

May 18, 1994

Shell Oil Company
P.O. Box 5278
Concord, CA 94520-9998

Attn: Daniel Kirk

SITE:
Shell WIC #204-5510-0600
4255 MacArthur Blvd.
Oakland, California

QUARTER:
2nd quarter of 1994

QUARTERLY GROUNDWATER SAMPLING REPORT 940425-K-3

This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in response to the request of the consultant who is overseeing work at this site on behalf of our mutual client, Shell Oil Company. Data collected in the course of our field work is presented in a **TABLE OF WELL GAUGING DATA**. The field information was collected during our preliminary gauging and inspection of the wells, the subsequent evacuation of each well prior to sampling, and at the time of sampling.

Measurements taken include the total depth of the well and the depth to water. The surface of water was further inspected for the presence of immiscibles which may be present as a thin film (a sheen on the surface of the water) or as a measurable free product zone (FPZ). At intervals during the evacuation phase, the purge water was monitored with instruments that measure electrical conductivity (EC), potential hydrogen (pH), temperature (degrees Fahrenheit), and turbidity (NTU). In the interest of simplicity, fundamental information is tabulated here, while the bulk of the information is turned over directly to the consultant who is making professional interpretations and evaluations of the conditions at the site.

STANDARD PROCEDURES

Evacuation

Groundwater wells are thoroughly purged before sampling to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation. The selection of equipment to evacuate each well is based on the physical characteristics of the well and what is known about the performance of the formation in which the well has been installed. There are several suitable devices which can be used for evacuation. The most commonly employed devices are air or gas actuated pumps, electric submersible pumps, and hand or mechanically actuated bailers. Our personnel frequently employ USGS/Middleburg positive displacement pumps or similar air actuated pumps which do not agitate the water standing in the well.

Normal evacuation removes three case volumes of water from the well. More than three case volumes of water are removed in cases where more evacuation is needed to achieve stabilization of water parameters and when requested by the local implementing agency. Less water may be removed in cases where the well dewateres and does not recharge to 80% of its original volume within two hours and any additional time our personnel have reason to remain at the site. In such cases, our personnel return to the site within twenty four hours and collect sample material from the water which has recharged into the well case.

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site. Effluent water from purging and on-site equipment cleaning is collected and transported to Shell's Martinez Manufacturing Complex in Martinez, California.

Free Product Skimmer

The column headed, VOLUME OF IMMISCIBLES REMOVED (ml) is included in the TABLE OF WELL GAUGING DATA to cover situations where a free product skimming device must be removed from the well prior to gauging. Skimmers are installed in wells with a free product zone on the surface of the water. The skimmer is a free product recovery device which often prevents normal well gauging and free product zone measurements. The 2.0" and 3.0" PetroTraps fall into the category of devices that obstruct normal gauging. In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the PetroTrap before putting it back in the well. This

recovered free product is measured and logged in the VOLUME OF IMMISCIBLES REMOVED column. Gauging at such sites is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.

Sample Containers

Sample material is collected in specially prepared containers which are provided by the laboratory that performs the analyses.

Sampling

Sample material is collected in stainless steel bailer type devices normally fitted with both a top and a bottom check valve. Water is promptly decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA standard for handling volatile organic and semi-volatile compounds.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label.

Chain of Custody

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Shell Oil Company chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

Hazardous Materials Testing Laboratory

The samples obtained at this site were delivered to Sequoia Analytical Laboratory in Redwood City, California. Sequoia Analytical Laboratory is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1210.

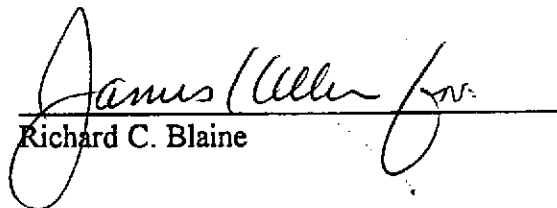
Objective Information Collection

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. performs no consulting and does not become involved in the marketing or installation of remedial systems of any kind. Blaine Tech Services, Inc. is concerned only with the generation of objective information, not with the use of that information to support evaluations and recommendations concerning the environmental condition of the site. Even the straightforward interpretation of objective analytical data is better performed by interested regulatory agencies, and those engineers and geologists who are engaged in the work of providing professional opinions about the site and proposals to perform additional investigation or design remedial systems.

Reportage

Submission of this report and the attached laboratory report to interested regulatory agencies is handled by the consultant in charge of the project. Any professional evaluations or recommendations will be made by the consultant under separate cover.

Please call if we can be of any further assistance.


Richard C. Blaine

RCB/lp

attachments: table of well gauging data
chain of custody
certified analytical report

cc: Weiss Associates
5500 Shellmound Street
Emeryville, CA 94608-2411
ATTN: Janet MacDonald

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	4/25/94	TOC	ODOR	NONE	-	-	7.63	23.32
MW-2	4/25/94	TOC	ODOR	NONE	-	-	10.84	19.65
MW-3 *	4/25/94	TOC	ODOR	NONE	-	-	13.12	21.93

* Sample DUP was a duplicate sample taken from well MW-3.

Table 2. Analytic Results for Ground Water, Shell Service Station WIC #204-5510-0600, 4255 MacArthur Blvd., Oakland, California

Well ID	Date Sampled	Depth to Water (ft)	TPH-G	B	E	T	X
			-----parts per billion (µg/L)----->				
MW-1	11/17/93	8.59	410	21	7.9	11	47
	01/20/94	8.22	1,200	180	48	19	47
	04/25/94	7.63	3,100	610	130	<10	27
MW-2	11/17/93	12.31	31,000	9,400	1,000	4,600	3,900
	01/20/94	11.48	40,000	6,900	780	5,600	4,100
	01/20/94 ^{dup}	11.48	41,000	7,200	900	6,200	4,800
	04/25/94	10.84	60,000	9,300	1,400	6,100	6,200
MW-3	11/17/93	15.40	18,000	5,400	720	660	2,200
	01/20/94	14.61	55,000	13,000	2,200	2,600	6,500
	04/25/94	13.12	96,000	11,000	3,100	1,600	9,900
	04/25/94 ^{dup}	13.12	78,000	12,000	2,600	1,900	7,300
Trip	01/20/94		<50	<0.5	<0.5	<0.5	<0.5
Blank	04/25/94		<50	<0.5	<0.5	<0.5	<0.5
DTSC MCLs			NE	1	680	100 ^a	1,750

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
 TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015
 B = Benzene by EPA Method 8020
 E = Ethylbenzene by EPA Method 8020
 T = Toluene by EPA Method 8020
 X = Xylenes by EPA Method 8020
 NE = Not established
 DTSC MCLs = California Department of Toxic Substances Control maximum contaminant levels for drinking water
 --- = Not analyzed
 <n = Not detected at detection limits of n ppb
 dup = Duplicate sample

Notes:

a = DTSC recommended action level; MCL not established



ATTACHMENT A
GROUND WATER MONITORING REPORT AND ANALYTIC REPORT



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: 940425-F3

Date: 4/25/94
Page 1 of 1

Site Address: 4255 MacArthur Blvd., Oakland

WIC#: 204-5510-0600

Shell Engineer: Daniel T. Kirk
Phone No.: (510) 675-6168
Fax #: 675-6160

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

Consultant Contact: Jim Keller
Phone No.: (408) 995-5535
Fax #: 293-8773

Comments:

Sampled by: KLB
Printed Name: Keith Brown

Analysis Required

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	Asbestos	Container Size	Preparation Used	Composite Y/N

LAB: Sequoia

CHECK ONE (S) BOX ONLY	CI/DI	TURN AROUND TIME
Quality Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Classfy/Disposal <input type="checkbox"/>	6442	16 days <input checked="" type="checkbox"/> (Normal)
Water Classfy/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Sam. at Site, O & M <input type="checkbox"/>	6442	
Water Sam. at Site, O & M <input type="checkbox"/>	6443	
Other <input type="checkbox"/>		

NOTE: Notify Lab soon as Possible at 24/48 hr. TAT.

Sample ID	Date	Sludge	Soil	Water	Air	No. of conds.	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	Asbestos	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW1	4/25			W		3						X					9404E90-01	
MW2						3						X						-02
MW3						3						X						-03
DUP						3						X						-04
EB						3						X						-05
TB	Y			Y		2						X						-06

Relinquished by (signature): <u>[Signature]</u>	Printed Name: <u>Keith C. Brown</u>	Date: <u>4/25/94</u> Time: <u>3:15</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>S. WRIGHT</u>	Date: <u>4/25/94</u> Time: <u>5:25</u>
Relinquished by (signature): <u>[Signature]</u>	Printed Name: <u>S. WRIGHT</u>	Date: <u>4/25/94</u> Time: <u>1:02</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>[Signature]</u>	Date: <u>4/25/94</u> Time: <u>1:50</u>
Relinquished by (signature): <u>[Signature]</u>	Printed Name: <u>[Signature]</u>	Date: <u>4/25/94</u> Time: <u>[Time]</u>	Received (signature): <u>[Signature]</u>	Printed Name: <u>KEITH C. GROSS</u>	Date: <u>4/25/94</u> Time: <u>1:50</u>



Sequoia Analytical

680 Chesapeake Drive
1900 Bates Avenue, Suite L
819 Striker Avenue, Suite 8

Redwood City, CA 94063
Concord, CA 94520
Sacramento, CA 95834

(415) 364-9600
(510) 686-9600
(916) 921-9600

FAX (415) 364-9233
FAX (510) 686-9689
FAX (916) 921-0100

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

Project: 940425-K3, Shell, 4255 MacArthur Blvd

Enclosed are the results from 6 water samples received at Sequoia Analytical on April 26, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
4DE9001	Water, MW-1	4/25/94	EPA 5030/8015 Mod./8020
4DE9002	Water, MW-2	4/25/94	EPA 5030/8015 Mod./8020
4DE9003	Water, MW-3	4/25/94	EPA 5030/8015 Mod./8020
4DE9004	Water, Dup	4/25/94	EPA 5030/8015 Mod./8020
4DE9005	Water, E.B.	4/25/94	EPA 5030/8015 Mod./8020
4DE9006	Water, TB	4/25/94	EPA 5030/8015 Mod./8020

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

Suzanne Chin
Project Manager



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

Client Project ID: 940425-K3, Shell, 4255 MacArthur Blv
Sample Matrix: Water
Analysis Method: EPA 5030/8015 Mod./8020
First Sample #: 4DE9001

Sampled: Apr 25, 1994
Received: Apr 26, 1994
Reported: May 5, 1994

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 4DE9001 MW-1	Sample I.D. 4DE9002 MW-2	Sample I.D. 4DE9003 MW-3	Sample I.D. 4DE9004 Dup	Sample I.D. 4DE9005 E.B.	Sample I.D. 4DE9006 TB
Purgeable Hydrocarbons	50	3,100	60,000	96,000	78,000	N.D.	N.D.
Benzene	0.50	610	9,300	11,000	12,000	N.D.	N.D.
Toluene	0.50	N.D.	6,100	1,600	1,900	N.D.	N.D.
Ethyl Benzene	0.50	130	1,400	3,100	2,600	N.D.	N.D.
Total Xylenes	0.50	27	6,200	9,900	7,300	N.D.	N.D.
Chromatogram Pattern:		C4 - C12	C4 - C12	C4 - C12	C4 - C12	--	--

Quality Control Data

Report Limit Multiplication Factor:	20	200	400	400	1.0	1.0
Date Analyzed:	5/1/94	5/1/94	4/29/94	4/29/94	4/29/94	4/29/94
Instrument Identification:	GCHP-3	GCHP-2	GCHP-3	GCHP-3	GCHP-17	GCHP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	92	94	92	96	87	76

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Suzanne Chin
Project Manager





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

Client Project ID: 940425-K3, Shell, 4255 MacArthur Blvd
 Matrix: Liquid

QC Sample Group: 4DE9001

Reported: May 5, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Mirafab	A. Mirafab	A. Mirafab	A. Mirafab

MS/MSD	Benzene	Toluene	Ethyl Benzene	Xylenes
Batch#:	4DE8603	4DE8603	4DE8603	4DE8603
Date Prepared:	-	-	-	-
Date Analyzed:	5/1/94	5/1/94	5/1/94	5/1/94
Instrument I.D.#:	GCHP-17	GCHP-17	GCHP-17	GCHP-17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	86	87	87	83
Matrix Spike Duplicate % Recovery:	85	86	86	87
Relative % Difference:	1.2	1.2	1.2	4.7

LCS Batch#:	-	-	-	-
Date Prepared:	-	-	-	-
Date Analyzed:	-	-	-	-
Instrument I.D.#:	-	-	-	-
LCS % Recovery:	-	-	-	-

% Recovery Control Limits:	71-133	72-128	72-130	71-120

SEQUOIA ANALYTICAL

Suzanne Chin
 Suzanne Chin
 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.





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

Client Project ID: 940425-K3, Shell, 4255 MacArthur Blvd
Matrix: Liquid

QC Sample Group: 4DE9002, 06

Reported: May 5, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	A. Miraftab	A. Miraftab	A. Miraftab	A. Miraftab

MS/MSD Batch#:	4DE8603	4DE8603	4DE8603	4DE8603
Date Prepared:	-	-	-	-
Date Analyzed:	5/1/94	5/1/94	5/1/94	5/1/94
Instrument I.D.#:	GCHP-2	GCHP-2	GCHP-2	GCHP-2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	100	100	100	103
Matrix Spike Duplicate % Recovery:	100	110	110	103
Relative % Difference:	0.0	9.5	9.5	0.0

LCS Batch#:	-	-	-	-
Date Prepared:	-	-	-	-
Date Analyzed:	-	-	-	-
Instrument I.D.#:	-	-	-	-
LCS % Recovery:	-	-	-	-

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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SEQUOIA ANALYTICAL


Suzanne Chin
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.





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

Client Project ID: 940425-K3, Shell, 4255 MacArthur Blvd
Matrix: Liquid

QC Sample Group: 4DE9003, 04

Reported: May 5, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

MS/MSD Batch#:	4DD5806	4DD5806	4DD5806	4DD5806
Date Prepared:	-	-	-	-
Date Analyzed:	4/29/94	4/29/94	4/29/94	4/29/94
Instrument I.D.#:	GCHP-3	GCHP-3	GCHP-3	GCHP-3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Matrix Spike % Recovery:	100	100	100	103
Matrix Spike Duplicate % Recovery:	110	100	100	100
Relative % Difference:	9.5	0.0	0.0	0.0

LCS Batch#:	-	-	-	-
Date Prepared:	-	-	-	-
Date Analyzed:	-	-	-	-
Instrument I.D.#:	-	-	-	-
LCS % Recovery:	-	-	-	-

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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Blaine Tech Services, Inc.
985 Timothy Drive
San Jose, CA 95133
Attention: Jim Keller

Client Project ID: 940425-K3, Shell, 4255 MacArthur Blvd
Matrix: Liquid

QC Sample Group: 4DE9005

Reported: May 5, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel

MS/MSD
Batch#:

4DD3805 4DD3805 4DD3805 4DD3805

Date Prepared: -
Date Analyzed: 4/29/94 4/29/94 4/29/94 4/29/94
Instrument I.D.#: GCHP-17 GCHP-17 GCHP-17 GCHP-17
Conc. Spiked: 10 µg/L 10 µg/L 10 µg/L 30 µg/L

Matrix Spike
% Recovery: 91 91 91 90

Matrix Spike Duplicate %
Recovery: 98 100 100 100

Relative %
Difference: 7.4 9.4 9.4 11

LCS Batch#: - - - -

Date Prepared: - - - -
Date Analyzed: - - - -
Instrument I.D.#: - - - -

LCS %
Recovery: - - - -

% Recovery Control Limits:	71-133	72-128	72-130	71-120
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SEQUOIA ANALYTICAL

Suzanne Chin
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.

