



Alameda County

FEB 18 2004

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Environmental Health

**Letter of Transmittal**

To: Local Oversight Program Manager Date: 2/16/2004  
 Alameda County Environmental Health Services  
 1131 Harbor Bay Pkwy Fl 2 Job No: SJ11-55P-1.2004  
 Alameda CA 94502-6540  
 Attn: Ms. Donna Drogos

We are sending the following items:

Date	Copies	Description
16-Feb-04	1	Quarterly Monitoring Report - Fourth Quarter 2003
		Shell-branded Service Station
		1155 Portola Avenue
		Livermore, CA

These are transmitted:

- For your Information   
  For action specified below   
  For review and comment   
  For your use   
  As requested

**Remarks**

Copies to: By: Vera Fischer

Title: Senior Staff Geologist

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Alameda County

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Environmental Health [www.deltaenv.com](http://www.deltaenv.com)

February 16, 2004  
Project No. SJ11-55P-1.2004

Ms. Donna Drogos  
Alameda County Health Care Services Agency  
Environmental Health Services – Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Re: Quarterly Monitoring Report – Fourth Quarter 2003  
Shell-branded Service Station  
1155 Portola Avenue  
Livermore, California**

Dear Ms. Drogos:

Delta Environmental Management, Inc. (Delta), on behalf of Shell Oil Products US (Shell), has prepared the following fourth quarter 2003 groundwater monitoring and sampling report for the above referenced site. Groundwater sampling was performed by Blaine Tech Services (Blaine) at the direction of Delta. A site location map is included as Figure 1.

#### **QUARTERLY GROUND WATER MONITORING PROGRAM**

Groundwater monitoring wells were gauged and sampled by Blaine on December 9, 2003. Depth to groundwater was measured in Wells MW-1 through MW-4. Groundwater elevation data and contours are presented on Figure 2.

Groundwater samples were collected from Wells MW-1 through MW-4. Samples were submitted by Blaine to Severn Trent Laboratories, Inc. (STL) in Pleasanton, California for analysis for total purgeable petroleum hydrocarbons as gasoline (TPH-G); benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds); and the five fuel oxygenates: methyl tert-butyl ether (MTBE), diisopropyl ether (DIPE), ethyl-tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), and tert-butanol (TBA), using EPA Method 8260B. Benzene and MTBE concentrations are presented on Figure 3.

A member of



Blaine's groundwater monitoring and sampling report, which includes historical and current groundwater elevation data, historical and current analytical results, and field data records for the current monitoring event, is included as Attachment A.

#### DISCUSSION

Depth to groundwater has decreased by an average of 5.10 feet in site wells since last quarter. Well screens in Wells MW-1 through MW-4 are seasonally drowned by the fluctuating water table at the site. The groundwater gradient on December 9, 2003 was towards the south-southwest at a magnitude of 0.005 ft/ft. The groundwater gradient at the site has ranged between northwest and southwest since fourth quarter 2002.

The MTBE concentration in Well MW-2 has decreased to 27 ug/l, a historic low. All other analytes were below laboratory detection limits in all site wells.

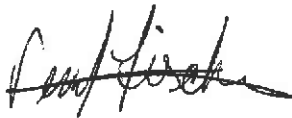
#### REMARKS

The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This report is based upon a specific scope of work requested by the client. The Contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Delta's Client and anyone else specifically listed on this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.

Please call if you have any questions regarding the contents of this letter.

Sincerely,

**Delta Environmental Consultants, Inc.**



Vera Fischer  
Senior Staff Geologist



R. Lee Dooley  
Senior Hydrogeologist  
CHG 0183

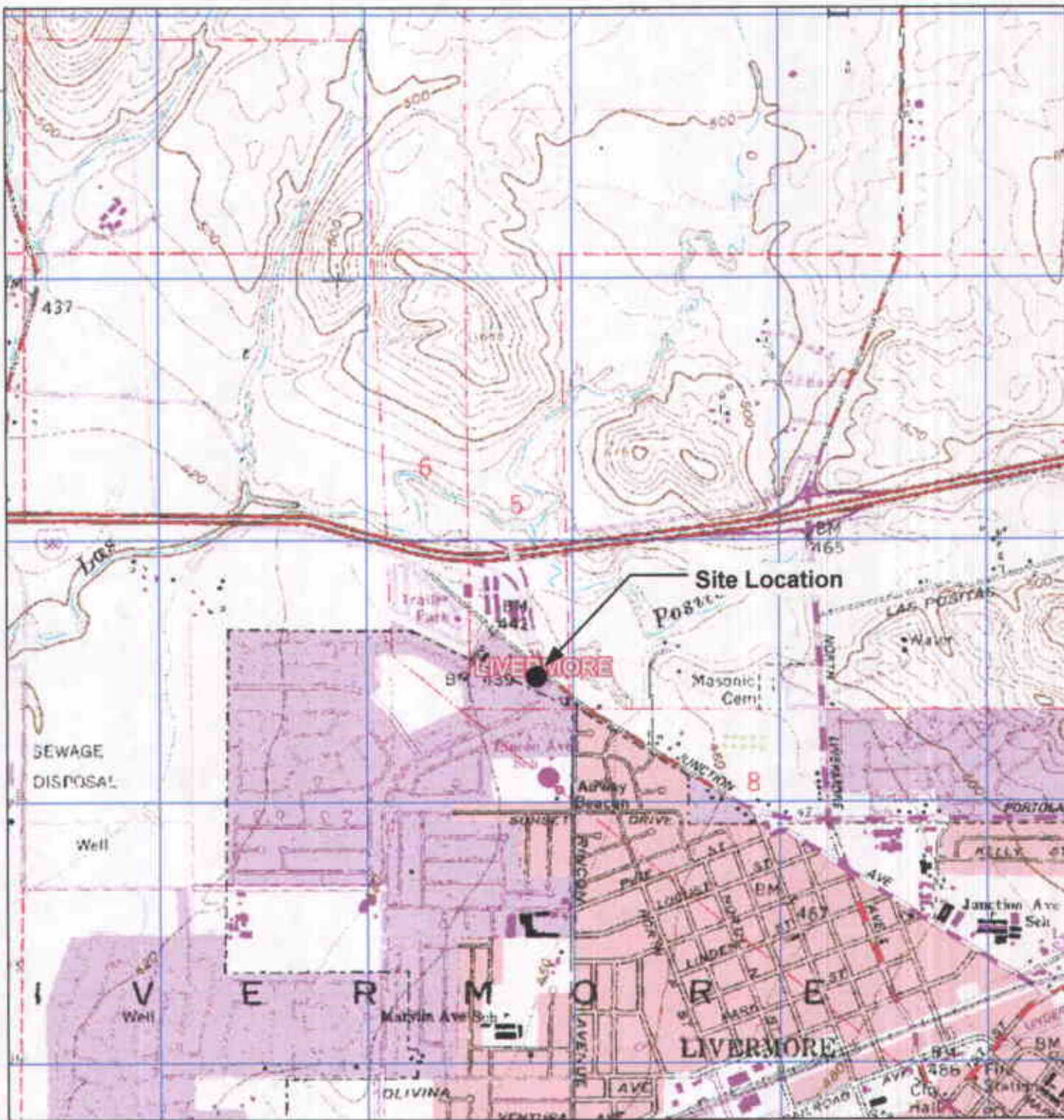


February 16, 2004

Page 3

Attachments: **Figure 1 – Site Location Map**  
**Figure 2 – Groundwater Elevation Contour Map**  
**Figure 3 – Benzene and MTBE Concentration Map**  
**Attachment A – Groundwater Monitoring and Sampling Report, December 29, 2003**

cc: **Karen Petryna, Shell Oil Products US, Carson**  
**Betty Graham, RWQCB - San Francisco Bay Region, Oakland**  
**Danielle Stefani, Livermore-Pleasanton Fire Department, Livermore**  
**Terrell & Kimberley Bass, Danville**



GENERAL NOTES:  
 Base Map from: DeLorme Yarmouth, ME 04096  
 Source Data: USGS



QUADRANGLE LOCATION



Scale, Feet

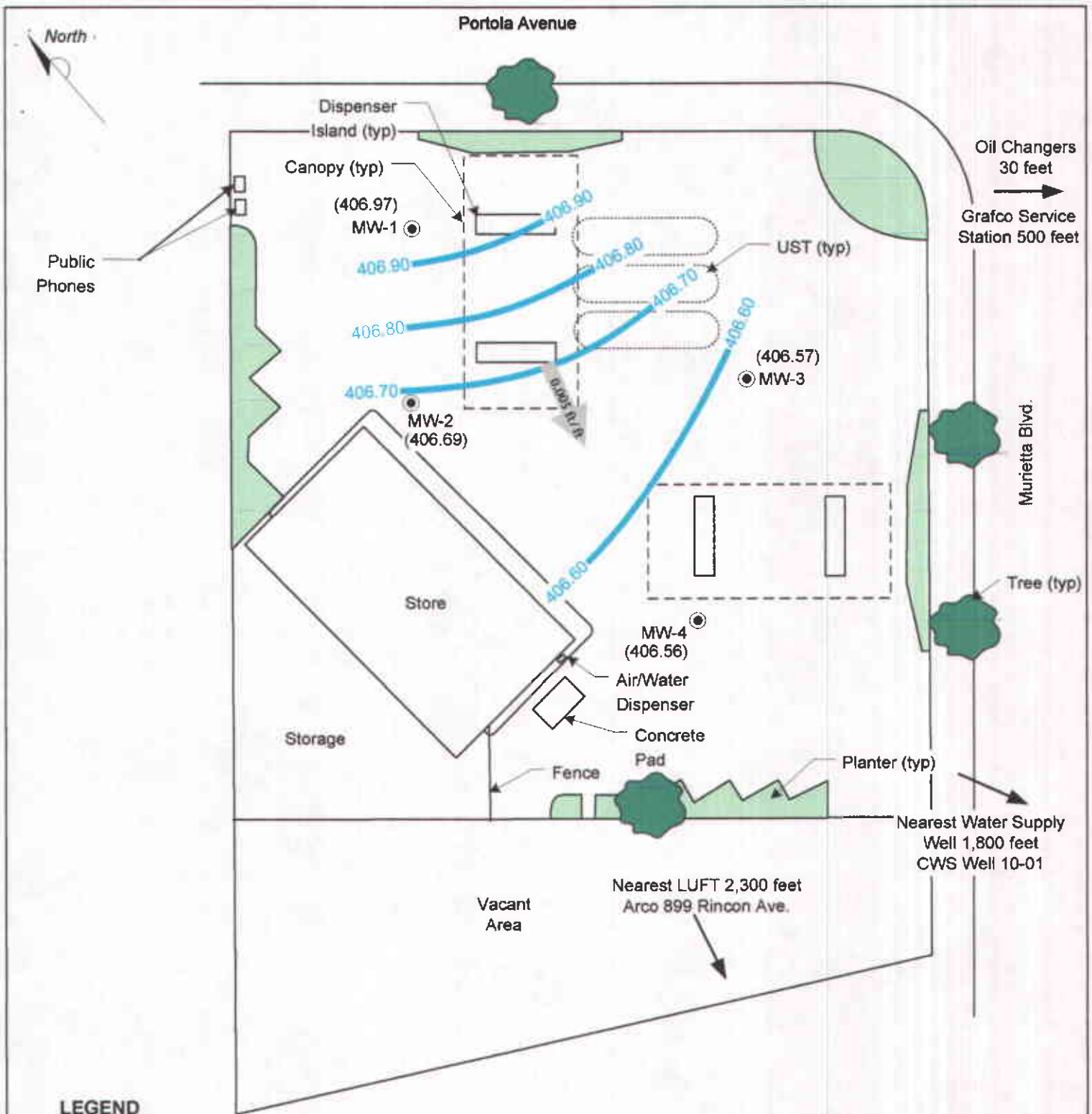
FIGURE 1  
 SITE LOCATION MAP

SHELL-BRANDED SERVICE STATION  
 1155 Portola Avenue  
 Livermore, California

PROJECT NO. SJ11-55P-1.000G	DRAWN BY VF 10/22/03
FILE NO. SJ11-55P-1.000G	PREPARED BY VF
REVISION NO.	REVIEWED BY







**LEGEND**

- MW-4 ● **GROUNDWATER MONITORING WELL**
- (407.56) **GROUNDWATER ELEVATION (FEET - MSL), 12/9/03**
- 407.20 — **GROUNDWATER ELEVATION CONTOUR**
- 0.02 R/A **APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT**



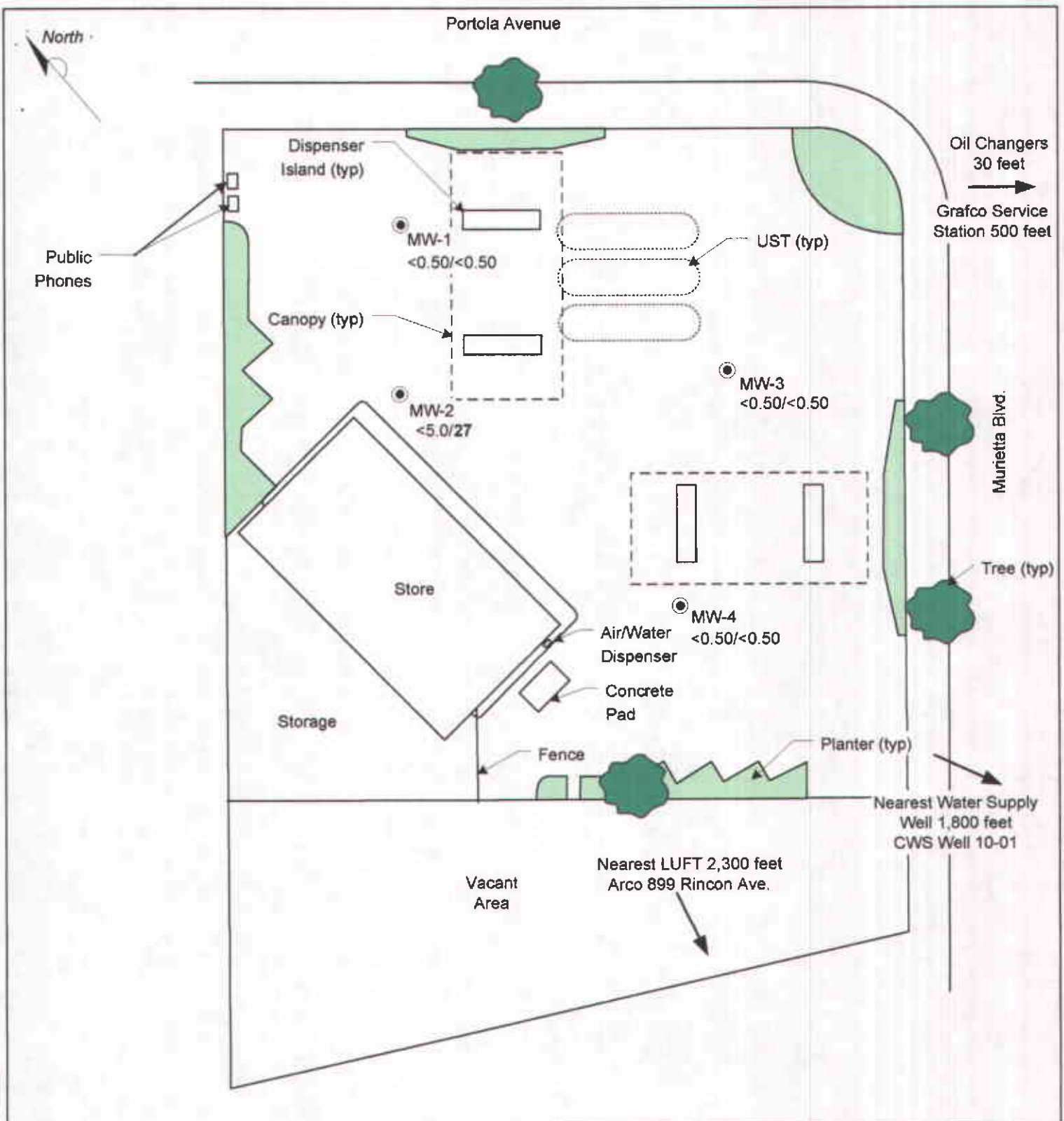
APPROX. SCALE

**FIGURE 2**  
GROUNDWATER ELEVATION CONTOUR MAP,  
DECEMBER 9, 2003

SHELL-BRANDED SERVICE STATION  
1155 Portola Avenue  
Livermore, California

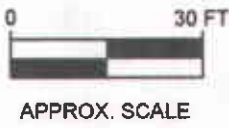
PROJECT NO. SJ11-55P-1.2004	DRAWN BY VF 10/22/03
FILE NO. SJ11-55P-1.2004	PREPARED BY VF
REVISION NO. 1	REVIEWED BY





**LEGEND**

- MW-4 ● **GROUNDWATER MONITORING WELL**
- 64/53 **BENZENE/MTBE CONCENTRATIONS (UG/L), 12/9/03**



**FIGURE 3**  
**BENZENE AND MTBE CONCENTRATIONS MAP,**  
**DECEMBER 9, 2003**  
**SHELL-BRANDED SERVICE STATION**  
**1155 Portola Avenue**  
**Livermore, California**

PROJECT NO. SJ11-55P-1.2004	DRAWN BY VF 10/22/03
FILE NO. SJ11-55P-1.2004	PREPARED BY VF
REVISION NO. 1	REVIEWED BY

**Delta**  
Environmental  
Consultants, Inc.

**Attachment A**

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**GROUNDWATER MONITORING AND SAMPLING REPORT**



**BLAINE**  
TECH SERVICES, INC.



1680 ROGERS AVENUE  
SAN JOSE, CA 95112-1105  
(408) 573-7771 FAX  
(408) 573-0555 PHONE  
CONTRACTOR'S LICENSE #746684  
www.blainetech.com

December 29, 2003

Karen Petryna  
Shell Oil Products US  
P.O. Box 7869  
Burbank, CA 91510-7869

Fourth Quarter 2003 Groundwater Monitoring at  
Shell-branded Service Station  
1155 Portola Avenue  
Livermore, CA

Monitoring performed on December 9, 2003

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Groundwater Monitoring Report 031209-DW-2

This report covers the routine monitoring of groundwater wells at this Shell-branded facility. In accordance with standard procedures that conform to Regional Water Quality Control Board requirements, routine field data collection includes depth to water, total well depth, thickness of any separate immiscible layer, water column volume, calculated purge volume (if applicable), elapsed evacuation time (if applicable), total volume of water removed (if applicable), and standard water parameter instrument readings. Sample material is collected, contained, stored, and transported to the laboratory in conformance with EPA standards. Purgewater (if applicable) is, likewise, collected and transported to the Martinez Refining Company.

Basic field information is presented alongside analytical values excerpted from the laboratory report in the cumulative table of **WELL CONCENTRATIONS**. The full analytical report for the most recent samples and the field data sheets are attached to this report.

At a minimum, Blaine Tech Services, Inc. field personnel are certified on completion of a forty-hour Hazardous Materials and Emergency Response training course per 29 CFR 1910.120. Field personnel are also enrolled in annual eight-hour refresher courses.

Blaine Tech Services, Inc. conducts sampling and documentation assignments of this type as an independent third party. Our activities at this site consisted of objective data and sample collection only. No interpretation of analytical results, defining of hydrological conditions or formulation of recommendations was performed.

Please call if you have any questions.

Yours truly,

Leon Gearhart  
Project Coordinator

LG/jt

attachments: Cumulative Table of WELL CONCENTRATIONS  
Certified Analytical Report  
Field Data Sheets

cc: Debbie Arnold  
Delta Environmental  
175 Bernal Road, Suite 200  
San Jose, CA 95119

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**1155 Portola Avenue**  
**Livermore, CA**

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
MW-1	12/05/2002	NA	NA	NA	NA	NA	NA	NA	NA	41.12	NA
MW-1	12/20/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	78	NA	38.40	NA
MW-1	03/28/2003	<50	<50	<0.50	<0.50	<0.50	<1.0	7.0	443.81	36.25	407.56
MW-1	06/26/2003	<50	<50	<0.50	<0.50	<0.50	<1.0	1.4	443.81	39.53	404.28
MW-1	08/25/2003	64	NA	<0.50	<0.50	<0.50	<1.0	53	443.81	42.52	401.29
MW-1	12/09/2003	<50	NA	<0.50	<0.50	<0.50	<1.0	<0.50	443.81	36.84	406.97
MW-2	12/05/2002	NA	NA	NA	NA	NA	NA	NA	NA	41.57	NA
MW-2	12/20/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	190	NA	40.00	NA
MW-2	03/28/2003	<50	<50	<0.50	<0.50	<0.50	<1.0	46	444.61	37.40	407.21
MW-2	06/26/2003	<500	<50	<5.0	<5.0	<5.0	<10	330	444.61	40.51	404.10
MW-2	08/25/2003	<500	NA	<5.0	<5.0	<5.0	<10	400	444.61	43.38	401.23
MW-2	12/09/2003	<50	NA	<0.50	<0.50	<0.50	<1.0	27	444.61	37.92	406.69
MW-3	12/05/2002	NA	NA	NA	NA	NA	NA	NA	NA	40.49	NA
MW-3	12/20/2002	<50	<50	<0.50	<0.50	<0.50	<0.50	8.7	NA	36.00	NA
MW-3	03/28/2003	<50	56	<0.50	<0.50	<0.50	<1.0	<0.50	443.84	36.47	407.37
MW-3	06/26/2003	<50	<50	<0.50	<0.50	<0.50	<1.0	<0.50	443.84	38.70	405.14
MW-3	08/25/2003	76 a	NA	<0.50	<0.50	<0.50	<1.0	<0.50	443.84	41.12	402.72
MW-3	12/09/2003	<50	NA	<0.50	<0.50	<0.50	<1.0	<0.50	443.84	37.27	406.57
MW-4	12/05/2002	NA	NA	NA	NA	NA	NA	NA	NA	41.45	NA
MW-4	12/20/2002	<50	61	<0.50	<0.50	<0.50	<0.50	<0.50	NA	40.61	NA
MW-4	03/28/2003	<50	<50	<0.50	<0.50	<0.50	<1.0	<0.50	444.18	37.16	407.02
MW-4	06/26/2003	<50	<50	<0.50	<0.50	<0.50	<1.0	<0.50	444.18	40.05	404.13
MW-4	08/25/2003	67 a	NA	<0.50	<0.50	<0.50	<1.0	<0.50	444.18	43.04	401.14

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**1155 Portola Avenue**  
**Livermore, CA**

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
MW-4	12/09/2003	<50	NA	<0.50	<0.50	<0.50	<1.0	<0.50	444.18	37.62	406.56

Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B.

TEPH = Total petroleum hydrocarbons as diesel by modified EPA Method 8015.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B.

MTBE = Methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

GW = Groundwater

ug/L = Parts per billion

MSL = Mean sea level

ft = Feet

<n = Below detection limit

NA = Not applicable

Notes:

a = Hydrocarbon does not match pattern of laboratory's standard.

Site surveyed November 25, 2002, by Mid Coast Engineers.

**Blaine Tech Services, Inc.**

December 23, 2003

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Attn.: Leon Gearhart  
Project#: 031209-DW-2  
Project: 97495539  
Site: 1155 Portola Ave., Livermore

Dear Mr. Gearhart,

Attached is our report for your samples received on 12/10/2003 17:08  
This report has been reviewed and approved for release. Reproduction of this report  
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after  
01/24/2004 unless you have requested otherwise.

We appreciate the opportunity to be of service to you. If you have any questions,  
please call me at (925) 484-1919.

You can also contact me via email. My email address is: [vvancil@stl-inc.com](mailto:vvancil@stl-inc.com)

Sincerely,



Vincent Vancil  
Project Manager



**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW-1	12/09/2003 15:03	Water	1
MW-2	12/09/2003 15:15	Water	2
MW-3	12/09/2003 15:50	Water	3
MW-4	12/09/2003 15:28	Water	4

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/22/2003 16:58

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

Prep(s): 5030B

Test(s): 8260B

Sample ID: MW-1

Lab ID: 2003-12-0344 - 1

Sampled: 12/09/2003 15:03

Extracted: 12/18/2003 19:54

Matrix: Water

QC Batch#: 2003/12/18-2A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/18/2003 19:54	
Benzene	ND	0.50	ug/L	1.00	12/18/2003 19:54	
Toluene	ND	0.50	ug/L	1.00	12/18/2003 19:54	
Total xylenes	ND	1.0	ug/L	1.00	12/18/2003 19:54	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	12/18/2003 19:54	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	12/18/2003 19:54	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	12/18/2003 19:54	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	12/18/2003 19:54	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	12/18/2003 19:54	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	98.4	76-130	%	1.00	12/18/2003 19:54	
Toluene-d8	92.3	78-115	%	1.00	12/18/2003 19:54	

Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-2	Lab ID:	2003-12-0344 - 2
Sampled:	12/09/2003 15:15	Extracted:	12/17/2003 21:09
Matrix:	Water	QC Batch#:	2003/12/17-02.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/17/2003 21:09	
Benzene	ND	0.50	ug/L	1.00	12/17/2003 21:09	
Toluene	ND	0.50	ug/L	1.00	12/17/2003 21:09	
Total xylenes	ND	1.0	ug/L	1.00	12/17/2003 21:09	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	12/17/2003 21:09	
Methyl tert-butyl ether (MTBE)	27	0.50	ug/L	1.00	12/17/2003 21:09	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	12/17/2003 21:09	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	12/17/2003 21:09	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	12/17/2003 21:09	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	96.0	76-130	%	1.00	12/17/2003 21:09	
Toluene-d8	94.5	78-115	%	1.00	12/17/2003 21:09	

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

Prep(s): 5030B Test(s): 8260B  
 Sample ID: MW-3 Lab ID: 2003-12-0344 - 3  
 Sampled: 12/09/2003 15:50 Extracted: 12/17/2003 22:05  
 Matrix: Water QC Batch#: 2003/12/17-02.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/17/2003 22:05	
Benzene	ND	0.50	ug/L	1.00	12/17/2003 22:05	
Toluene	ND	0.50	ug/L	1.00	12/17/2003 22:05	
Total xylenes	ND	1.0	ug/L	1.00	12/17/2003 22:05	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	12/17/2003 22:05	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	12/17/2003 22:05	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	12/17/2003 22:05	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	12/17/2003 22:05	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	12/17/2003 22:05	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	92.6	76-130	%	1.00	12/17/2003 22:05	
Toluene-d8	93.3	78-115	%	1.00	12/17/2003 22:05	

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2  
97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

Prep(s): 5030B Test(s): 8260B  
Sample ID: MW-4 Lab ID: 2003-12-0344 - 4  
Sampled: 12/09/2003 15:28 Extracted: 12/17/2003 22:26  
Matrix: Water QC Batch#: 2003/12/17-02.69

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	12/17/2003 22:26	
Benzene	ND	0.50	ug/L	1.00	12/17/2003 22:26	
Toluene	ND	0.50	ug/L	1.00	12/17/2003 22:26	
Total xylenes	ND	1.0	ug/L	1.00	12/17/2003 22:26	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	12/17/2003 22:26	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	12/17/2003 22:26	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	12/17/2003 22:26	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	12/17/2003 22:26	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	12/17/2003 22:26	
<b>Surrogate(s)</b>						
1,2-Dichloroethane-d4	91.9	76-130	%	1.00	12/17/2003 22:26	
Toluene-d8	91.0	78-115	%	1.00	12/17/2003 22:26	



**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2  
97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

Method Blank

Water

QC Batch # 2003/12/17-02.69

MB: 2003/12/17-02.69-036

Date Extracted: 12/17/2003 19:36

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	12/17/2003 19:36	
Benzene	ND	0.5	ug/L	12/17/2003 19:36	
Toluene	ND	0.5	ug/L	12/17/2003 19:36	
Total xylenes	ND	1.0	ug/L	12/17/2003 19:36	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	12/17/2003 19:36	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	12/17/2003 19:36	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	12/17/2003 19:36	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	12/17/2003 19:36	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	12/17/2003 19:36	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	87.1	76-130	%	12/17/2003 19:36	
Toluene-d8	98.9	78-115	%	12/17/2003 19:36	

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2003/12/18-2A.62-057

Water

Test(s): 8260B

QC Batch # 2003/12/18-2A.62

Date Extracted: 12/18/2003 18:57

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	12/18/2003 18:57	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	12/18/2003 18:57	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	12/18/2003 18:57	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	12/18/2003 18:57	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	12/18/2003 18:57	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	12/18/2003 18:57	
Benzene	ND	0.5	ug/L	12/18/2003 18:57	
Toluene	ND	0.5	ug/L	12/18/2003 18:57	
Total xylenes	ND	1.0	ug/L	12/18/2003 18:57	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	100.0	76-130	%	12/18/2003 18:57	
Toluene-d8	88.3	78-115	%	12/18/2003 18:57	

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

**Laboratory Control Spike**

**Water**

**QC Batch # 2003/12/17-02.69**

LCS 2003/12/17-02.69-059

Extracted: 12/17/2003

Analyzed: 12/17/2003 18:59

LCSD 2003/12/17-02.69-017

Extracted: 12/17/2003

Analyzed: 12/17/2003 19:17

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	23.7	24.6	25.0	94.8	98.4	3.7	69-129	20		
Toluene	28.3	27.9	25.0	113.2	111.6	1.4	70-130	20		
Methyl tert-butyl ether (MTBE)	26.0	27.9	25.0	104.0	111.6	7.1	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	449	450	500	89.8	90.0		76-130			
Toluene-d8	545	514	500	109.0	102.8		78-115			

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/22/2003 16:58

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

**Laboratory Control Spike**

**Water**

**QC Batch # 2003/12/18-2A.62**

LCS 2003/12/18-2A.62-013

Extracted: 12/18/2003

Analyzed: 12/18/2003 18:13

LCSD 2003/12/18-2A.62-035

Extracted: 12/18/2003

Analyzed: 12/18/2003 18:35

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD %	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Methyl tert-butyl ether (MTBE)	19.2	20.1	25	76.8	80.4	4.6	65-165	20		
Benzene	23.5	20.7	25	94.0	82.8	12.7	69-129	20		
Toluene	24.5	24.5	25	98.0	98.0	0.0	70-130	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	468	453	500	93.6	90.6		76-130			
Toluene-d8	517	520	500	103.4	104.0		78-115			

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12/22/2003 16:58

**Gas/BTEX Fuel Oxygenates by 8260B (C6-C12)**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

Phone: (408) 573-0555 Fax: (408) 573-7771

Project: 031209-DW-2

97495539

Received: 12/10/2003 17:08

Site: 1155 Portola Ave., Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260B

**Matrix Spike ( MS / MSD )**

**Water**

**QC Batch # 2003/12/17-02.69**

MW-2 >> MS

Lab ID: 2003-12-0344 - 002

MS: 2003/12/17-02.69-028

Extracted: 12/17/2003

Analyzed: 12/17/2003 21:28

Dilution: 1.00

MSD: 2003/12/17-02.69-046

Extracted: 12/17/2003

Analyzed: 12/17/2003 21:46

Dilution: 1.00

Compound	Conc. ug/L			Spk.Level	Recovery %			Limits %		Flags	
	MS	MSD	Sample		ug/L	MS	MSD	RPD	Rec.	RPD	MS
Benzene	23.4	23.4	ND	25.0	93.6	93.6	0.0	69-129	20		
Toluene	26.5	25.7	ND	25.0	106.0	102.8	3.1	70-130	20		
Methyl tert-butyl ether	57.5	45.5	27.1	25.0	121.6	73.6	49.2	65-165	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	509	501		500	101.8	100.2		76-130			
Toluene-d8	484	488		500	96.8	97.6		78-115			

Severn Trent Laboratories, Inc.

STL San Francisco \* 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 \* www.stl-inc.com \* CA DHS ELAP# 2496

12/22/2003 16:58



LAB: STL

# 2003-12-0344 SHELL Chain Of Custody Record

81037

Lab Identification (if necessary):

Address:

City, State, Zip:

Shell Project Manager to be involved:

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CRMF HOUSTON

Karen Petryna

INCIDENT NUMBER (S&E ONLY)

9 7 4 9 5 5 3 9

SAP or CRMT NUMBER (TS/CRMT)

PAGE: 1 of 1

<b>LABORATORY</b> Blaine Tech Services 1680 Rogers Avenue, San Jose, CA 95112 Project: CRMF Houston FTOP Refinery Leon Gearhart TEL: 408-573-0555 FAX: 408-573-7771 EMAIL: gearhart@blainetech.com		<b>LAB CODE:</b> BTSS	<b>SITE ADDRESS (Street and City):</b> 1155 Portola Ave., Livermore		<b>LABOR ID NO.:</b> pending																																																																			
TURNAROUND TIME (BUSINESS DAYS): <input checked="" type="checkbox"/> 30 DAYS <input type="checkbox"/> 5 DAYS <input type="checkbox"/> 72 HOURS <input type="checkbox"/> 48 HOURS <input type="checkbox"/> 24 HOURS <input type="checkbox"/> LESS THAN 24 HOURS		<b>REQUESTED ANALYSIS</b>																																																																						
<input type="checkbox"/> SA - RW/CR REPORT FORMAT <input type="checkbox"/> LIST AGENCY:																																																																								
SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NOT NEEDED <input type="checkbox"/>																																																																								
GC/MS MTRR CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____					<b>FIELD NOTES:</b> Container/Preservative or PID Readings or Laboratory Notes  2.5  TEMPERATURE ON RECEIPT C°																																																																			
<table border="1"> <thead> <tr> <th>LAB USE ONLY</th> <th>Field Sample Identification</th> <th colspan="2">SAMPLING</th> <th>MATRIX</th> <th>NO. OF CONT.</th> <th>TPH - Gas, Purgeable</th> <th>BTEX</th> <th>MTBE (R221B - 5ppb RL)</th> <th>MTBE (R260B - 0.5ppb RL)</th> <th>Oxygenates (5) by (R260B)</th> </tr> <tr> <th></th> <th></th> <th>DATE</th> <th>TIME</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td>MW-1</td> <td>12-9</td> <td>15:09</td> <td>W</td> <td>3</td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td></td> <td>MW-2</td> <td>↓</td> <td>16:45</td> <td>W</td> <td>3</td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td></td> <td>MW-3</td> <td>↓</td> <td>15:50</td> <td>↓</td> <td>↓</td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td></td> <td>MW-4</td> <td>↓</td> <td>15:28</td> <td>↓</td> <td>↓</td> <td>X</td> <td>X</td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table>	LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (R221B - 5ppb RL)	MTBE (R260B - 0.5ppb RL)	Oxygenates (5) by (R260B)			DATE	TIME									MW-1	12-9	15:09	W	3	X	X		X			MW-2	↓	16:45	W	3	X	X		X			MW-3	↓	15:50	↓	↓	X	X		X			MW-4	↓	15:28	↓	↓	X	X		X							
LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (R221B - 5ppb RL)	MTBE (R260B - 0.5ppb RL)	Oxygenates (5) by (R260B)																																																														
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	MW-4	↓	15:28	↓	↓	X	X		X																																																															
Received by: (Signature) <i>David C. Halst</i>		Received by: (Signature) <i>[Signature]</i>		Date: 12/10/03		Time: 1750																																																																		
Received by: (Signature) <i>[Signature]</i>		Received by: (Signature) <i>[Signature]</i>		Date: 12-10-03		Time: 1708																																																																		

# WELLHEAD INSPECTION CHECKLIST

Client Shell Date 12-9-03

Site Address 1155 Portola Ave Livermore

Job Number 031209-DW-2 Technician Dave W.

Well ID	Well Inspected - No Corrective Action Required	Water Balled From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
<u>MW-1</u>	<u>X</u>							
<u>MW-2</u>		<u>X</u>						
<u>MW-3</u>	<u>X</u>							
<u>MW-4</u>	<u>X</u>							

NOTES: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# WELL GAUGING DATA

Project # 031209-DW-2 Date 12-9-03 Client Shell

Site 11.55 Portola Ave Livermore

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or <u>TOC</u>
mw-1	2					36.84	59.02	
mw-2	2					37.92	59.14	
mw-3	2					37.27	54.88	
mw-4	2					37.62	59.03	

## SHELL WELL MONITORING DATA SHEET

PTS #: 031209-DW-1	Site: 1155 Portola Ave Livermore
Sampler: Dave Walter	Date: 12-9-03
Well I.D.: MW-1	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 59.07	Depth to Water (DTW): 36.84
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 41.27	

Purge Method: Bailer Disposable Bailer <input checked="" type="checkbox"/> Positive Air Displacement Electric Submersible	Waterra Peristaltic Extraction Pump Other: _____	Sampling Method: <input checked="" type="checkbox"/> Bailer Disposable Bailer Extraction Port Dedicated Tubing Other: _____
--	---	---

3.5 (Gals.) X 3 = 10.5 Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F)	pH	Cond. (mS or μS)	Turbidity (NTUs)	Gals. Removed	Observations
14:50	62.5	6.8	980	>200	3.5	Brown
14:54	64.4	6.8	969	>200	7.0	
14:58	64.5	6.9	964	>200	10.5	

Did well dewater? Yes  No  Gallons actually evacuated: 10.5

Sampling Date: 12-9-03 Sampling Time: 15:03 Depth to Water: 37.05

Sample I.D.: MW-1 Laboratory: (STL) Other: \_\_\_\_\_

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D Other: Oxy's by 8260

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

**Blaine Tech Services, Inc. 1680 Rogers Ave., San Jose, CA 95112 (800) 545-7558**

## SHELL WELL MONITORING DATA SHEET

BTS #: 031209-DW-2	Site: 1155 Portola Ave Livermore
Sampler: Dave Walter	Date: 12-9-03
Well I.D.: MW-2	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 59.14	Depth to Water (DTW): 37.92
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 42.16	

Purge Method: Bailer	Water: Peristaltic	Sampling Method: <input checked="" type="checkbox"/> Bailer
Disposable Bailer	Extraction Pump	Disposable Bailer
<input checked="" type="checkbox"/> Positive Air Displacement	Other: _____	Extraction Port
Electric Submersible		Dedicated Tubing
		Other: _____

3.4 (Gals.) X 3 = 10.2 Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F)	pH	Cond. (mS or $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
16:03	62.3	7.0	982	>200	3.4	Brown
16:07	64.6	7.0	966	>200	6.8	"
16:11	65.6	7.0	957	>200	10.2	"

Did well dewater? Yes  No  Gallons actually evacuated: 10.2

Sampling Date: 12-9-03      Sampling Time: 16:15      Depth to Water: 38.15

Sample I.D.: MW-2      Laboratory: (STL) Other: \_\_\_\_\_

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D      Other: Oxy's by 8266

EB I.D. (if applicable): @      Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D      Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## SHELL WELL MONITORING DATA SHEET

WTS #: 031209-DW-2	Site: 1155 Parola Ave Livermore
Sampler: Dave Walter	Date: 12-9-03
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 54.48	Depth to Water (DTW): 37.27
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 40.71	

Purge Method: <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Positive Air Displacement <input type="checkbox"/> Electric Submersible	Waterra <input type="checkbox"/> Peristaltic <input type="checkbox"/> Extraction Pump Other: _____	Sampling Method: <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing Other: _____
--	---	--

2.8 (Gals.) X 3 = 8.4 Gals. Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius<sup>2</sup> * 0.163</td> </tr> </tbody> </table>	Well Diameter	Multiplier	Well Diameter	Multiplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius <sup>2</sup> * 0.163
Well Diameter	Multiplier	Well Diameter	Multiplier														
1"	0.04	4"	0.65														
2"	0.16	6"	1.47														
3"	0.37	Other	radius <sup>2</sup> * 0.163														

Time	Temp (°F)	pH	Cond. (mS or $\mu$ S)	Turbidity (NTUs)	Gals. Removed	Observations
15:39	61.6	6.9	1041	>200	2.8	Brown
15:42	64.7	6.9	1088	>200	5.6	"
15:45	65.9	6.9	1108	>200	8.4	"

Did well dewater? Yes  No  Gallons actually evacuated: 8.4

Sampling Date: 12-9-03 Sampling Time: 15:50 Depth to Water: 37.64

Sample I.D.: MW-3 Laboratory: STL Other: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxy's by R260

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## SHELL WELL MONITORING DATA SHEET

BTS #: 031209-Dw-2	Site: 1155 Partala Ave Livermore
Sampler: Dave Walter	Date: 12-9-03
Well I.D.: mw-4	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 59.03	Depth to Water (DTW): 37.62
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 41.90	

Purge Method: Bailer       Waterra       Sampling Method:  Bailer  
 Disposable Bailer       Peristaltic       Disposable Bailer   
 Positive Air Displacement       Extraction Pump       Extraction Port   
 Electric Submersible       Other \_\_\_\_\_      Dedicated Tubing

3.4 (Gals.) X 3 = 10.2 Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Time	Temp (°F)	pH	Cond. (mS or μS)	Turbidity (NTUs)	Gals. Removed	Observations
15:17	62.6	7.3	987	>200	3.4	Brown
15:21	63.0	7.2	1060	>200	6.8	"
15:24	63.8	7.3	1055	>200	10.2	getting lighter

Did well dewater? Yes  No       Gallons actually evacuated: 10.2

Sampling Date: 12-9-03      Sampling Time: 15:28      Depth to Water: 37.77

Sample I.D.: MW-4      Laboratory: (STD) Other \_\_\_\_\_

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D      Other: Org's by 6260

EB I.D. (if applicable): @ Time      Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D      Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV