510 GCFID analysis).

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

Definitions

Laboratory Control Sample (LCS)/Method Spike(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 analysis.

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 behavior, 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 instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9702172
 DATE EXTRACTED: 02/20/97
 INSTRUMENT: C
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			n-Pentacosane	
02/22/97	MW-4	01	83	
02/22/97	MW-5	02	84	
02/22/97	MW-6	03	76	
02/22/97	MW-7	04	78	
02/22/97	MW-9	05	73	
QC Limits:			65-125	

DATE EXTRACTED: 02/19/97
 DATE ANALYZED: 02/21/97
 SAMPLE SPIKED: 9702089-02
 INSTRUMENT: C

Matrix Spike Recovery Summary

Analyte	Spike Added (mg/L)	Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	4.00	95	4	60-110	15

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

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9702172
 INSTRUMENT: F, H
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
02/25/97	MW-4	01	108
02/25/97	MW-5	02	98
02/26/97	MW-6	03	96
02/27/97	MW-7	04	98
02/25/97	MW-9	05	98
QC Limits:			70-130

DATE ANALYZED: 02/26/97
 SAMPLE SPIKED: 9702172-05
 INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	21.9	91	12	85-109	17
Toluene	74.2	95	4	87-111	16
Hydrocarbons as Gasoline	500	111	1	66-117	19

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

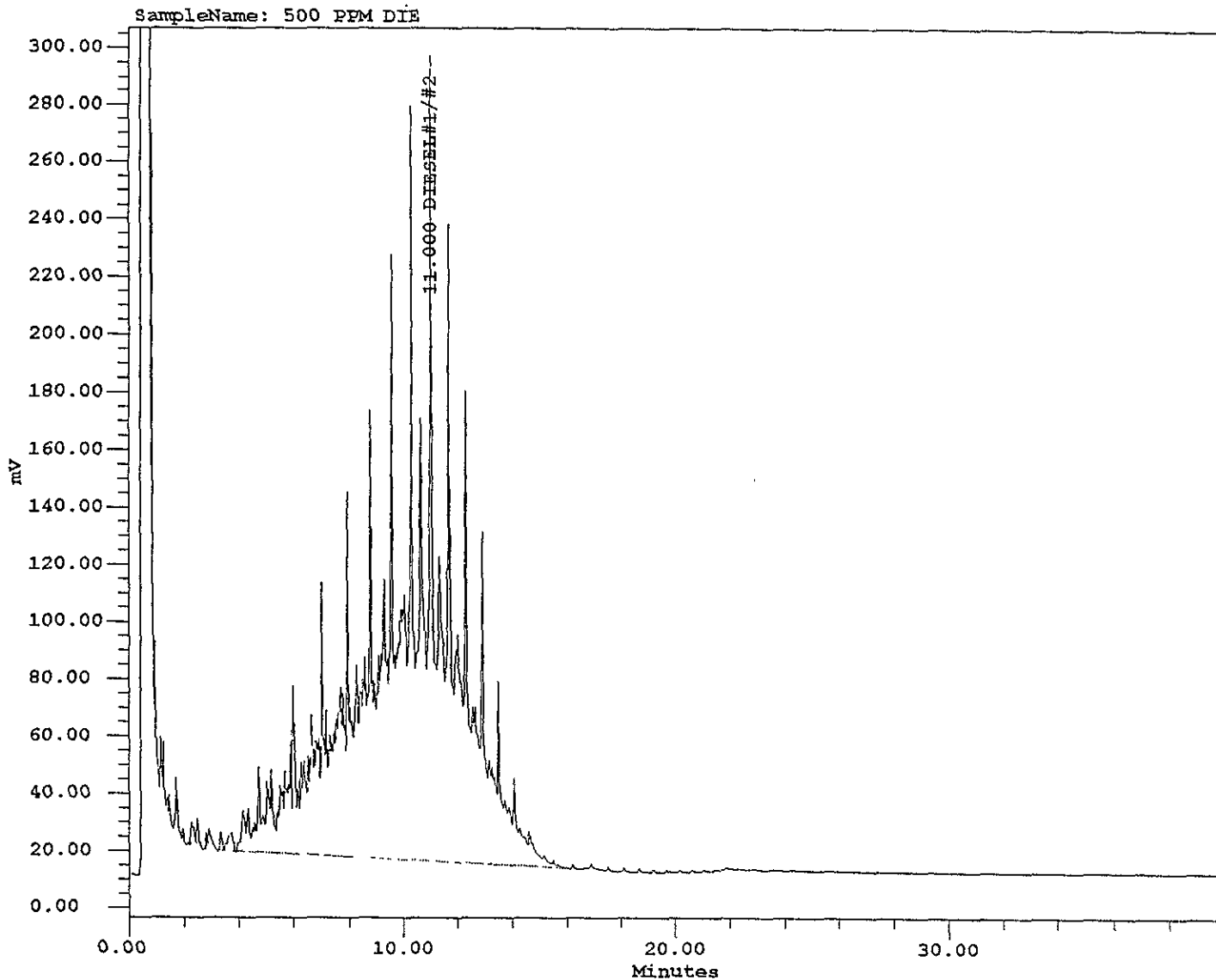
*** END OF REPORT ***

EXTRACTABLE HYDROCARBONS

SampleName: 500 PPM DIE *98V*
 Date Acquired: 02/22/97 02:00:51 PM
 Date Processed: 02/23/97 11:02:42 AM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSCC Limit: 85-115% Expected Value, (15% Deviation)

Std

System: GC CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1,15m,0.53mm ID,0.5um FT
 Dilution: 100.00000
 SampleWeight: 500.00000
 Vial: 2



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-5)	Inst Con(ppm)	Spl Con (ppm)
1	DIESEL#1/#2	11.000	31862475	1.5580	496.417	99.283

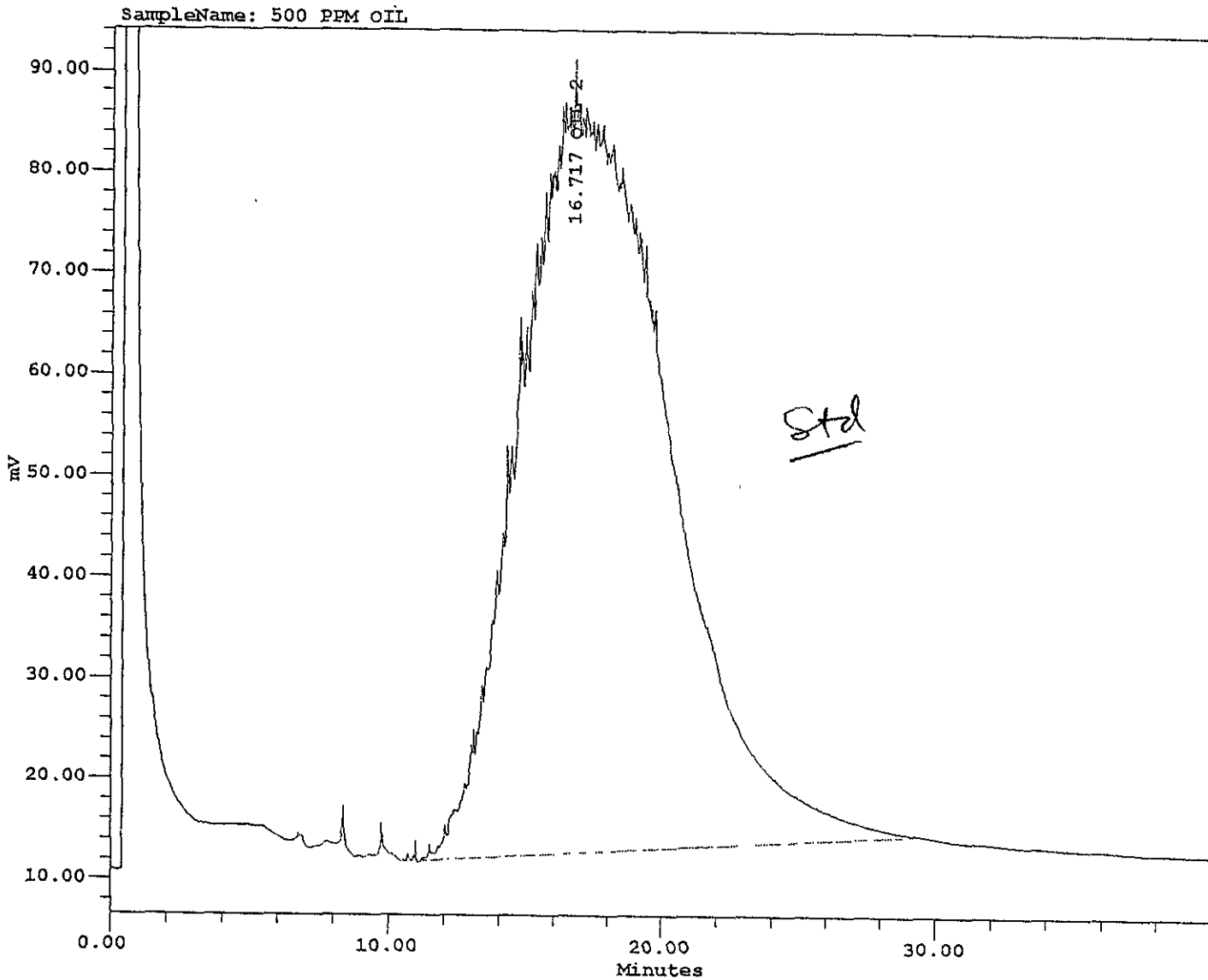
Table 'Surrogate Recovery' contains no data.

500ppm diesel standard

EXTRACTABLE HYDROCARBONS

SampleName: 500 PPM OIL
 Date Acquired: 02/22/97 02:58:57 PM
 Date Processed: 02/23/97 11:02:53 AM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSC Limit: 85-115% Expected Value, (15% Deviation)

System: GC_CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1, 15m, 0.53mm ID, 0.5um FT
 Dilution: 100.00000
 SampleWeight: 500.00000
 Vial: 3



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-5)	Inst Con(ppm)	Spl Con (ppm)
1	OIL 2	16.717	28858812	1.8040	520.613	104.123

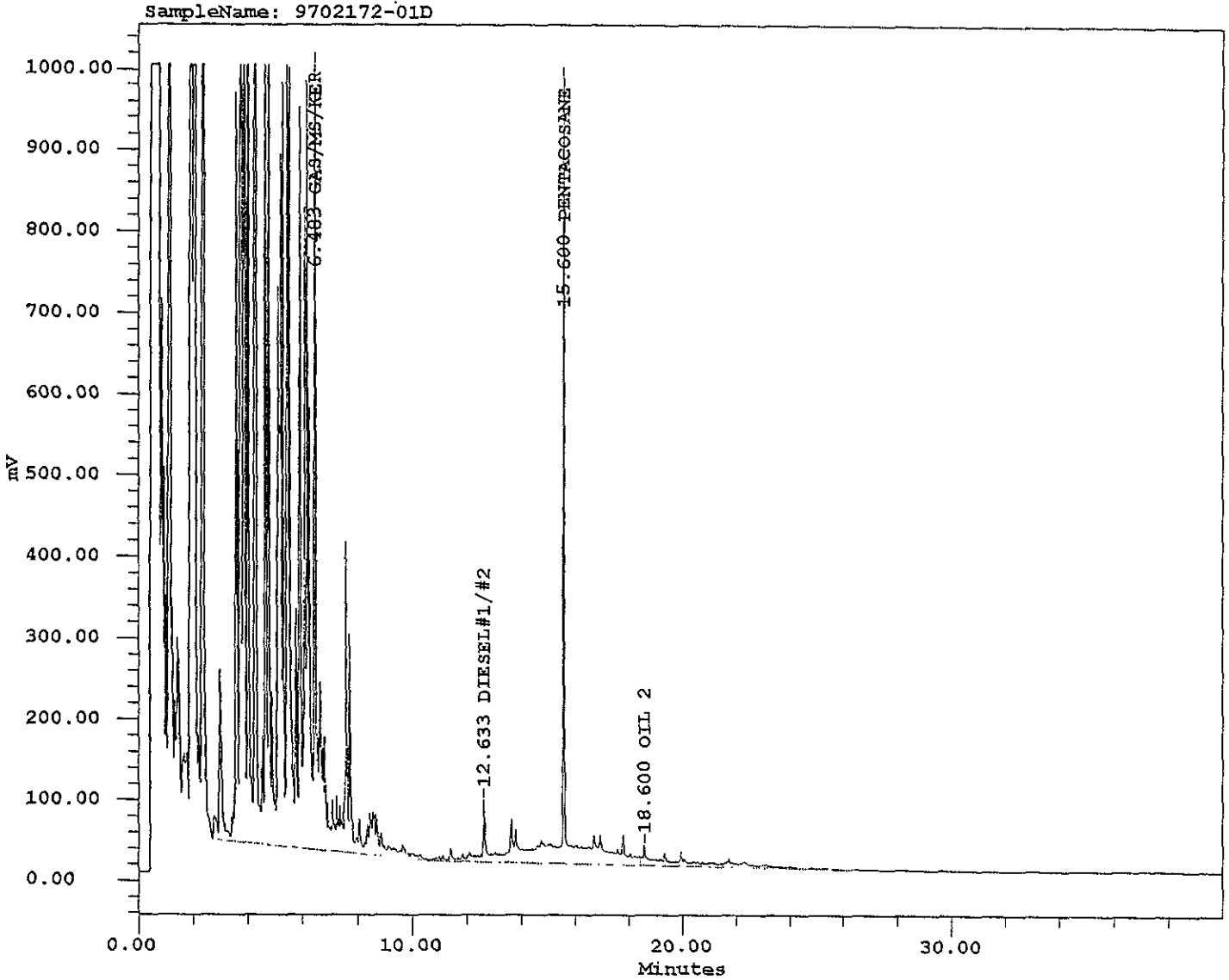
Table 'Surrogate Recovery' contains no data.

500 ppm oil
 standard

EXTRACTABLE HYDROCARBONS

SampleName: 9702172-01D
 Date Acquired: 02/22/97 03:57:23 PM
 Date Processed: 02/23/97 11:04:27 AM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSC Limit: 85-115% Expected Value, (15% Deviation)

System: GC CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1,15m,0.53mm ID,0.5um FT
 Dilution: 2.00000
 SampleWeight: 1026.00000
 Vial: 4



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-5)	Inst Con(ppm)	Spl Con (ppm)
1	GAS/MS/KER	6.483	79732582	1.5580	1242.234	2.422
2	DIESEL#1/#2	12.633	6907809	1.5580	107.624	0.210
3	PENTACOSANE	15.600	2619147	1.5810	41.409	0.081
4	OIL 2	18.600	1609973	1.8040	29.044	0.057

Surrogate Recovery

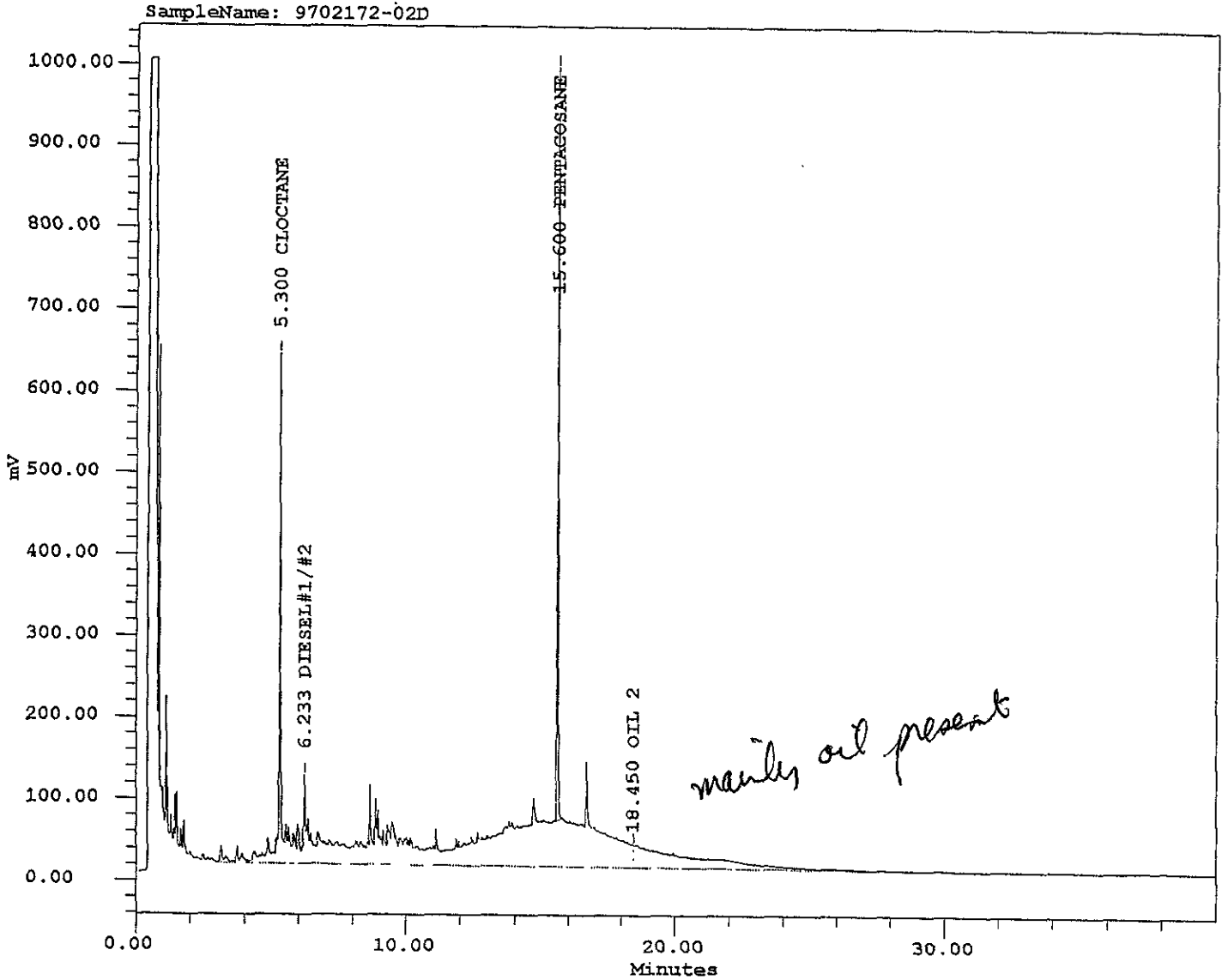
#	Name	%REC
1	S	82.8

sample
NW-4

EXTRACTABLE HYDROCARBONS

SampleName: 9702172-02D
 Date Acquired: 02/22/97 04:55:47 PM
 Date Processed: 02/26/97 04:40:59 PM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSCC Limit: 85-115% Expected Value, (15% Deviation)

System: GC_CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1,15m,0.53mm ID,0.5um FT
 Dilution: 2.00000
 SampleWeight: 1042.00000
 Vial: 5



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-5)	Inst Con(ppm)	Spl Con (ppm)
1	OIL 2	18.450	4227601	1.8040	76.266	0.146
2		16.683	317869			
3	CLOCTANE	5.300	1743963	2.4160	42.134	0.081
4	DIESEL#1/#2	6.233	28842326	1.5580	449.363	0.863
5	PENTACOSANE	15.600	2639856	1.5810	41.736	0.080

Surrogate Recovery

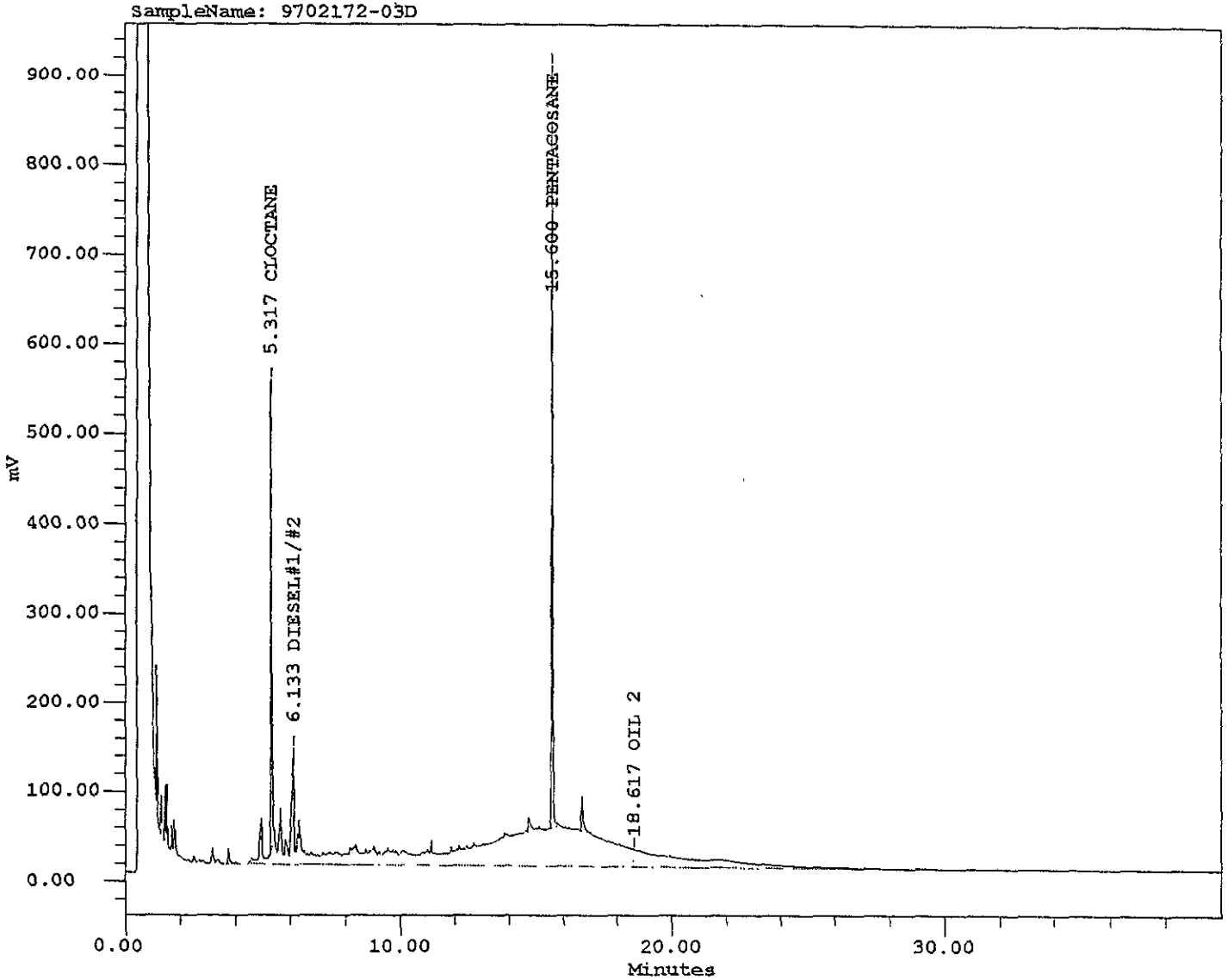
#	Name	%REC
1	S	83.5

sample
MH-5

EXTRACTABLE HYDROCARBONS

SampleName: 9702172-03D
 Date Acquired: 02/22/97 05:54:05 PM
 Date Processed: 02/26/97 10:50:13 AM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSCC Limit: 85-115% Expected Value, (15% Deviation)

System: GC CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1,15m,0.53mm ID,0.5um FT
 Dilution: 2.00000
 SampleWeight: 1034.00000
 Vial: 6



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-5)	Inst Con (ppm)	Spl Con (ppm)
1	CLOCTANE	5.317	1593120	2.4160	38.490	0.074
2	DIESEL#1/#2	6.133	19954699	1.5580	310.894	0.601
3	PENTACOSANE	15.600	2404295	1.5810	38.012	0.074
4		16.700	163756			
5	OIL 2	18.617	3120856	1.8040	56.300	0.109

Surrogate Recovery

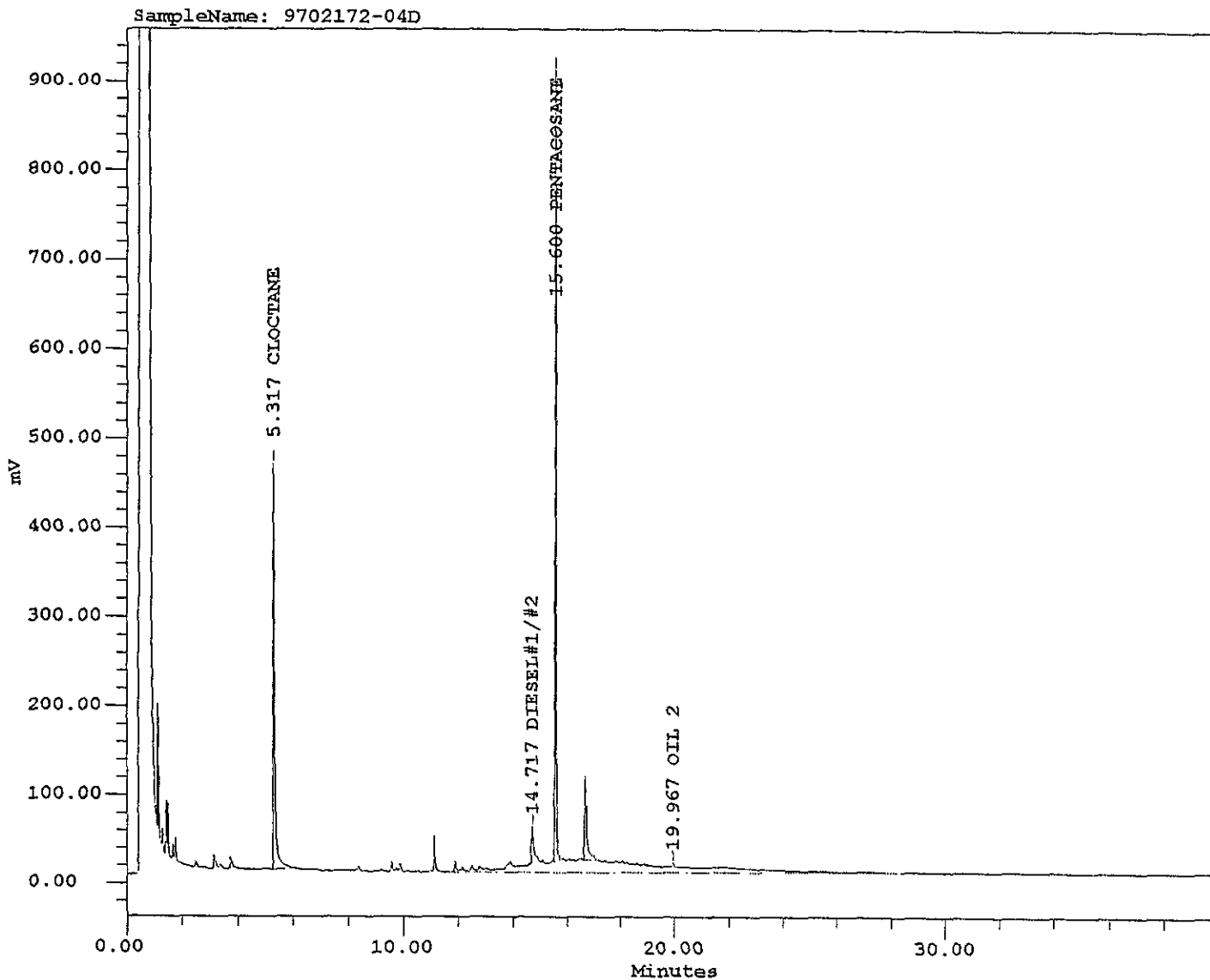
#	Name	%REC
1	S	76.0

sample
MW-6

EXTRACTABLE HYDROCARBONS

SampleName: 9702172-04D
 Date Acquired: 02/22/97 06:51:58 PM
 Date Processed: 02/26/97 04:36:17 PM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSCC Limit: 85-115% Expected Value, (15% Deviation)

System: GC_CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1,15m,0.53mm ID,0.5um FT
 Dilution: 2.00000
 SampleWeight: 1040.00000
 Vial: 7



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-5)	Inst Con(ppm)	Spl Con (ppm)
1	CLOCTANE	5.317	1658477	2.4160	40.069	0.077
2	DIESEL#1/#2	14.717	4505013	1.5580	70.188	0.135
3	PENTACOSANE	15.600	2466945	1.5810	39.002	0.075
4		16.700	523965			
5	OIL 2	19.967	1451672	1.8040	26.188	0.050

Surrogate Recovery

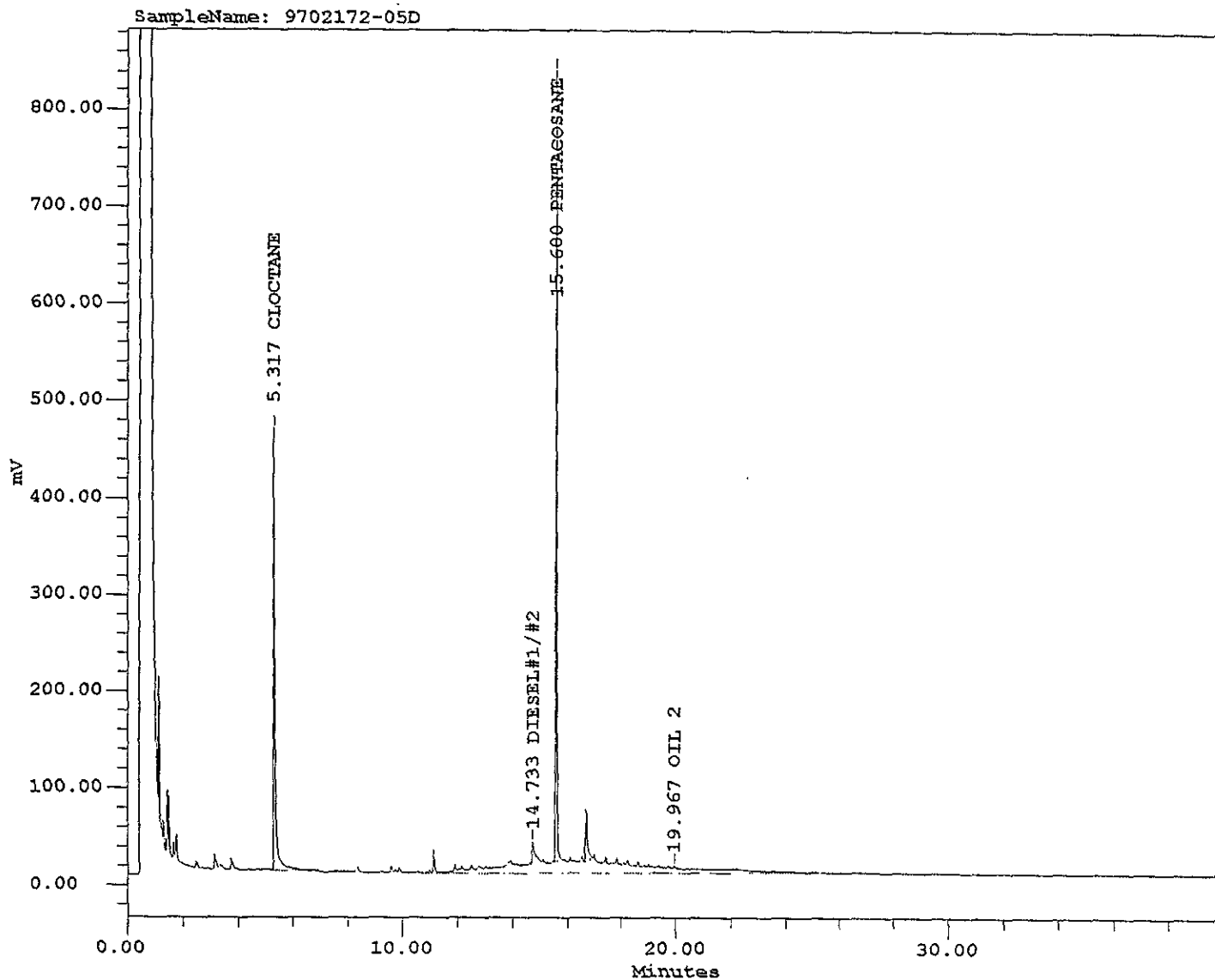
#	Name	%REC
1	S	78.0

sample
MH-7

EXTRACTABLE HYDROCARBONS

SampleName: 9702172-05D
 Date Acquired: 02/22/97 07:49:33 PM
 Date Processed: 02/26/97 04:38:46 PM
 Date Printed: February 26, 1997
 DIESEL CAL: 01/22/97 25-5000 PPM
 OIL CAL: 01/22/97 100-5,000PPM
 CCV and SSC Limit: 85-115% Expected Value, (15% Deviation)

System: GC_CB
 Processing Method: GC_CB_DIESEL
 Set Name: CB0222
 Column: RTX-1, 15m, 0.53mm ID, 0.5um FT
 Dilution: 2.00000
 SampleWeight: 1037.00000
 Vial: 8



Quant Report

#	Name	Ret Time (min)	Area (uV*sec)	CF(E-S)	Inst Con(ppm)	Spl Con (ppm)
1	CLOCTANE	5.317	1703969	2.4160	41.168	0.079
2	DIESEL#1/#2	14.733	4291393	1.5580	66.860	0.129
3	PENTACOSANE	15.600	2318601	1.5810	36.657	0.071
4		16.700	267525			
5	OIL 2	19.967	1015283	1.8040	18.316	0.035

Surrogate Recovery

#	Name	%REC
1	S	73.3

sample
MH-9

AEN Job No: 9702172

Client Project ID: C-156

Project Footnotes

The following footnotes apply to the indicated project samples and will appear on the final report (except as noted):

Client IDs	AEN IDs	Test	Footnotes
	1-5	3510 GC-FID	*

Footnotes

- 01: Reporting limits (RLs) elevated due to matrix interference.
- 02: RL(s) elevated for _____ due to hydrocarbon interference.
- 03: RL(s) elevated for _____ due to hydrocarbon interference in the _____ range.
- 04: RL(s) elevated due to high levels of target compounds. Sample(s) run at dilution.
- 05: RL(s) elevated due to high levels of non-target compounds. Sample(s) run at dilution.
- 06: RL(s) elevated for _____ due to background contamination.
- 07: Duplicate analysis showed surrogate recoveries outside of QC limits. Results are estimated concentrations.
- 08: Due to an apparent matrix effect, it was necessary to dilute sample(s) to achieve adequate surrogate recoveries. RL(s) have been adjusted accordingly.
- 09: Sample showed non-target compounds. (Will not appear on report unless requested by client).
- 10: Non-typical _____ pattern observed. (Will not appear on report unless requested by client).
- * SAMPLES APPEAR TO CONTAIN VERY WEATHERED DIESEL OR A LIGHT OIL

**:

The following information will not appear on the final report unless requested:

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

Revision: July 18, 1995

AEN Job No: 9702172

Client Project ID: C-156

Project Footnotes

The following footnotes apply to the indicated project samples and will appear on the final report (except as noted):

Client IDs	AEN IDs	Test	Footnotes
	1	Gas/BTEX	04, *

Footnotes

- 01: Reporting limits (RLs) elevated due to matrix interference.
- 02: RL(s) elevated for _____ due to hydrocarbon interference.
- 03: RL(s) elevated for _____ due to hydrocarbon interference in the _____ range.
- 04: RL(s) elevated due to high levels of target compounds. Sample(s) run at dilution.
- 05: RL(s) elevated due to high levels of non-target compounds. Sample(s) run at dilution.
- 06: RL(s) elevated for _____ due to background contamination.
- 07: Duplicate analysis showed surrogate recoveries outside of QC limits. Results are estimated concentrations.
- 08: Due to an apparent matrix effect, it was necessary to dilute sample(s) to achieve adequate surrogate recoveries. RL(s) have been adjusted accordingly.
- 09: Sample showed non-target compounds. (Will not appear on report unless requested by client).
- 10: Non-typical _____ pattern observed. (Will not appear on report unless requested by client).

* : Gasoline result includes MTBE.
 ** : _____

The following information will not appear on the final report unless requested:

If you have any questions, please contact Client Services at (310) 930-9090. Thank you!

Revision July 13, 1995

CLEARWATER GROUP, INC.
Groundwater Monitoring and Sampling Protocols

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.

CLEARWATER GROUP, INC.
Groundwater Monitoring and Sampling Protocols

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.