CAMBRIA

ST-0 454
RE

98 MAR -3 PM 1:44

February 28, 1998

Mr. Alex Perez
Shell Oil Products Company
P.O. Box 8080
Martinez, California 94553

Re: **Ground Water Monitoring Report - First Quarter 1998**
Former Shell Service Station
2703 Martin Luther King Jr. Way
Oakland, California 94612
WIC #204-5508-1701

Dear Mr. Perez:

This Quarterly Monitoring Report describes the recently completed activities associated with ground water monitoring and sampling at the referenced site (Plates 1 and 2). This report was prepared to meet quarterly reporting guidelines issued by the Regional Water Quality Control Board, San Francisco Bay Region and the Alameda County Health Care Services Agency.

Quarterly Monitoring & Sampling Summary

Ground water monitoring and well sampling for the first quarter of 1998 are summarized below:

- Blaine Tech Services, Inc. (Blaine) of San Jose, California measured water levels and collected ground water samples from Wells MW-1, MW-2, V-1, and V-2 January 9, 1998. Ground water samples were transported to Sequoia Analytical of Redwood City, California for laboratory analysis.

- Cambria Environmental Technology, Inc. (Cambria) evaluated water-level measurement data and prepared a ground water contour/chemical concentration map (Plate 2). Ground water flow direction is approximately southerly at an approximate hydraulic gradient of 0.02.

- Well MW-1 was ND for TPPH, BTEX, and MTBE. Well MW-2 was ND for TPPH and BTEX but had 6.3 ppb MTBE. Wells V-1 and V-2 contained 23,000 ppb and 40,000 ppb TPPH and 2,400 ppb and 4,100 ppb benzene, respectively. MTBE was detected in Wells V-1 and V-2 at concentrations of 310 ppb and 280 ppb, respectively.

CAMBRIA
ENVIRONMENTAL
TECHNOLOGY, INC.
270 PERKINS STREET,
P.O. BOX 259
SONOMA,
CA 95476
PH: (707) 935-4850
FAX: (707) 935-6649

Quarterly Sampling

Monitoring Wells MW-1, MW-2, V-1, and V-2 were sampled and analyzed for Total Purgeable Petroleum Hydrocarbons quantitated as gasoline (TPPH) according to EPA Method 8015 (Modified), and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl-tertiary-butyl-ether (MTBE) according to EPA Method 8020. Additionally, a duplicate sample was prepared and analyzed for quality control purposes.

Field monitoring and chemical analytical data have been included in Table 1. Blaine's ground water monitoring report is presented in Appendix A.

If you have any questions regarding the contents of this document, please call.

Sincerely,
Cambria Environmental Technology, Inc.

Michael D. Prinz
Staff Engineer

Diane M. Lundquist, P.E.
Senior Engineer
C46725

Attachments:

Table 1. Well Concentrations

Plate 1. Vicinity Map
Plate 2. Ground Water Contour Map/Chemical Concentration Map

Appendix A

Blaine Tech Services Inc. - Ground Water Monitoring Report

cc: Mr. Tom Peacock, Alameda County Health Care Services Agency

TABLE 1

WELL CONCENTRATIONS
Shell Oil Products Company
2703 Martin Luther King Jr. Way
Oakland, California
WIC #204-5508-1701

Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
MW-1 (B-11)		**Top casing elevation (ft): 23.53**								
02-Aug-96	NA	NA	NA	NA	NA	NA	NA	NA	NA	
05-Aug-96	8.76	14.77	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
17-Oct-96	9.88	13.65	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
08-Jan-97	6.82	16.71	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
07-Apr-97	7.89	15.64	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Jul-97	8.71	14.82	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
24-Oct-97	9.26	14.27	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
09-Jan-98	7.94	15.59	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-1 (DUP)										
05-Aug-96	NA	NA	NA	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
MW-2 (B-12)		**Top casing elevation (ft): 22.47**								
17-Jul-96	NA	NA	NA	<50	<0.50	0.69	<0.50	<0.50	<2.5	Water sample from Boring
05-Aug-96	8.35	14.12	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
17-Oct-96	9.32	13.15	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
08-Jan-97	6.80	15.67	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
07-Apr-97	7.81	14.66	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
02-Jul-97	8.27	14.20	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
24-Oct-97	9.12	13.35	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
09-Jan-98	7.41	15.06	0.00	<50	<0.50	<0.50	<0.50	<0.50	6.3	

TABLE 1

WELL CONCENTRATIONS
Shell Oil Products Company
2703 Martin Luther King Jr. Way
Oakland, California
WIC #204-5508-1701

Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
MW-2 (DUP)		**Top casing elevation (ft): 22.47**								
17-Oct-96	NA	NA	NA	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
08-Jan-97	NA	NA	NA	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
B-10		**Top casing elevation (ft): NA**								
17-Jul-96	NA	NA	NA	20000	400	<100	<100	870	<500	Water sample from Boring
B-13		**Top casing elevation (ft): NA**								
17-Jul-96	NA	NA	NA	290000	34000	21000	9900	47000	<2500	Water sample from Boring
V-1		**Top casing elevation (ft): 23.26**								
02-Aug-96	NA	NA	NA	NA	NA	NA	NA	NA	NA	
05-Aug-96	8.58	14.68	0.00	NA	NA	NA	NA	NA	NA	
17-Oct-96	10.02	13.24	0.00	NA	NA	NA	NA	NA	NA	
16-Jan-97	5.55	17.71	0.00	9500	1200	250	280	880	<50	
07-Apr-97	7.40	15.86	0.00	2200	42	<5.0	130	15	<25	
02-Jul-97	8.94	14.32	0.00	2600	340	5.8	49	12	74	MTBE by 8260: <4.0 ppb
24-Oct-97	9.43	13.83	0.00	57000	5200	2300	3600	16000	1900	MTBE by 8260: <200 ppb
09-Jan-98	6.81	16.45	0.00	23000	2400	1700	1300	2300	310	
V-1 (DUP)										
09-Jan-98	NA	NA	NA	24000	2500	1800	1400	2400	450	

TABLE 1

WELL CONCENTRATIONS
Shell Oil Products Company
2703 Martin Luther King Jr. Way
Oakland, California
WIC #204-5508-1701

Sample Date	Measured GW Depth (ft)	Corrected GW Elev (ft)	SP (ft)	TPPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE (ug/L)	Comments
V-2		**Top casing elevation (ft): 22.80**								
02-Aug-96	NA	NA	NA	NA	NA	NA	NA	NA	NA	
05-Aug-96	7.94	14.86	0.00	NA	NA	NA	NA	NA	NA	
17-Oct-96	9.30	13.50	0.00	NA	NA	NA	NA	NA	NA	
08-Jan-97	5.82	16.98	0.00	69000	4800	2800	2700	13000	750	
07-Apr-97	7.10	15.70	0.00	90000	4400	1900	3300	14000	<500	
02-Jul-97	8.35	14.45	0.00	82000	5500	2700	3500	16000	530	MTBE by 8260: <100 ppb
24-Oct-97	10.03	12.77	0.00	7300	1100	97	230	180	91	MTBE by 8260: <12 ppb
09-Jan-98	6.94	15.86	0.00	40000	4100	1500	2500	9000	280	
V-2 (DUP)										
07-Apr-97	NA	NA	NA	77000	4400	2000	3200	14000	<250	
02-Jul-97	NA	NA	NA	85000	5600	2800	3600	17000	520	MTBE by 8260: <100 ppb
24-Oct-97	NA	NA	NA	12000	1700	340	650	630	120	MTBE by 8260: <20 ppb

Abbreviations:

TPPH = Total Purgeable Petroleum Hydrocarbons carbon range C6 to C12 by EPA Method 8015 modified

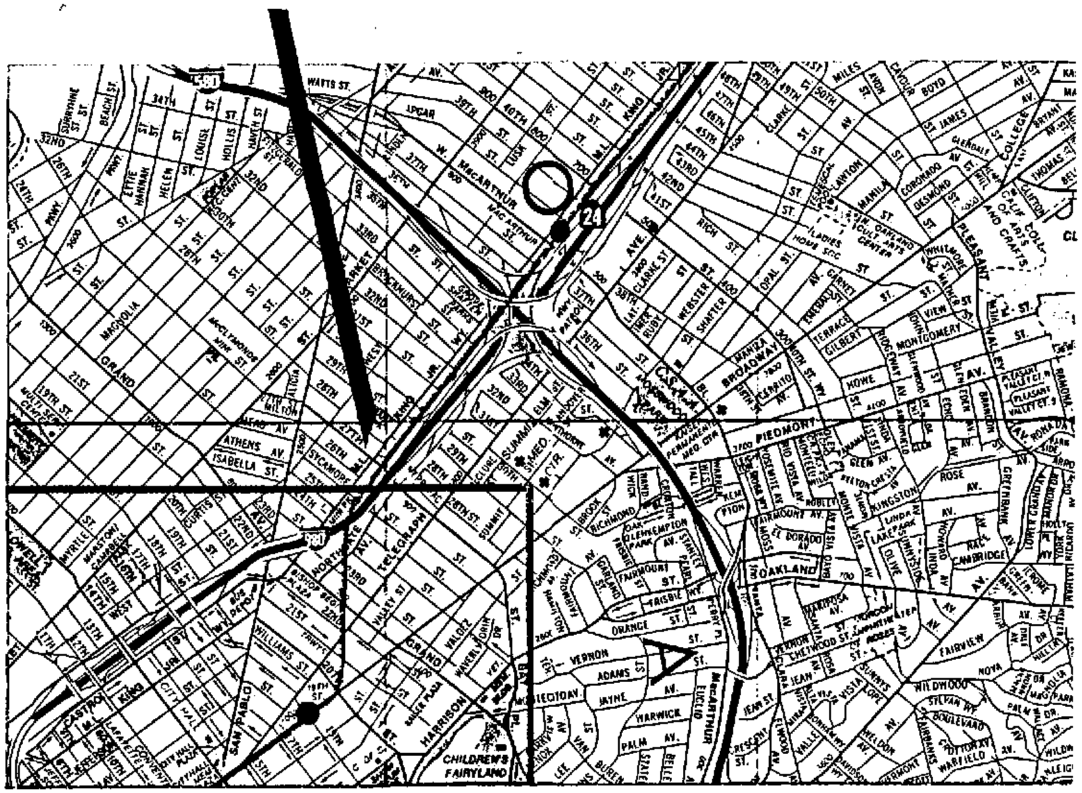
BTEX = benzene, toluene, ethylbenzene, xylenes by EPA Method 8020

MTBE = methyl-tertiary-butyl-ether by EPA Method 8020

NA = Not analyzed or not available

<x = Not detected at detection limit of x

Subject Site



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BASE MAP: CALIFORNIA STATE AUTOMOBILE ASSOCIATION

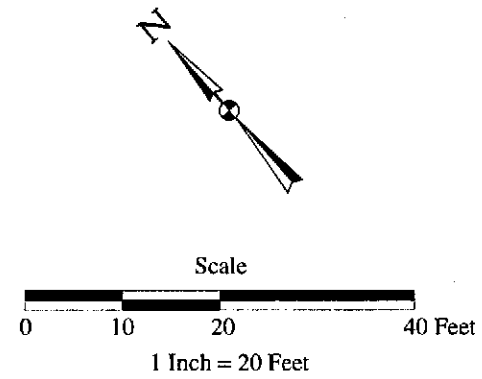
PLATE **1**	**VICINITY MAP** Former Shell Service Station 2703 Martin Luther King Jr. Way Oakland, California	CAMBRIA 240-0781

Drawn By: DML	Date: 12-28-95	Approved By: ~~	Date: 2-27-98

EXPLANATION

- Exploratory Boring
- Soil Vapor Extraction Well
- Ground Water Monitoring Well
- Ground water elevation contours in feet referenced to mean sea level (MSL). Arrows indicate approximate ground water flow direction.
- **15.59** Ground water elevation in feet above MSL
- **(2400)** Benzene concentration in ppb ND = Not Detected
- ***(6.3)*** MTBE concentration in ppb ND =Not Detected

Notes: Monitoring performed 09-Jan-98.
Approximate hydraulic gradient = 0.02



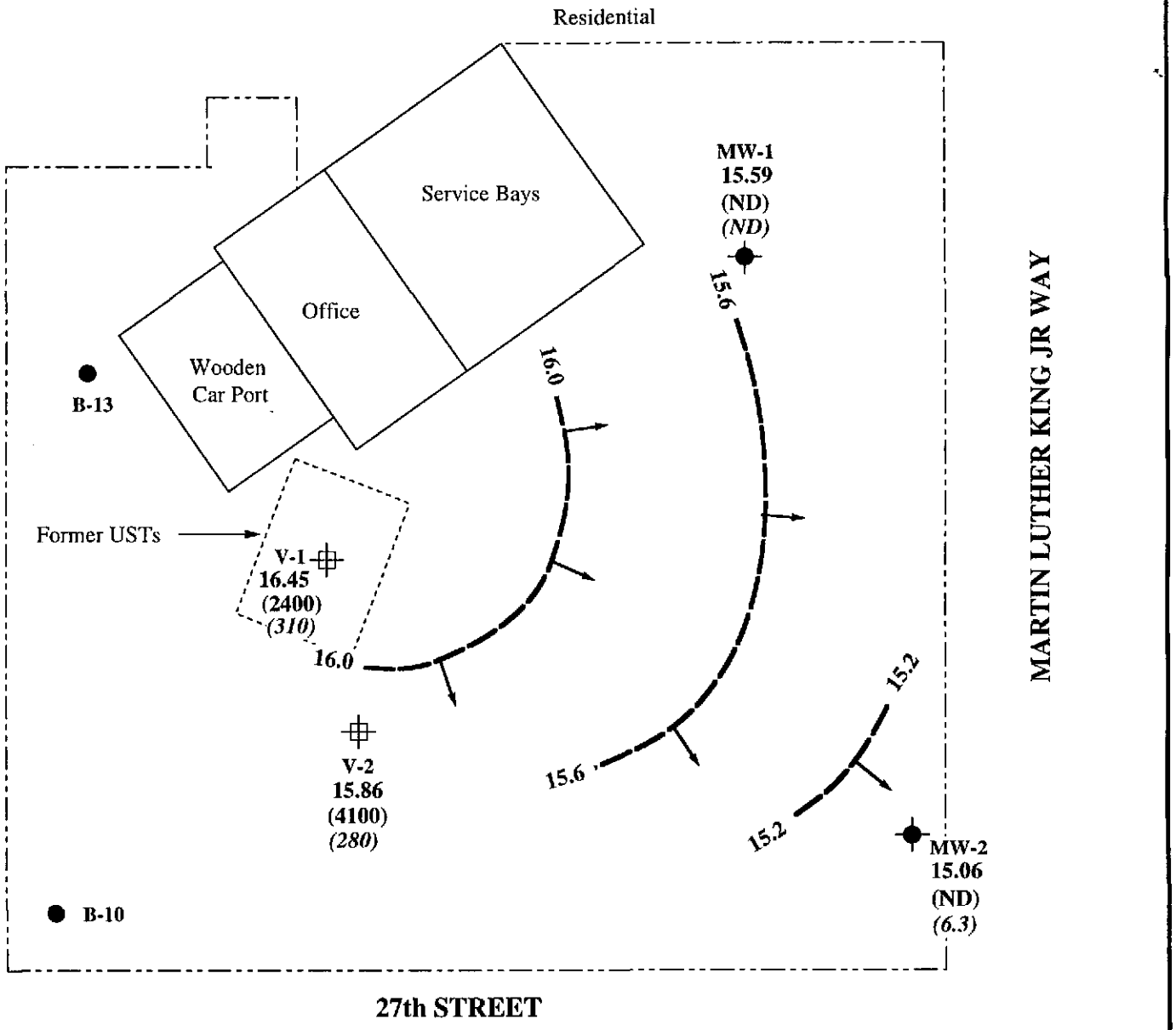


PLATE
2

GROUND WATER CONTOUR/CHEMICAL CONCENTRATION MAP
Shell Oil Products Company
2703 Martin Luther King Jr. Way
Oakland, California

CAMBRIA
240-0781

Drawn By: MDP | Date: 22-Feb-98 | Approved By: mk | Date: 2-27-98

Appendix A

Blaine Tech Services, Inc.
Ground Water Monitoring Report

BLAINE
TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112
(408) 573-7771 FAX
(408) 573-0555 PHONE

February 3, 1998

Shell Oil Company
P.O. Box8080
Martinez, CA 94553

Attn: Alex Perez

Shell WIC #204-5508-1701
2703 Martin Luther King Junior Way
Oakland, California

1st Quarter 1998

Groundwater Monitoring Report 980109-K-4

Blaine Tech Services, Inc. performs environmental sampling and documentation as an independent third party. Copies of our Sampling Report along with the laboratory's Certified Analytical Report are forwarded to the consultant overseeing work at this site. Submission of the assembled documents to interested regulatory agencies will be made by the designated consultant.

Groundwater monitoring at this site was performed in accordance with Standard Operating Procedures provided to the interested regulatory agencies. If you have any questions about the work performed at this site please call me at (408) 573-0555 ext. 201.

Yours truly,

Francis Thie

attachments: Table of Well Gauging Data
Chain of Custody
Field Data Sheets
Certified Analytical Report

cc: Cambria Environmental Technology, Inc.
P.O. Box 259
Sonoma, CA 95476-0259
Attn: Joe Neely

(Any professional evaluations or recommendations will be made by the consultant under separate cover.)

TABLE OF WELL GAUGING DATA

WELL I.D.	DATA COLLECTION DATE	MEASUREMENT REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLES LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
MW-1	01/09/98	TOC	–	NONE	–	–	7.94	20.22
MW-2	01/09/98	TOC	–	NONE	–	–	7.41	20.10
V-1*	01/09/98	TOC	ODOR	NONE	–	–	6.81	13.07
V-2	01/09/98	TOC	ODOR	NONE	–	–	6.94	13.21

* Sample DUP was a duplicate sample taken from well V-1.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 980109-KY

Date:
Page 1 of 1

Site Address: 2703 Martin Luther King Junior Way, Oakland, CA

WIC#: 254-5508-1701

Shell Engineer: Alex Perez — Phone No.: (510) 675-6168 Fax #: 675-6172

Consultant Name & Address: Blaine Tech Services, Inc. 1680 Rogers Ave., San Jose, CA 95112

Consultant Contact: Fran Thie — Phone No.: (408) 573-0555 Fax #: 573-7771

Comments:

Sampled by: [signature]

Printed Name: Mark Spindler

LAB: Sequoia

CHECK ONE (1) BOX ONLY		CT/DT	TURN AROUND TIME
G.W. Monitoring	X	4461	24 hours ☐
Site Investigation	☐	4441	48 hours ☐
Soil Classify/Disposal	☐	4442	15 days X (Normal)
Water Classify/Disposal	☐	4443	Other ☐
Soil/Air Rem. or Sys. O & M	☐	4452	NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.
Water Rem. or Sys. O & M	☐	4453	
Other	☐		

UST AGENCY:

Analysis Required

Sample ID	Date	Sludge	Soil	Water	Air	No. of conts.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Combination TPH 8015 & BTEX 8020 Lucy			Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-1	1/9/98			X		3						X							9801576	
MW-2	↓			X		3						X								
V-1				X		3						X								
V-2				X		3						X								
DUP				X		3						X								

	Printed Name:	Date:	Time:	Received (signature):	Printed Name:	Date:	Time:
Relinquished By (signature): [signature]	Mark Spindler	1/12/98	11:45	Steve Ten	Steve Ten	1/12/98	11:45
Relinquished By (signature): [signature]		1/12/98					
Relinquished By (signature):				Terri Downs	TERRI DOWNS	1/12/98	1360

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN OF CUSTODY WITH INVOICE AND RESULTS

50

Sequoia Analytical

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

Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112
Attention: Fran Thie

Project: Shell Oakland/980109-K4

Enclosed are the results from samples received at Sequoia Analytical on January 12, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9801576 -01	LIQUID, MW-1	01/09/98	TPGM2W Purgeable TPH/BTEX
9801576 -02	LIQUID, MW-2	01/09/98	TPGM2W Purgeable TPH/BTEX
9801576 -03	LIQUID, V-1	01/09/98	TPGM2W Purgeable TPH/BTEX
9801576 -04	LIQUID, V-2	01/09/98	TPGM2W Purgeable TPH/BTEX
9801576 -05	LIQUID, Dup	01/09/98	TPGM2W Purgeable TPH/BTEX

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Oakland/980109-K4
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9801576-01

Sampled: 01/09/98
Received: 01/12/98

Analyzed: 01/21/98
Reported: 01/28/98

QC Batch Number: GC012198BTEX06A
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	2.5	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	76

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services	Client Proj. ID: Shell Oakland/980109-K4	Sampled: 01/09/98
1680 Rogers Avenue	Sample Descript: MW-2	Received: 01/12/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 01/21/98
Attention: Fran Thie	Lab Number: 9801576-02	Reported: 01/28/98

QC Batch Number: GC012198BTEX18A
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Methyl t-Butyl Ether	**2.5**	**6.3**
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	85

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112

Attention: Fran Thie

Client Proj. ID: Shell Oakland/980109-K4
Sample Descript: V-1
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9801576-03

Sampled: 01/09/98
Received: 01/12/98

Analyzed: 01/22/98
Reported: 01/28/98

QC Batch Number: GC012298BTEX01A
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**2000**	**23000**
Methyl t-Butyl Ether	**100**	**310**
Benzene	**20**	**2400**
Toluene	**20**	**1700**
Ethyl Benzene	**20**	**1300**
Xylenes (Total)	**20**	**2300**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	104

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services	Client Proj. ID: Shell Oakland/980109-K4	Sampled: 01/09/98
1680 Rogers Avenue	Sample Descript: V-2	Received: 01/12/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 01/23/98
Attention: Fran Thie	Lab Number: 9801576-04	Reported: 01/28/98

QC Batch Number: GC012398BTEX06A
Instrument ID: GCHP06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**5000**	**40000**
Methyl t-Butyl Ether	**250**	**280**
Benzene	**50**	**4100**
Toluene	**50**	**1500**
Ethyl Benzene	**50**	**2500**
Xylenes (Total)	**50**	**9000**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	79

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services	Client Proj. ID: Shell Oakland/980109-K4	Sampled: 01/09/98
1680 Rogers Avenue	Sample Descript: Dup	Received: 01/12/98
San Jose, CA 95112	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 01/22/98
Attention: Fran Thie	Lab Number: 9801576-05	Reported: 01/28/98

QC Batch Number: GC012298BTEX01A
Instrument ID: GCHP01

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**5000**	**24000**
Methyl t-Butyl Ether	**250**	**450**
Benzene	**50**	**2500**
Toluene	**50**	**1800**
Ethyl Benzene	**50**	**1400**
Xylenes (Total)	**50**	**2400**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	81

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

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

Blaine Tech Services, Inc.
1680 Rogers Ave.
San Jose, CA 95112
Attention: Fran Thie

Client Project ID: Shell Oakland / 980109-K4
Matrix: Liquid
Work Order #: 9801576 -01
Reported: Jan 29, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC012198BTEX06A	GC012198BTEX06A	GC012198BTEX06A	GC012198BTEX06A	GC012198BTEX06A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	980132904	980132904	980132904	980132904	980132904
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Analyzed Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	11	11	11	32	60
MS % Recovery:	110	110	110	107	100
Dup. Result:	10	10	10	31	57
MSD % Recov.:	100	100	100	103	95
RPD:	9.5	9.5	9.5	3.2	5.1
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK012198	BLK012198	BLK012198	BLK012198	BLK012198
Prepared Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Analyzed Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	12	12	13	39	69
LCS % Recov.:	120	120	130	130	115

MS/MSD LCS Control Limits	60-140 70-130	60-140 70-130	60-140 70-130	60-140 70-130	60-140 70-130

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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

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

Sequoia Analytical

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

Blaine Tech Services, Inc.	Client Project ID:	Shell Oakland / 980109-K4	
1680 Rogers Ave.	Matrix:	Liquid	
San Jose, CA 95112			
Attention: Fran Thie	Work Order #:	9801576-02	Reported: Jan 29, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC012198BTEX18A	GC012198BTEX18A	GC012198BTEX18A	GC012198BTEX18A	GC012198BTEX18A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	980132904	980132904	980132904	980132904	980132904
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Analyzed Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	10	10	10	32	68
MS % Recovery:	100	100	100	107	113
Dup. Result:	8.3	8.3	8.3	26	55
MSD % Recov.:	83	83	83	87	92
RPD:	19	19	19	21	21
RPD Limit:	0-25	0-25	0-25	0-25	0-25
LCS #:	BLK012198	BLK012198	BLK012198	BLK012198	BLK012198
Prepared Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Analyzed Date:	1/21/98	1/21/98	1/21/98	1/21/98	1/21/98
Instrument I.D.#:	GCHP18	GCHP18	GCHP18	GCHP18	GCHP18
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	8.4	8.4	8.3	26	56
LCS % Recov.:	84	84	83	87	93
MS/MSD Control Limits	60-140	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Blaine Tech Services, Inc.
1680 Rogers Ave.
San Jose, CA 95112
Attention: Fran Thie

Client Project ID: Shell Oakland / 980109-K4
Matrix: Liquid
Work Order #: 9801576-03-05

Reported: Jan 29, 1998

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes	Gas
QC Batch#:	GC012298BTEX06A	GC012298BTEX06A	GC012298BTEX06A	GC012298BTEX06A	GC012298BTEX06A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015M
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	980167703	980167703	980167703	980167703	980167703
Sample Conc.:	N.D.	N.D.	N.D.	N.D.	N.D.
Prepared Date:	1/23/98	1/23/98	1/23/98	1/23/98	1/23/98
Analyzed Date:	1/23/98	1/23/98	1/23/98	1/23/98	1/23/98
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
Result:	8.6	8.6	8.7	26	49
MS % Recovery:	86	86	87	87	82
Dup. Result:	10	10	11	32	59
MSD % Recov.:	100	100	110	107	98
RPD:	15	15	23	21	19
RPD Limit:	0-25	0-25	0-25	0-25	0-25

LCS #:	BLK012398	BLK012398	BLK012398	BLK012398	BLK012398
Prepared Date:	1/23/98	1/23/98	1/23/98	1/23/98	1/23/98
Analyzed Date:	1/23/98	1/23/98	1/23/98	1/23/98	1/23/98
Instrument I.D.#:	GCHP6	GCHP6	GCHP6	GCHP6	GCHP6
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L	60 µg/L
LCS Result:	10	10	10	31	48
LCS % Recov.:	100	100	100	103	80
MS/MSD Control Limits	60-140	60-140	60-140	60-140	60-140
LCS Control Limits	70-130	70-130	70-130	70-130	70-130

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

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Blaine Tech Services
1680 Rogers Avenue
San Jose, CA 95112
Attention: Fran Thie

Client Proj. ID: Shell Oakland/980109-K4

Lab Proj. ID: 9801576

Received: 01/12/98

Reported: 01/28/98

LABORATORY NARRATIVE

In order to properly interpret this report, it must be reproduced in its entirety. This report contains a total of 10 pages including the laboratory narrative, sample results, quality control, and related documents as required (cover page, COC, raw data, etc.).

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager