enviros®

August 30, 1996

Mr. R. Jeff Granberry
Shell Oil Products Company
P.O. Box 4023
Concord, California 94524

RE: **Quarterly Monitoring Report - Third Quarter 1996**
Former Shell Service Station
461 8th Street
Oakland, California
WIC #204-5508-6205

Dear Mr. Granberry:

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

Quarterly Monitoring & Sampling Summary

Ground water monitoring and sampling for the third quarter of 1996 are summarized below:

- Blaine Tech Services, Inc. (Blaine) of San Jose, California measured ground water levels in the Wells S-4 through S-6 and S-8 through S-10 and collected ground water samples from Wells S-4, S-6, and S-8 through S-10 on July 11, 1996. The samples were transported to Sequoia Analytical of Redwood City, California for chemical analysis.

- Enviros, Inc. (Enviros) evaluated water-level measurement data and prepared a ground water contour map (Plate 2). Ground water flow direction appears to be south-southwesterly with an approximate hydraulic gradient of 0.01.

- TPPH concentrations in ground water samples collected from the wells ranged from ND to 72,000 ppb. Benzene concentrations ranged from ND to 18,000 ppb. A benzene concentration map was prepared and is presented on Plate 2.

- Hydrocarbon absorbent booms have been installed in Well S-5 to collect separate phase (SP) hydrocarbons.

Quarterly Sampling

Monitoring Wells S-4, S-6, and S-8 through S-10 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 and an equipment blank were prepared and analyzed for quality control purposes.

SP hydrocarbon removal data are summarized in Table 1. Field monitoring data and chemical analytical data are summarized in Table 2. Blaine's Quarterly Ground Water Monitoring Report is presented in Appendix A.

Quarterly monitoring, sampling, and reporting will continue on the established schedule.

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

Sincerely,

Enviros, Inc.

Matthew E. Donohue
Project Engineer

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

REGISTERED PROFESSIONAL ENGINEER
DIANE M. LUNDQUIST
NO. C46725
CIVIL
STATE OF CALIFORNIA

Attachments

Table 1. Separate Phase Hydrocarbon Recovery
Table 2. Well Concentrations

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

Appendix A

Blaine Tech Services Inc. - Quarterly Ground Water Monitoring Report

cc: Ms. Jennifer Eberle, Alameda County Health Care Services Agency
Mr. Rory Campbell, Hanson, Bridgett, Marcus, Vlahos & Rudy
Mr. Sheldon E. Crandall

TABLE 1

SEPARATE PHASE HYDROCARBON RECOVERY
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

Well No.	Mont. Date	Product Thickness (feet)	Volume Removed (gal)	Recovery To Date (gal)
S-5	13-May-93	0.27	0	0
	22-Jul-93	0.25	200	200
	20-Oct-93	0.23	200	400
	25-Jan-94	0.18	150	550
	25-Apr-94	0.35	36	586
	26-May-94	0.35	130	716
	16-Jun-94	0.32	50	766
	21-Jul-94	0.47	50	816
	25-Aug-94	0.44	80	896
	22-Sep-94	0.15	45	941
	24-Oct-94	0.56	40	981
	29-Nov-94	1.13	85	1066
	22-Dec-94	0.99	0	1066
	3-Jan-95	1.21	40	1106
	22-Feb-95	0.60	60	1166
	31-Mar-95	0.02	40	1206
	20-Apr-95	0.33	60	1266
	26-May-95	0.28	50	1316
	30-Jun-95*	0.02	60	1376
	4-Oct-95	0	0	1376
	3-Jan-96	0.83	0	1376
	11-Apr-96	0.67	0	1376
	11-Jul-96	0.90	0	1376

Notes:
1. "Volume Removed" and "Recovery to Date" refer to a mixture of separate phase hydrocarbon and ground water.
2. * = Product removal by pumping discontinued after 30-Jun-95. and product recovery boom subsequently installed in well.
3. Product recovery boom not replaced to date.

TABLE 2

WELL CONCENTRATIONS
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

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
S-4		**Top casing elevation (ft):**		**93.51**						
26-Oct-88	NA	NA	NA	130	3.8	13	4.0	30	NA	
14-Feb-89	12.82	80.69	0.00	<50	0.5	<1	<1	3.0	NA	
01-May-89	16.48	77.03	0.00	NA	NA	NA	NA	NA	NA	Dry Well
27-Jul-89	15.84	77.67	0.00	NA	NA	NA	NA	NA	NA	Dry Well
05-Oct-89	15.98	77.53	0.00	NA	NA	NA	NA	NA	NA	Dry Well
09-Jan-90	15.86	77.65	0.00	NA	NA	NA	NA	NA	NA	Dry Well
30-Apr-90	14.48	79.03	0.00	<50	<0.5	<0.5	<0.5	<1	NA	
31-Jul-90	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry Well
30-Oct-90	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry Well
06-May-91	15.23	78.28	0.00	NA	NA	NA	NA	NA	NA	Dry Well
27-Jun-91	13.54	79.97	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
24-Sep-91	15.85	77.66	0.00	NA	NA	NA	NA	NA	NA	Dry Well
07-Nov-91	15.60	77.91	0.00	NA	NA	NA	NA	NA	NA	Dry Well
13-Feb-92	14.27	79.24	0.00	<50	<0.5	<0.5	<0.5	3	NA	
11-May-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry Well
03-Dec-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
13-May-93	14.81	78.70	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
22-Jul-93	14.42	79.09	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
20-Oct-93	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
25-Jan-94	14.60	78.91	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
25-Apr-94	14.39	79.12	0.00	NA	NA	NA	NA	NA	NA	Well Inaccessible
21-Jul-94	22.29	71.22	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
24-Oct-94	22.72	70.79	0.00	<500	<0.3	<0.3	<0.3	<0.6	NA	
		New top casing elevation (ft): 25.77								
22-Dec-94	22.25	3.52	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	
20-Apr-95	21.16	4.61	0.00	<50	<0.5	<0.5	<0.5	<0.5	NA	

TABLE 2

WELL CONCENTRATIONS
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

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
04-Oct-95	22.25	3.52	0.00	<50	1.2	0.7	<0.5	<0.5	NA	
03-Jan-96	23.28	2.49	0.00	<50	0.6	<0.5	<0.5	1.7	NA	
11-Apr-96	21.58	4.19	0.00	<50	<0.5	<0.5	<0.5	<0.5	<2.5	
11-Jul-96	21.60	4.17	0.00	<50	<0.50	<0.50	<0.50	<0.50	<2.5	
S-5		**Top casing elevation (ft):**		**99.36**						
16-Apr-87	NA	NA	NA	130000	15000	16000	NA	14000	NA	Ethylbenzene and xylenes
26-Oct-88	NA	NA	NA	110000	20000	25000	2300	10000	NA	combined
14-Feb-89	19.87	79.49	0.00	94000	16000	21000	1800	10000	NA	
01-May-89	21.23	78.13	0.00	120000	29000	35000	3100	15000	NA	
27-Jul-89	20.41	78.95	0.00	110000	20000	29000	2400	14000	NA	
05-Oct-89	20.43	78.94	0.01	NA	NA	NA	NA	NA	NA	
09-Jan-90	21.16	78.21	0.01	NA	NA	NA	NA	NA	NA	
30-Apr-90	20.96	78.40	0.00	100000	13000	22000	2100	11000	NA	
31-Jul-90	20.88	78.48	0.00	53000	8300	14000	1200	7400	NA	
30-Oct-90	21.96	77.42	0.03	NA	NA	NA	NA	NA	NA	
06-May-91	23.00	76.46	0.13	NA	NA	NA	NA	NA	NA	
27-Jun-91	20.53	78.85	0.03	NA	NA	NA	NA	NA	NA	
24-Sep-91	21.40	78.01	0.06	NA	NA	NA	NA	NA	NA	
07-Nov-91	21.33	78.23	0.25	NA	NA	NA	NA	NA	NA	
13-Feb-92	22.52	77.09	0.31	NA	NA	NA	NA	NA	NA	
11-May-92	22.46	77.36	0.58	NA	NA	NA	NA	NA	NA	
03-Dec-92	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
13-May-93	22.22	77.36	0.27	NA	NA	NA	NA	NA	NA	
22-Jul-93	21.68	77.88	0.25	NA	NA	NA	NA	NA	NA	
20-Oct-93	20.51	79.03	0.23	NA	NA	NA	NA	NA	NA	
25-Jan-94	21.93	77.57	0.18	NA	NA	NA	NA	NA	NA	

TABLE 2

WELL CONCENTRATIONS
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

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
25-Apr-94	21.97	77.67	0.35	NA	NA	NA	NA	NA	NA	
26-May-94	20.84	78.80	0.35	NA	NA	NA	NA	NA	NA	
10-Jun-94	21.01	78.61	0.32	NA	NA	NA	NA	NA	NA	
21-Jul-94	22.18	77.56	0.47	NA	NA	NA	NA	NA	NA	
25-Aug-94	22.01	77.70	0.44	NA	NA	NA	NA	NA	NA	
22-Sep-94	22.00	77.48	0.15	NA	NA	NA	NA	NA	NA	
24-Oct-94	22.28	77.53	0.56	NA	NA	NA	NA	NA	NA	
		New top casing elevation (ft): 22.94								
22-Dec-94	22.88	0.85	0.99	NA	NA	NA	NA	NA	NA	
20-Apr-95	21.66	1.54	0.33	NA	NA	NA	NA	NA	NA	
04-Oct-95	22.18	0.76	0.00	NA	NA	NA	NA	NA	NA	
03-Jan-96	22.80	0.80	0.83	NA	NA	NA	NA	NA	NA	
11-Apr-96	21.15	2.33	0.67	NA	NA	NA	NA	NA	NA	
11-Jul-96	22.62	1.04	0.90	NA	NA	NA	NA	NA	NA	
S-6		**Top casing elevation (ft):**		**100.58**						
16-Apr-87	NA	NA	0.00	81000	16000	9000	NA	6400	NA	Ethylbenzene and xylenes
26-Oct-88	NA	NA	0.00	110000	29000	18000	2500	8200	NA	combined
14-Feb-89	20.87	79.71	0.00	54000	18000	4500	1400	4000	NA	
01-May-89	20.49	80.09	0.00	93000	43000	9900	3000	8000	NA	
27-Jul-89	21.01	79.57	0.00	52000	20000	3200	1700	5500	NA	
05-Oct-89	21.24	79.34	0.00	55000	20000	2900	1600	5500	NA	
09-Jan-90	22.62	77.96	SHEEN	76000	35000	9100	2300	8600	NA	
30-Apr-90	22.10	78.48	0.00	39000	13000	2300	900	2800	NA	
31-Jul-90	22.00	78.58	0.00	48000	20000	4600	1500	4900	NA	
30-Oct-90	22.14	78.44	0.00	27000	7400	900	600	1400	NA	
06-May-91	22.40	78.18	0.00	35000	3900	2700	2300	3500	NA	

TABLE 2

WELL CONCENTRATIONS
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

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
27-Jun-91	21.21	79.37	0.00	51000	19000	5600	1700	6300	NA	
24-Sep-91	22.26	78.32	0.00	42000	14000	4300	1200	4000	NA	
07-Nov-91	22.35	78.23	0.00	39000	11000	2000	800	2300	NA	
13-Feb-92	22.28	78.30	0.00	64000	21000	6200	1600	5100	NA	
11-May-92	22.10	78.48	0.00	57000	22000	7600	2200	7700	NA	
03-Dec-92	22.14	78.44	0.00	110000	26000	9400	2100	8700	NA	
13-May-93	22.16	78.42	0.00	58000	21000	6800	2500	9800	NA	
22-Jul-93	21.64	78.94	0.00	70000	31000	14000	3000	13000	NA	
20-Oct-93	21.62	78.96	0.00	48000	28000	9800	3200	12000	NA	
25-Jan-94	21.80	78.78	0.00	70000	23000	7500	2500	8000	NA	
25-Apr-94	21.68	78.90	0.00	61000	16000	4000	1800	5100	NA	
21-Jul-94	21.78	78.80	0.00	44000	8200	3600	1400	3900	NA	
24-Oct-94	22.06	78.52	0.00	2936	1184	440.6	163.4	648.4	NA	
		New top casing elevation (ft): 22.08								
22-Dec-94	21.91	0.17	0.00	32000	7000	2900	790	2400	NA	
20-Apr-95	21.38	0.70	0.00	56000	15000	3800	1900	4900	NA	
04-Oct-95	21.80	0.28	0.00	49000	8400	4700	1800	4800	NA	
03-Jan-96	21.70	0.38	0.00	52000	9100	7100	1800	5800	NA	
11-Apr-96	21.62	0.46	0.00	59000	11000	7100	2100	6400	<500	
11-Jul-96	21.65	0.43	0.00	72000	18000	6600	2500	8400	<1000	
S-6 (DUP)										
21-Jul-94	NA	NA	NA	32000	7800	3400	1300	3700	NA	
24-Oct-94	NA	NA	NA	2968	770.8	325.3	144.1	622	NA	
22-Dec-94	NA	NA	NA	32000	8000	3800	1100	3400	NA	
20-Apr-95	NA	NA	NA	49000	13000	3500	1800	4700	NA	

TABLE 2

WELL CONCENTRATIONS
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

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
04-Oct-95	NA	NA	NA	41000	8400	4100	1400	4400	NA	
11-Apr-96	NA	NA	NA	59000	11000	6800	1900	6400	<500	
S-8		**Top casing elevation (ft):**		**27.21**						
22-Dec-94	24.87	2.34	0.00	600	120	32	5.2	34	NA	
20-Apr-95	23.90	3.31	0.00	460	180	23	5.2	21	NA	
04-Oct-95	24.48	2.73	0.00	830	210	38	11	42	NA	
03-Jan-96	24.62	2.59	0.00	350	61	12	2.5	12	NA	
11-Apr-96	24.32	2.89	0.00	570	140	37	12	47	<6.2	
11-Jul-96	24.10	3.11	0.00	980	98	32	9.1	160	<12	
S-8 (DUP)										
03-Jan-96	NA	NA	NA	340	54	12	2.4	12	NA	
S-9		**Top casing elevation (ft):**		**26.06**						
22-Dec-94	24.37	1.69	0.00	2600	400	150	42	310	NA	
20-Apr-95	23.49	2.57	0.00	1900	400	130	51	200	NA	
04-Oct-95	24.01	2.05	0.00	3200	590	260	68	280	NA	
03-Jan-96	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Inaccessible
11-Apr-96	23.61	2.45	0.00	2100	440	1500	42	210	<25	
11-Jul-96	23.78	2.28	0.00	5200	940	450	120	520	<50	
S-9 (DUP)										
11-Jul-96	NA	NA	NA	4800	890	430	110	500	<50	
S-10		**Top casing elevation (ft):**		**28.04**						
22-Dec-94	25.84	2.20	0.00	420	27	8.0	18	45	NA	

TABLE 2

WELL CONCENTRATIONS
Shell Oil Products Company
461 8th Street
Oakland, California
WIC# 204-5508-6205

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
20-Apr-95	24.92	3.12	0.00	820	49	3.7	97	52	NA	
04-Oct-95	25.47	2.57	0.00	240	6.5	1.1	16	12	NA	
03-Jan-96	25.60	2.44	0.00	1100	27	4.9	110	70	NA	
11-Apr-96	25.27	2.77	0.00	530	19	1.6	82	52	<5.0	
11-Jul-96	25.46	2.58	0.00	570	16	3.2	53	53	<2.5	

Abbreviations:

NA = Not analyzed or not available

SP = Separate Phase hydrocarbon

<x = Not detected at detection limit of x

(DUP) = Duplicate sample

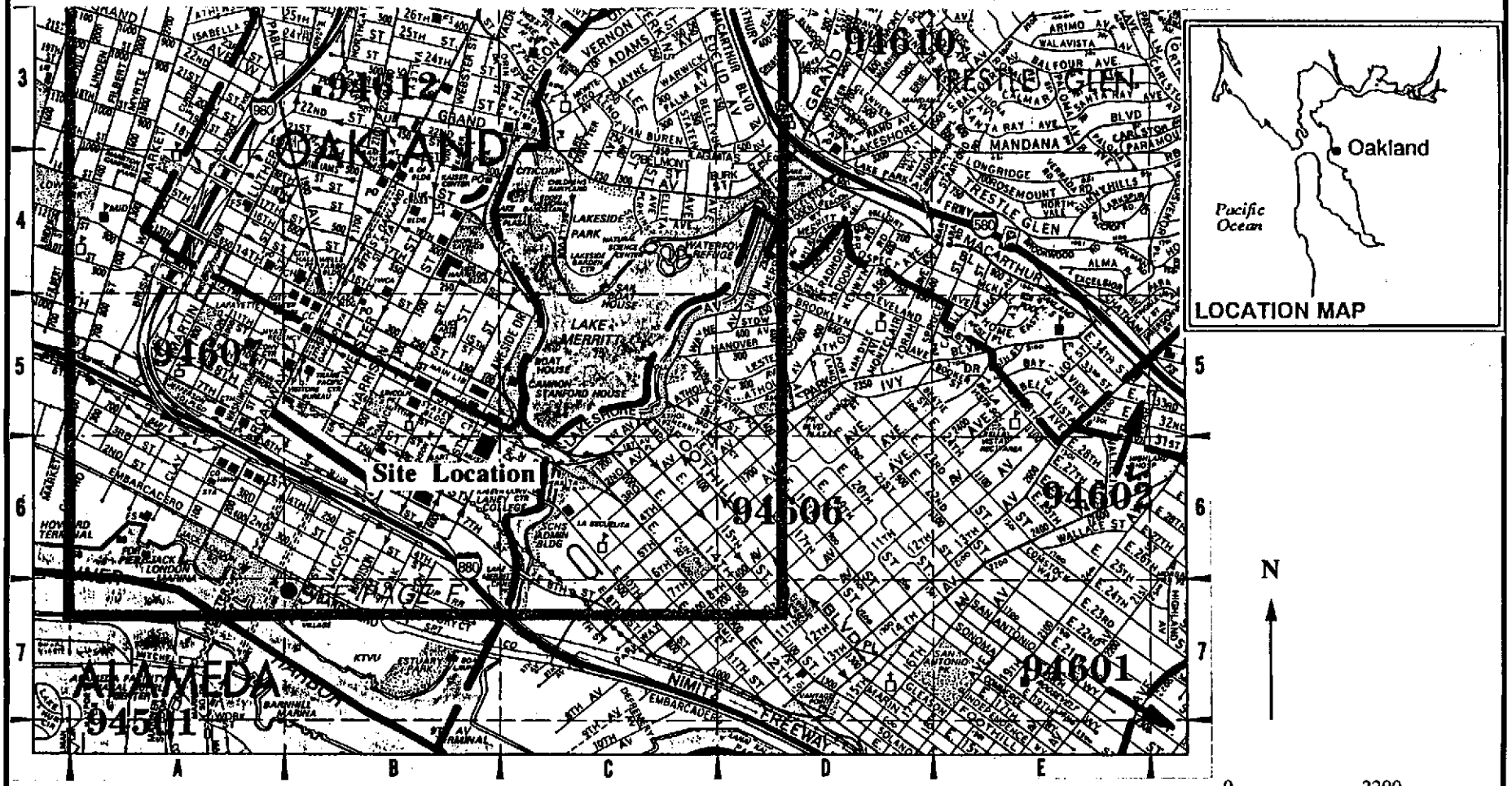
TPPH = Total Purgeable Petroleum Hydrocarbons carbon range C6 to C12 by EPA Method 8015 (Modified)
(previously reported as Total Petroleum Hydrocarbons as Gasoline)

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

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

Notes:

0.8 used for hydrocarbon specific gravity



Base Map: 1993 Thomas Guide

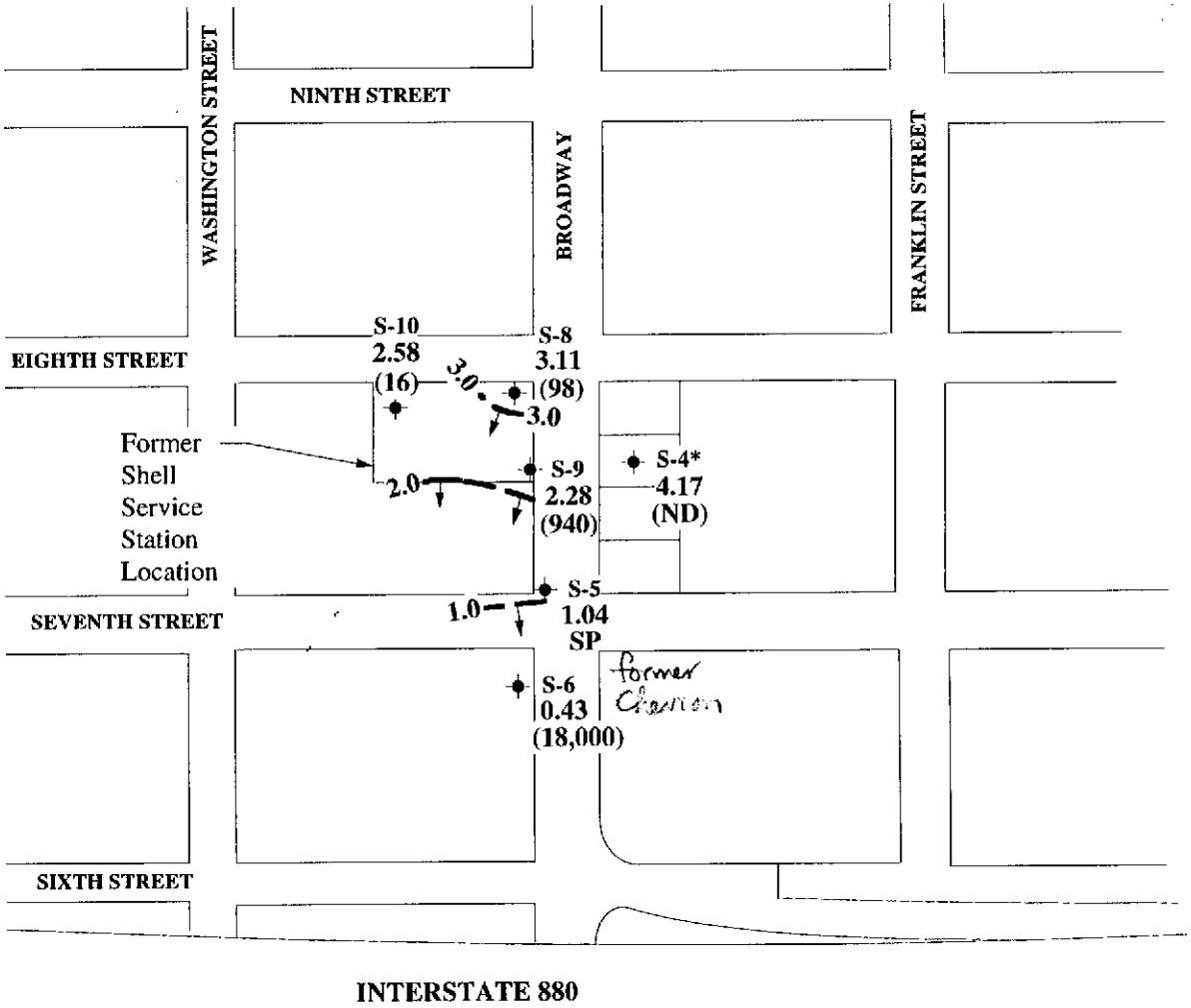
Plate 1

VICINITY MAP
Former Shell Service Station
461 Eighth Street
Oakland, California

enviros®
E494216.03

Drawn By: JWN Date: 10/3/94

Approved By: JM Date: 30-Aug-96



EXPLANATION

- Ground water monitoring well
- Ground water elevation contour in feet referenced to mean sea level (MSL). Arrows indicate approximate ground water flow direction.
- **0.43** Ground water elevation in feet MSL
- **(18,000)** Benzene Concentration in ppb ND = Not Detected
- **SP** Separate Phase hydrocarbon

Notes: Quarterly monitoring performed on 11-Jul-96
Approximate Hydrulic Gradient = 0.01.
* Well S-4 not used in ground water contouring

N

0 200

Scale in Feet

Note: Base Map taken from GeoStrategies Inc. Report dated 10-4-93.

PLATE **2**

GROUND WATER CONTOUR/BENZENE CONCENTRATION MAP
Former Shell Service Station
461 Eighth Street
Oakland, California

enviros®
96216

Drawn By: MED

Date: 26-Aug-96

Approved By: JR

Date: 30-Aug-96

Appendix A

Blaine Tech Services Inc.
Quarterly Ground Water Monitoring Report

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

August 2, 1996

Shell Oil Company
P.O. Box 4023
Concord, CA 94524

Attn: R. Jeff Granberry

Shell WIC #204-5508-6200
461 8th Street
Oakland, California

3rd Quarter 1996

Quarterly Groundwater Monitoring Report 960711-S-2

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) 995-5535 ext. 201.

Yours truly,

Francis Thie

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

cc: Enviros, 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 (gal.)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)
S-4	7/11/96	TOB	--	NONE	--	--	21.60	28.95
S-5	7/11/96	TOB	FREE PRODUCT	21.72	0.90	--	22.62	--
S-6	7/11/96	TOB	ODOR	NONE	--	--	21.65	36.73
S-8	7/11/96	TOB	--	NONE	--	--	24.10	29.10
S-9 *	7/11/96	TOB	ODOR	NONE	--	--	23.78	30.00
S-10	7/11/96	TOB	--	NONE	--	--	25.46	36.70

* Sample DUP was a duplicate sample taken from well S-9.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No: 9607152

Date: 7/11/96
Page 1 of 1

Site Address: 461 8th Street, Oakland, CA

WIC#: 204-5508-6200

Shell Engineer: R. Jeff Granberry ~~Lynn Walker~~ Phone No.: (510) 675-6169 Fax #: 675-6160

Consultant Name & Address: Blaine Tech Services, Inc, 985 Timothy Dr., San Jose, CA 95133

Consultant Contact: Fran Thie Phone No.: (408) 99505535 Fax #: 293-8773

Comments:

Sampled by:

Printed Name: SHAWN HALLS

LAB: SEQUOIA

CHECK ONE (1) BOX ONLY		CT/DT
G.W. Monitoring	XX	4441
Site Investigation		4441
Soil Classify/Disposal		4442
Water Classify/Disposal		4443
Soil/Air Rem. or Sys. O & M		4452
Water Rem. or Sys. O & M		4453
Other		

TURN AROUND TIME: 24 hours ☐ 48 hours ☐ 15 days XX (Normal) ☒ Other ☐ ____

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

UST AGENCY: ____

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	MTBE	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
S-4	7/11	1420							1	A-C		X	X					9607852	
S-6		1355							2			X	X						
S-8		1311							3			X	X						
S-9		1325							4			X	X						
S-10		1255							5			X	X						
EB		1315							6			X	X						
DUP	↓	—							7			X	X						

Relinquished By (signature):	Printed Name:	Date: 7-12-96 Time: 1430	Received (signature):	Printed Name: JOHN HOWE	Date: 7-12-96 Time: 1430
Relinquished By (signature):	Printed Name: JOHN HOWE	Date: 7-12-96 Time: 1634	Received (signature):	Printed Name:	Date: Time:
Relinquished By (signature):	Printed Name:	Date: Time:	Received (signature):	Printed Name:	Date: 7/11/96 Time: 43[illegible]

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

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Blaine Technical Services
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Project: Shell Oakland 960711S2

Enclosed are the results from samples received at Sequoia Analytical on July 12, 1996. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9607844 -01	LIQUID, S-4	07/11/96	TPGBMW Purgeable TPH/BTEX
9607844 -02	LIQUID, S-6	07/11/96	TPGBMW Purgeable TPH/BTEX
9607844 -03	LIQUID, S-8	07/11/96	TPGBMW Purgeable TPH/BTEX
9607844 -04	LIQUID, S-9	07/11/96	TPGBMW Purgeable TPH/BTEX
9607844 -05	LIQUID, S-10	07/11/96	TPGBMW Purgeable TPH/BTEX
9607844 -06	LIQUID, EB	07/11/96	TPGBMW Purgeable TPH/BTEX
9607844 -07	LIQUID, DUP	07/11/96	TPGBMW 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

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Blaine Technical Services	Client Proj. ID: Shell Oakland 960711S2	Sampled: 07/11/96
985 Timothy Drive	Sample Descript: S-4	Received: 07/12/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/19/96
Attention: Jim Keller	Lab Number: 9607844-01	Reported: 07/25/96

QC Batch Number: GC071996BTEX02A
Instrument ID: GCHP2

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	92

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

SEQUOIA ANALYTICAL - ELAP #1624

Peggy Penner
Project Manager

Sequoia Analytical

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Blaine Technical Services	Client Proj. ID: Shell Oakland 960711S2	Sampled: 07/11/96
985 Timothy Drive	Sample Descript: S-6	Received: 07/12/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/19/96
Attention: Jim Keller	Lab Number: 9607844-02	Reported: 07/25/96

QC Batch Number: GC071996BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**20000**	**72000**
Methyl t-Butyl Ether	1000	N.D.
Benzene	**200**	**18000**
Toluene	**200**	**6600**
Ethyl Benzene	**200**	**2500**
Xylenes (Total)	**200**	**8400**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	98

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

SEQUOIA ANALYTICAL - ELAP #1624

Peggy Penner
Project Manager

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Blaine Technical Services	Client Proj. ID: Shell Oakland 960711S2	Sampled: 07/11/96
985 Timothy Drive	Sample Descript: S-8	Received: 07/12/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/22/96
Attention: Jim Keller	Lab Number: 9607844-03	Reported: 07/25/96

QC Batch Number: GC072296BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**250**	**980**
Methyl t-Butyl Ether	12	N.D.
Benzene	**2.5**	**98**
Toluene	**2.5**	**32**
Ethyl Benzene	**2.5**	**9.1**
Xylenes (Total)	**2.5**	**160**
Chromatogram Pattern:		**C6-C12**

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 #1624

Peggy Penner
Project Manager

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Blaine Technical Services	Client Proj. ID: Shell Oakland 960711S2	Sampled: 07/11/96
985 Timothy Drive	Sample Descript: S-9	Received: 07/12/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/23/96
Attention: Jim Keller	Lab Number: 9607844-04	Reported: 07/25/96

QC Batch Number: GC072396BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**1000**	**5200**
Methyl t-Butyl Ether	50	N.D.
Benzene	**10**	**940**
Toluene	**10**	**450**
Ethyl Benzene	**10**	**120**
Xylenes (Total)	**10**	**520**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	99

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

SEQUOIA ANALYTICAL - ELAP #1624

Peggy Penner
Project Manager

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Blaine Technical Services	Client Proj. ID: Shell Oakland 960711S2	Sampled: 07/11/96
985 Timothy Drive	Sample Descript: S-10	Received: 07/12/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/19/96
Attention: Jim Keller	Lab Number: 9607844-05	Reported: 07/25/96

QC Batch Number: GC071996BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**570**
Methyl t-Butyl Ether	2.5	N.D.
Benzene	**0.50**	**16**
Toluene	**0.50**	**3.2**
Ethyl Benzene	**0.50**	**53**
Xylenes (Total)	**0.50**	**53**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	99

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

SEQUOIA ANALYTICAL - ELAP #1624

Peggy Penner
Project Manager

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Blaine Technical Services	Client Proj. ID: Shell Oakland 960711S2	Sampled: 07/11/96
985 Timothy Drive	Sample Descript: EB	Received: 07/12/96
San Jose, CA 95133	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 07/19/96
Attention: Jim Keller	Lab Number: 9607844-06	Reported: 07/25/96

QC Batch Number: GC071996BTEX02A
Instrument ID: GCHP2

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	96

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

SEQUOIA ANALYTICAL - ELAP #1624

Peggy Penner
Project Manager

Sequoia Analytical

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Blaine Technical Services
985 Timothy Drive
San Jose, CA 95133

Attention: Jim Keller

Client Proj. ID: Shell Oakland 960711S2
Sample Descript: DUP
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9607844-07

Sampled: 07/11/96
Received: 07/12/96

Analyzed: 07/22/96
Reported: 07/25/96

QC Batch Number: GC072296BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX and MTBE

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**1000**	**4800**
Methyl t-Butyl Ether	50	N.D.
Benzene	**10**	**890**
Toluene	**10**	**430**
Ethyl Benzene	**10**	**110**
Xylenes (Total)	**10**	**500**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	97

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

SEQUOIA ANALYTICAL - ELAP #1624

Peggy Penner
Project Manager

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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell, Oakland / 960711S2
Matrix: Liquid
QC Sample Group: 9607844 -01-02, 05-06
Reported: Jul 31, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	V.O.	V.O.	V.O.	V.O.
MS/MSD Batch#:	6070806	6070806	6070806	6070806
Date Prepared:	7/19/96	7/19/96	7/19/96	7/19/96
Date Analyzed:	7/19/96	7/19/96	7/19/96	7/19/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	93	94	93	84
Matrix Spike Duplicate % Recovery:	96	99	97	90
Relative % Difference:	3.2	5.2	4.2	6.9
LCS Batch#:	LCS071996	LCS071996	LCS071996	LCS071996
Date Prepared:	7/19/96	7/19/96	7/19/96	7/19/96
Date Analyzed:	7/19/96	7/19/96	7/19/96	7/19/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
LCS % Recovery:	94	97	96	97
% Recovery Control Limits:	75-125	75-125	75-125	75-125

SEQUOIA ANALYTICAL
Elap #1624

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.

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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell, Oakland / 960711S2
Matrix: Liquid
QC Sample Group: 9607844-03, 07
Reported: Jul 31, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M.C.	M.C.	M.C.	M.C.
MS/MSD Batch#:	6070788	6070788	6070788	6070788
Date Prepared:	7/22/96	7/22/96	7/22/96	7/22/96
Date Analyzed:	7/22/96	7/22/96	7/22/96	7/22/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	90	91	91	93
Matrix Spike Duplicate % Recovery:	90	92	91	91
Relative % Difference:	0.0	1.1	0.0	2.2
LCS Batch#:	LCS072296	LCS072296	LCS072296	LCS072296
Date Prepared:	7/22/96	7/22/96	7/22/96	7/22/96
Date Analyzed:	7/22/96	7/22/96	7/22/96	7/22/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
LCS % Recovery:	95	96	96	98
% Recovery Control Limits:	75-125	75-125	75-125	75-125

SEQUOIA ANALYTICAL
Elap #1624

Reggy 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.

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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: Shell, Oakland / 960711S2
Matrix: Liquid
QC Sample Group: 9607844-04

Reported: Jul 31, 1996

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	V.O.	V.O.	V.O.	V.O.
MS/MSD Batch#:	6070468	6070468	6070468	6070468
Date Prepared:	7/23/96	7/23/96	7/23/96	7/23/96
Date Analyzed:	7/23/96	7/23/96	7/23/96	7/23/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	85	84	88	82
Matrix Spike Duplicate % Recovery:	93	92	94	91
Relative % Difference:	9.0	9.1	6.6	10
LCS Batch#:	LCS072396	LCS072396	LCS072396	LCS072396
Date Prepared:	7/23/96	7/23/96	7/23/96	7/23/96
Date Analyzed:	7/23/96	7/23/96	7/23/96	7/23/96
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
LCS % Recovery:	92	94	95	95
% Recovery Control Limits:	75-125	75-125	75-125	75-125

SEQUOIA ANALYTICAL
Elap #1624

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.