



...COMBINING OUR  
RESOURCES TO  
ENHANCE OUR  
SERVICES...



June 10, 2003  
Project No. C85-809 Stanley

Mr. Scott Seery  
Environmental Health Services – Environmental Protection  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Alameda County  
JUN 13 2003  
Environmental Health

Re: **Quarterly Monitoring Report – Second Quarter 2003**  
**Shell-branded Service Station**  
**809 East Stanley Blvd.**  
**Livermore, California**

Dear Mr. Seery:

KHM Environmental Management, Inc. (KHM), on behalf of Shell Oil Products US (Shell), has prepared the following second quarter 2003 groundwater monitoring and sampling report for the above referenced site. Shell received a notice of responsibility letter from Alameda County Health Care Services Agency dated March 7, 2003. Groundwater sampling was performed by Blaine Tech Services (Blaine), at the direction of KHM, on April 21, 2003. A site location map is included as Figure 1.

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

Groundwater monitoring wells were gauged and sampled by Blaine on April 21, 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); and the five fuel oxygenates methyl tert-butyl ether (MTBE), diisopropyl ether (DIPE), ethyl-t-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.

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.

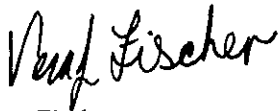
**DISCUSSION**

The groundwater gradient on April 9, 2003 was toward the northeast at a magnitude of 0.005 feet/feet, consistent with previous quarters.

MTBE was detected in Well MW-3 at 0.71 micrograms per liter (ug/l). All other analytes were below laboratory detection limits.

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

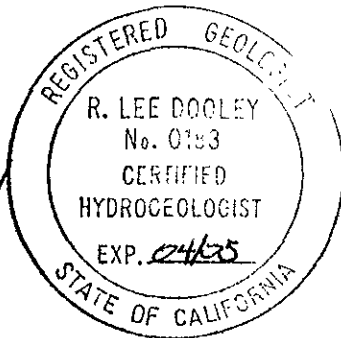
Sincerely,  
**KHM Environmental Management, Inc.**



Vera Fischer  
Staff Geologist



R. Lee Dooley  
Senior Hydrogeologist  
CHG 0183

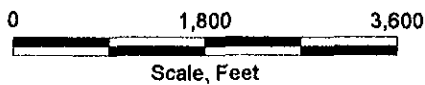
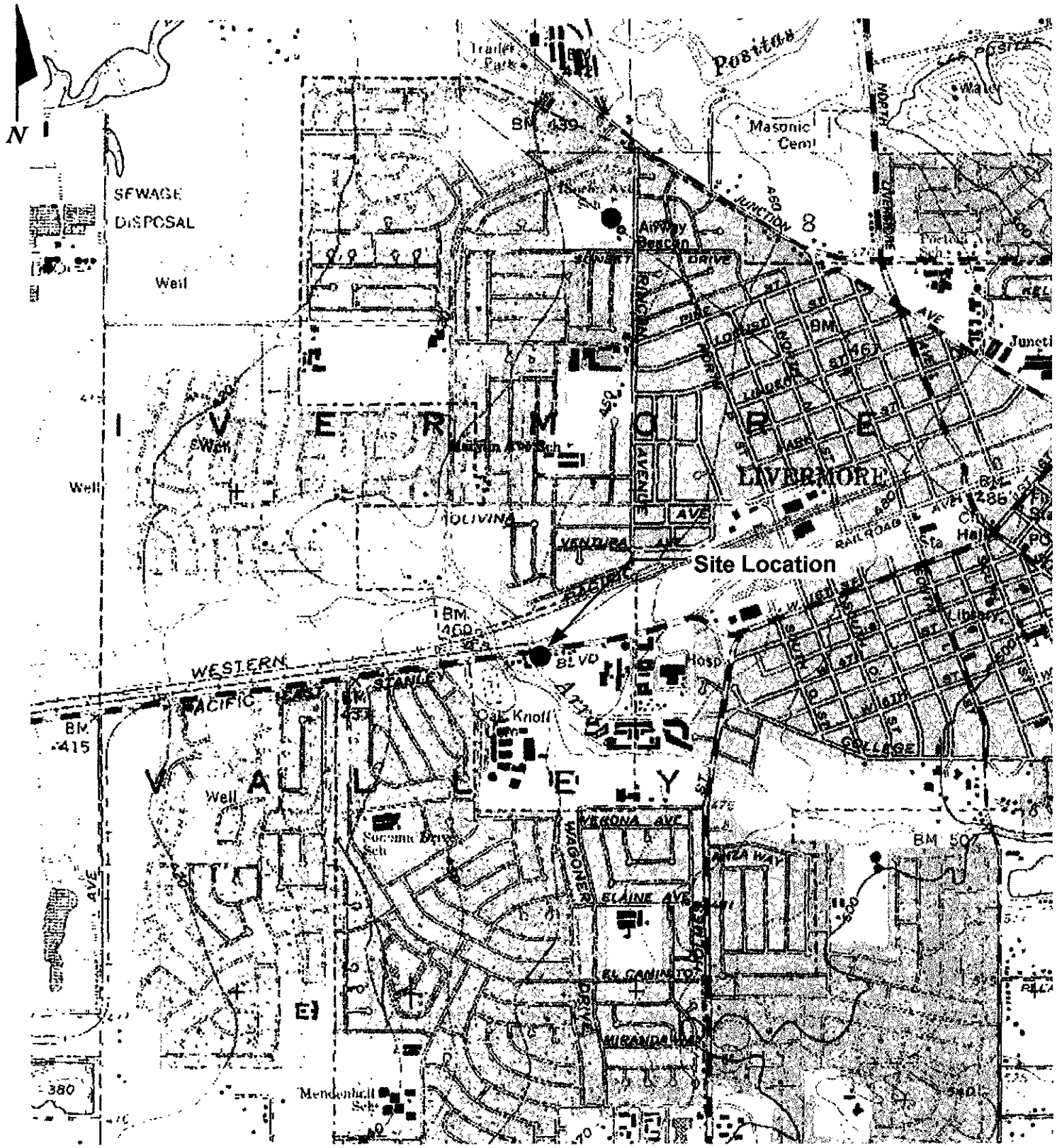


Attachments:

- 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, May 22, 2003

cc: Ms. Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91501-7869  
Mr. Gordon L. Boggs, RWQCB – Region 5, Sacramento Office, 3443 Routier Road, Sacramento, CA 95827



**KHM**

ENVIRONMENTAL  
MANAGEMENT,  
INC.

**SITE LOCATION MAP**

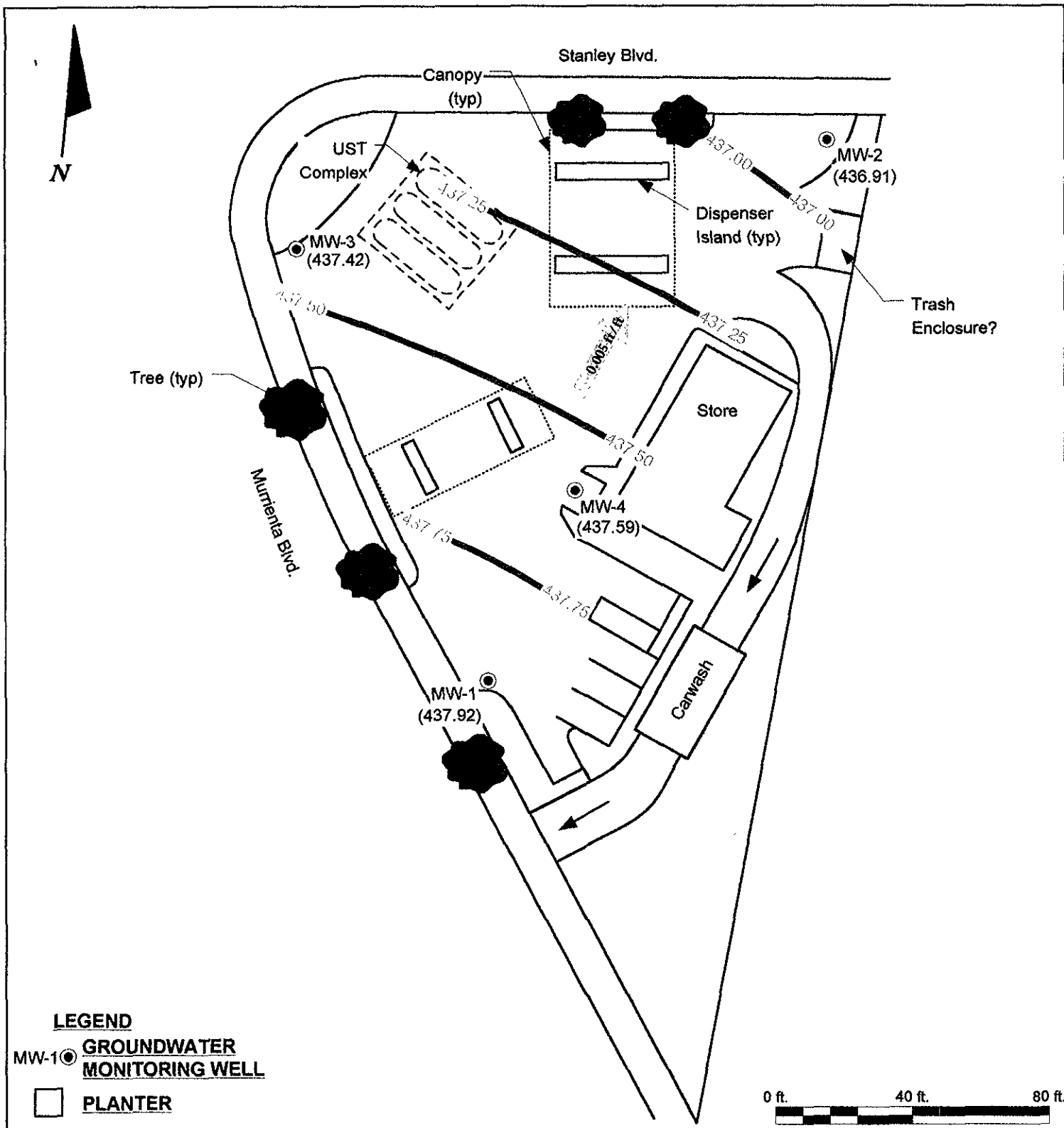
**Shell-branded Service Station**  
809 East Stanley Blvd.  
Livermore, California

Map Source: DeLorme, Yarmouth, ME 04096,  
USGA Topo Map

DATE 5/28/03

PROJECT C85-809 Stanley

FIGURE 1



**LEGEND**

MW-1 ● **GROUNDWATER MONITORING WELL**

□ **PLANTER**

(435.09) **GROUNDWATER ELEVATION (FEET-MSL), 4/21/03**

(435.09) **GROUNDWATER ELEVATION CONTOUR**

**APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT**

**KHM**  
ENVIRONMENTAL  
MANAGEMENT,  
INC.

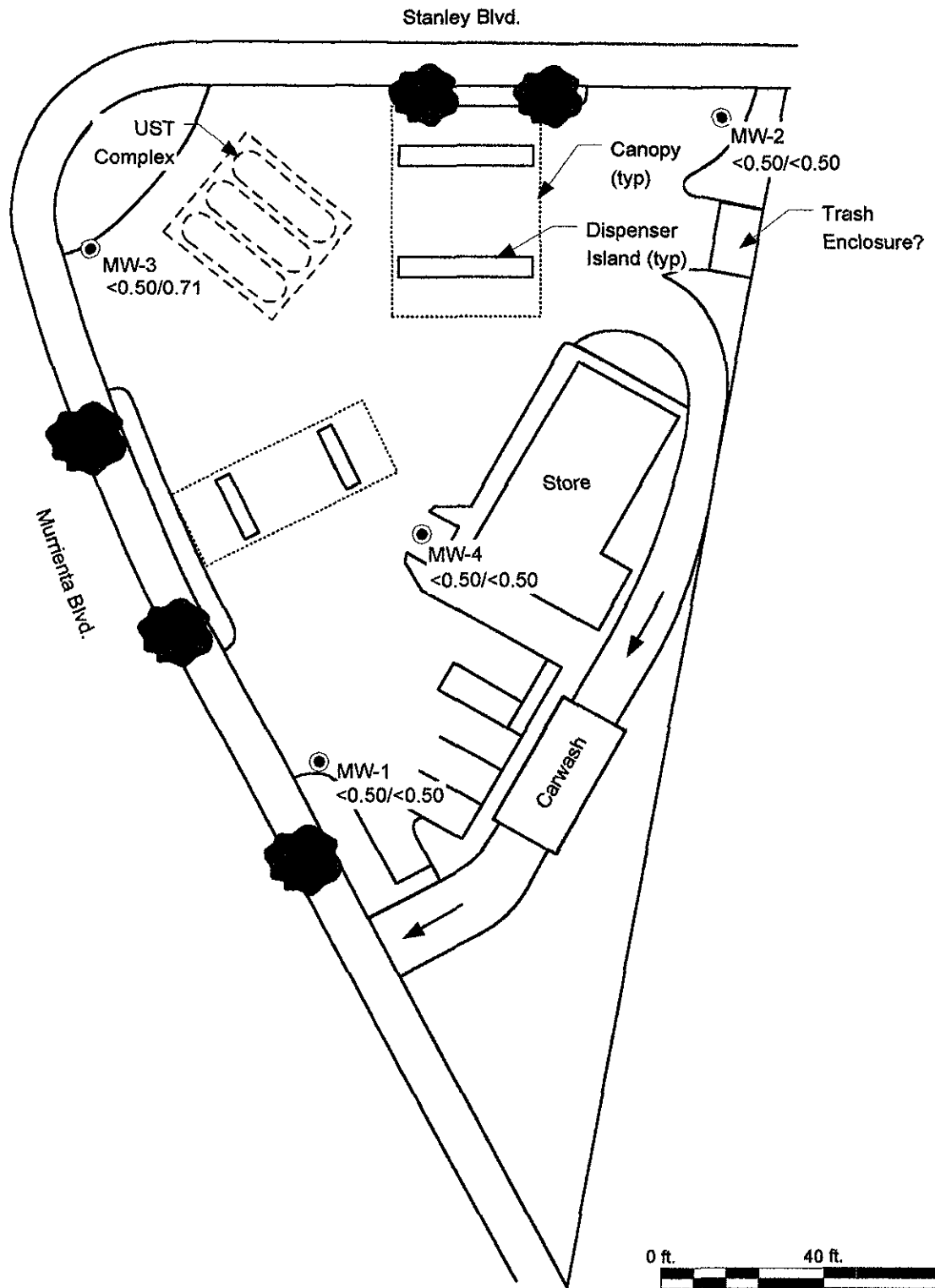
**GROUNDWATER ELEVATION CONTOUR MAP, APRIL 21, 2003**

**Shell Service Station**  
809 East Stanley Blvd  
Livermore, California

DATE 5/28/03

PROJECT C85-809 Stanley

FIGURE 2



**LEGEND**

- MW-1 ● **GROUNDWATER MONITORING WELL**
- **PLANTER**
- <math><0.50/<0.50</math> **BENZENE/MTBE CONCENTRATIONS IN GROUNDWATER (ug/l), 4/21/03**

**KHM**  
ENVIRONMENTAL  
MANAGEMENT,  
INC.

**BENZENE AND MTBE CONCENTRATION MAP,  
APRIL 21, 2003**

**Shell Service Station  
809 East Stanley Blvd  
Livermore, California**

DATE 5/28/03

PROJECT C85-809 Stanley

FIGURE 3

**Attachment A**

---

**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

May 22, 2003

Lynn Walker  
Shell Oil Products US  
P.O. Box 7869  
Burbank, CA 91510-7869

Second Quarter 2003 Groundwater Monitoring at  
Shell-branded Service Station  
809 East Stanley Boulevard  
Livermore, CA

Monitoring performed on April 21, 2003

---

Groundwater Monitoring Report **030421-RH-1**

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. Purge water (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  
KHM Environmental  
6234 San Ignacio Avenue, Suite E  
San Jose, CA 95119



**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**809 East Stanley Boulevard**  
**Livermore, CA**

Well ID	Date	TPPH (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	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	455.49	20.06	435.43
MW-1	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	455.49	19.71	435.78
MW-1	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	455.49	18.05	437.44
MW-1	04/21/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	455.49	17.57	437.92
MW-2	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	454.84	20.40	434.44
MW-2	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	454.84	20.17	434.67
MW-2	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	454.84	18.30	436.54
MW-2	04/21/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	454.84	17.93	436.91
MW-3	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	454.87	19.95	434.92
MW-3	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	0.83	454.87	19.63	435.24
MW-3	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	454.87	17.90	436.97
MW-3	04/21/2003	<50	<0.50	<0.50	<0.50	<1.0	0.71	454.87	17.45	437.42
MW-4	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	456.24	21.15	435.09
MW-4	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	456.24	20.85	435.39
MW-4	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	456.24	19.15	437.09
MW-4	04/21/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	456.24	18.65	437.59

TABLE  
MISSING 09/25/01  
SAMPLING EVENT.  
RPP 09/13/03

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**809 East Stanley Boulevard**  
**Livermore, CA**

Well ID	Date	TPPH (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)
---------	------	----------------	-------------	-------------	-------------	-------------	------------------------	--------------	----------------------------	--------------------------

Abbreviations:

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

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:

Survey data provided by KHM Environmental Management, Inc.

**Blaine Tech Services, Inc.**

May 06, 2003

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Attn.: Leon Gearhart  
Project#: 030421-RH1  
Project: 97306796  
Site: 809 E. Stanley Blvd Livermore

Dear Mr.Gearhart,

Attached is our report for your samples received on 04/22/2003 15:00  
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  
06/06/2003 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: [tgranicher@stl-inc.com](mailto:tgranicher@stl-inc.com)

Sincerely,



Tod Granicher  
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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW-1	04/21/2003 13:25	Water	1
MW-2	04/21/2003 12:45	Water	2
MW-3	04/21/2003 13:00	Water	3
MW-4	04/21/2003 13:15	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

05/05/2003 12:18

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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Prep(s):	5030B	Test(s):	8260FAB
Sample ID:	MW-1	Lab ID:	2003-04-0557 - 1
Sampled:	04/21/2003 13:25	Extracted:	5/1/2003 17:07
Matrix:	Water	QC Batch#:	2003/05/01-1c.64

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	05/01/2003 17:07	
Benzene	ND	0.50	ug/L	1.00	05/01/2003 17:07	
Toluene	ND	0.50	ug/L	1.00	05/01/2003 17:07	
Ethylbenzene	ND	0.50	ug/L	1.00	05/01/2003 17:07	
Total xylenes	ND	1.0	ug/L	1.00	05/01/2003 17:07	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	05/01/2003 17:07	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	05/01/2003 17:07	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	05/01/2003 17:07	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	05/01/2003 17:07	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	05/01/2003 17:07	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	93.3	76-114	%	1.00	05/01/2003 17:07	
Toluene-d8	97.4	88-110	%	1.00	05/01/2003 17:07	

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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-2	Lab ID: 2003-04-0557 - 2
Sampled: 04/21/2003 12:45	Extracted: 5/1/2003 03:27
Matrix: Water	QC Batch#: 2003/04/30-2a 64

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	05/01/2003 03:27	
Benzene	ND	0.50	ug/L	1.00	05/01/2003 03:27	
Toluene	ND	0.50	ug/L	1.00	05/01/2003 03:27	
Ethylbenzene	ND	0.50	ug/L	1.00	05/01/2003 03:27	
Total xylenes	ND	1.0	ug/L	1.00	05/01/2003 03:27	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	05/01/2003 03:27	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	05/01/2003 03:27	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	05/01/2003 03:27	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	05/01/2003 03:27	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	05/01/2003 03:27	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	111.3	76-114	%	1.00	05/01/2003 03:27	
Toluene-d8	99.3	88-110	%	1.00	05/01/2003 03:27	

**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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-3	Lab ID: 2003-04-0557 - 3
Sampled: 04/21/2003 13:00	Extracted: 5/1/2003 17:27
Matrix: Water	QC Batch#: 2003/05/01-1c.64

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	05/01/2003 17:27	
Benzene	ND	0.50	ug/L	1.00	05/01/2003 17:27	
Toluene	ND	0.50	ug/L	1.00	05/01/2003 17:27	
Ethylbenzene	ND	0.50	ug/L	1.00	05/01/2003 17:27	
Total xylenes	ND	1.0	ug/L	1.00	05/01/2003 17:27	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	05/01/2003 17:27	
Methyl tert-butyl ether (MTBE)	0.71	0.50	ug/L	1.00	05/01/2003 17:27	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	05/01/2003 17:27	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	05/01/2003 17:27	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	05/01/2003 17:27	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	95.7	76-114	%	1.00	05/01/2003 17:27	
Toluene-d8	97.3	88-110	%	1.00	05/01/2003 17:27	

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

05/05/2003 12:18

**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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-4	Lab ID: 2003-04-0557 - 4
Sampled: 04/21/2003 13:15	Extracted: 5/2/2003 19:34
Matrix: Water	QC Batch#: 2003/05/02-01.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	05/02/2003 19:34	
Benzene	ND	0.50	ug/L	1.00	05/02/2003 19:34	
Toluene	ND	0.50	ug/L	1.00	05/02/2003 19:34	
Ethylbenzene	ND	0.50	ug/L	1.00	05/02/2003 19:34	
Total xylenes	ND	1.0	ug/L	1.00	05/02/2003 19:34	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	05/02/2003 19:34	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	05/02/2003 19:34	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	05/02/2003 19:34	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	05/02/2003 19:34	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	05/02/2003 19:34	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	103.4	76-114	%	1.00	05/02/2003 19:34	
Toluene-d8	92.1	88-110	%	1.00	05/02/2003 19:34	

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

05/05/2003 12:18



**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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2003/04/30-2a.64-052

Water

Test(s): 8260FAB

QC Batch # 2003/04/30-2a.64

Date Extracted: 04/30/2003 20:51

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	04/30/2003 20:51	
Benzene	ND	0.5	ug/L	04/30/2003 20:51	
Toluene	ND	0.5	ug/L	04/30/2003 20:51	
Ethylbenzene	ND	0.5	ug/L	04/30/2003 20:51	
Total xylenes	ND	1.0	ug/L	04/30/2003 20:51	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	04/30/2003 20:51	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	04/30/2003 20:51	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	04/30/2003 20:51	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	04/30/2003 20:51	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	04/30/2003 20:51	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	102.2	76-114	%	04/30/2003 20:51	
Toluene-d8	98.4	88-110	%	04/30/2003 20:51	

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

05/05/2003 12:18

**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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2003/05/01-1c.64-003

Water

Test(s): 8260FAB

QC Batch # 2003/05/01-1c.64

Date Extracted: 05/01/2003 11:06

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	05/01/2003 11:06	
Benzene	ND	0.5	ug/L	05/01/2003 11:06	
Toluene	ND	0.5	ug/L	05/01/2003 11:06	
Ethylbenzene	ND	0.5	ug/L	05/01/2003 11:06	
Total xylenes	ND	1.0	ug/L	05/01/2003 11:06	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	05/01/2003 11:06	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	05/01/2003 11:06	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	05/01/2003 11:06	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	05/01/2003 11:06	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	05/01/2003 11:06	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	109.4	76-114	%	05/01/2003 11:06	
Toluene-d8	98.0	88-110	%	05/01/2003 11:06	

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

05/05/2003 12:18

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: 030421-RH1

97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2003/05/02-01.65-002

Water

Test(s): 8260FAB

QC Batch # 2003/05/02-01.65

Date Extracted: 05/02/2003 11:31

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	05/02/2003 11:31	
Benzene	ND	0.5	ug/L	05/02/2003 11:31	
Toluene	ND	0.5	ug/L	05/02/2003 11:31	
Ethylbenzene	ND	0.5	ug/L	05/02/2003 11:31	
Total xylenes	ND	1.0	ug/L	05/02/2003 11:31	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	05/02/2003 11:31	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	05/02/2003 11:31	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	05/02/2003 11:31	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	05/02/2003 11:31	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	05/02/2003 11:31	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	108.4	76-114	%	05/02/2003 11:31	
Toluene-d8	101.2	88-110	%	05/02/2003 11:31	

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: 030421-RH1  
97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Batch QC Report

Prep(s): 5030B

Test(s): 8260FAB

Laboratory Control Spike

Water

QC Batch # 2003/04/30-2a.64

LCS 2003/04/30-2a.64-053

Extracted: 04/30/2003

Analyzed: 05/02/2003 20:07

LCSD 2003/04/30-2a.64-002

Extracted: 04/30/2003

Analyzed: 04/30/2003 20:29

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	23.5	23.7	25	94.0	94.8	0.8	69-129	20		
Toluene	24.1	24.5	25	96.4	98.0	1.6	70-130	20		
Methyl tert-butyl ether (MTBE)	26.7	27.8	25	106.8	111.2	4.0	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	519	545	500	103.8	109.0		76-114			
Toluene-d8	499	495	500	99.8	99.0		88-110			

**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: 030421-RH1  
97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260FAB

**Laboratory Control Spike**

**Water**

**QC Batch # 2003/05/01-1c.64**

LCS 2003/05/01-1c.64-002

Extracted: 05/01/2003

Analyzed: 05/01/2003 10:22

LCSD 2003/05/01-1c.64-001

Extracted: 05/01/2003

Analyzed: 05/01/2003 10:44

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD %	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Benzene	22.9	22.1	25	91.6	88.4	3.6	69-129	20		
Toluene	23.2	22.4	25	92.8	89.6	3.5	70-130	20		
Methyl tert-butyl ether (MTBE)	24.4	25.3	25	97.6	101.2	3.6	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	496	501	500	99.2	100.2		76-114			
Toluene-d8	490	470	500	98.0	94.0		88-110			

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

05/05/2003 12:18

**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: 030421-RH1  
97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260FAB

**Laboratory Control Spike**

**Water**

**QC Batch # 2003/05/02-01.65**

LCS 2003/05/02-01.65-003

Extracted: 05/02/2003

Analyzed: 05/02/2003 10:47

LCSD 2003/05/02-01.65-001

Extracted: 05/02/2003

Analyzed: 05/02/2003 11:09

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD %	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		Rec.	RPD	LCS	LCSD
Benzene	18.4	21.4	25.0	73.6	85.6	15.1	69-129	20		
Toluene	18.4	21.1	25.0	73.6	84.4	13.7	70-130	20		
Methyl tert-butyl ether (MTBE)	25.8	29.9	25.0	103.2	119.6	14.7	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	524	535	500	104.8	107.0		76-114	0		
Toluene-d8	489	500	500	97.8	100.0		88-110	0		

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

05/05/2003 12:18

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: 030421-RH1  
97306796

Received: 04/22/2003 15:00

Site: 809 E. Stanley Blvd Livermore

Batch QC Report

Prep(s): 5030B

Test(s): 8260FAB

Matrix Spike ( MS / MSD )

Water

QC Batch # 2003/05/02-01.65

MW-4 >> MS

Lab ID: 2003-04-0557 - 004

MS: 2003/05/02-01.65-048

Extracted: 05/02/2003

Analyzed: 05/02/2003 18:50

Dilution: 1.00

MSD: 2003/05/02-01.65-049

Extracted: 05/02/2003

Analyzed: 05/02/2003 19:12

Dilution: 1.00

Compound	Conc. ug/L			Spk.Level	Recovery			Limits %		Flags	
	MS	MSD	Sample		ug/L	MS	MSD	RPD	Rec.	RPD	MS
Benzene	23.3	23.2	ND	25.0	93.2	92.8	0.4	69-129	20		
Toluene	22.2	23.2	ND	25.0	88.8	92.8	4.4	70-130	20		
Methyl tert-butyl ether	27.1	30.4	ND	25.0	108.4	121.6	11.5	65-165	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	481	501		500	96.2	100.1		76-114			
Toluene-d8	467	487		500	93.4	97.4		88-110			

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

05/05/2003 12:18

LAB: STL

# SHELL Chain Of Custody Record

73608

Lab Identification (if necessary):

Address:

City, State, Zip:

Shell Project Manager to be invoiced:

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CONTRACTING

Lynn Walker

## 2003-04-0557

INCIDENT NUMBER (S&E ONLY)

9 7 3 0 6 7 9 6

SAP or CRMT NUMBER (TS/CRMT)

DATE: 4/21/03

PAGE: 1 of 1

Client/Job Reference <b>Blaine Tech Services</b>	Lab Code <b>BTSS</b>	Site Address (Street and City): <b>809 E. Stanley Blvd., Livemore</b>	Global ID No.: <b>pending</b>
Address: <b>1680 Rogers Avenue, San Jose, CA 95112</b>	Product/Contract (Include P, R, S, F, etc.): <b>Leon Gearhart</b>	Lab (Collectible To) (Responsible Party or Design): <b>Debbie Arnold</b>	Phone: <b>(408)244-4724</b>
Phone: <b>408-573-0555</b>	Fax: <b>408-573-7771</b>	Email: <b>gearhart@blainetech.com</b>	Contract/Project No.: <b>BTS #630121-212</b>
TURNDOWN TIME (BUSINESS DAYS): <input checked="" type="checkbox"/> 10 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.		REQUESTED ANALYSIS	

LX - INVOIC REPORT FORMAT  LIST AGENCY: \_\_\_\_\_

GCMS METE CONFIRMATION: HIGHEST \_\_\_\_\_ HIGHEST per BORING \_\_\_\_\_ ALL \_\_\_\_\_

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NOT NEEDED

FIELD NOTES:  
Container/Preservative  
or PID Readings  
or Laboratory Notes

2.1°C  
TEMPERATURE ON RECEIPT °C

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTX	MTBE (021B - Sppt RL)	MTR (0260B - 0, Sppt RL)	Oxygenates (S) by (0280B)
		DATE	TIME							
	<u>mw-1</u>	<u>4/21/03</u>	<u>1325</u>	<u>GW</u>	<u>3</u>	<u>X</u>	<u>X</u>		<u>X</u>	
	<u>mw-2</u>	<u>↓</u>	<u>1245</u>	<u>↓</u>	<u>↓</u>	<u>X</u>	<u>X</u>		<u>X</u>	
	<u>mw-3</u>	<u>↓</u>	<u>1300</u>	<u>↓</u>	<u>↓</u>	<u>X</u>	<u>X</u>		<u>X</u>	
	<u>mw-4</u>	<u>↓</u>	<u>1315</u>	<u>↓</u>	<u>↓</u>	<u>X</u>	<u>X</u>		<u>X</u>	

Requested by (Signature): <u>[Signature]</u>	Received by (Signature): <u>[Signature]</u>	Date: <u>4-22-03</u>	Time: <u>3:00 PM</u>
Requested by (Signature): <u>[Signature]</u>	Received by (Signature): <u>[Signature]</u>	Date: <u>4/22/03</u>	Time: <u>1630</u>







## SHELL WELL MONITORING DATA SHEET

BTS #: <u>030421-EMZ</u>	Site: <u>779 E Stanley Blvd, Livermore</u>
Sampler: <u>Ryan H</u>	Date: <u>4/21/03</u>
Well I.D.: <u>mw-1</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth (TD): <u>47.65</u>	Depth to Water (DTW): <u>17.57</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: _____	

Purge Method:  Bailor  Disposable Bailor  Middleburg  Electric Submersible

Water Method:  Peristaltic  Extraction Pump  Other \_\_\_\_\_

Sampling Method:  Bailor  Disposable Bailor  Extraction/Port  Dedicated Tubing

Other: \_\_\_\_\_

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

$$\frac{\text{No Purge (Gals.) X Case Volume}}{\text{Specified Volume}} = \frac{\text{Gals.}}{\text{Calculated Volume}}$$

Time	Temp (°F)	pH	Cond. (mS or <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
<u>1325</u>	<u>62.0</u>	<u>7.1</u>	<u>557</u>	<u>3.6</u>	<u>0</u>	<u>clear</u>

Did well dewater? Yes ~~No~~ Gallons actually evacuated: 0

Sampling Date: 4/21/03 Sampling Time: 1325 Depth to Water: \_\_\_\_\_

Sample I.D.: mw-1 Laboratory: Kiff SPL Other: STL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: oxyanions by S260

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

## SHELL WELL MONITORING DATA SHEET

BTS #: <u>012121-212</u>	Site: <u>509 E Stanley Blvd, Livermore</u>
Sampler: <u>Ryan H</u>	Date: <u>4/21/03</u>
Well I.D.: <u>mw-2</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth (TD): <u>47.08</u>	Depth to Water (DTW): <u>17.93</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: <u>        </u>	

Purge Method: <u>Bailer</u> Disposable Bailer Middleburg Electric Submersible	<del>Water</del> Peristaltic Extraction Pump Other: <u>        </u>	Sampling Method: <u>Bailer</u> <u>(Disposable Bailer)</u> Extraction Port Dedicated Tubing Other: <u>        </u>
--	--	---

$\frac{\text{No Purge (Gals.)} \times \text{Specified Volume}}{\text{Case Volume}} = \text{Calculated Volume}$	<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
1245	62.9	7.1	638	0.7	<u>0</u>	<u>clear</u>

Did well dewater? Yes ~~No~~      Gallons actually evacuated: 0

Sampling Date: 4/21/03      Sampling Time: 1245      Depth to Water: 17.93

Sample I.D.: mw-2      Laboratory: KIR      SPL      Other: (STL)

Analyzed for: (TPH-G) (BTEX)      MTBE      TPH-D      Other: oxyanions by S260

SB 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
J.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## SHELL WELL MONITORING DATA SHEET

WTS #: 020921-RH2	Site: 819 E Stanley Blvd, Livermore
Sampler: Ryan H	Date: 4/21/03
Well I.D.: mw-3	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): 47.40	Depth to Water (DTW): 17.45
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: _____	

Purge Method: <u>Bailer</u> Disposable Bailer Middleburg Electric Submersible	Water Peristaltic Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> Extraction Port Dedicated Tubing Other: _____
--	---	---

$\frac{\text{No Purge (Gals.)} \times \text{Cuse Volume}}{\text{Specified Volume}} = \text{Calculated Volume}$	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1300	62.1	6.9	690	6.3	<u>0</u>	clear

Did well dewater? Yes ~~No~~ Gallons actually evacuated: 0

Sampling Date: 4/21/03 Sampling Time: 1300 Depth to Water: 17.45

Sample I.D.: mw-3 Laboratory: KIF SPL Other: STL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: oxygenates by \$260

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
J.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

## SHELL WELL MONITORING DATA SHEET

BTS #: <u>882421-ELZ</u>	Site: <u>319 E Stanley Blvd, Livermore</u>
Sampler: <u>Ryan H</u>	Date: <u>4/21/03</u>
Well I.D.: <u>mw-4</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>47.30</u>	Depth to Water (DTW): <u>13.65</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: _____	

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

No Purge (Gals.) X _____ = _____ Gals. Case Volume                      Specified Volume                      Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multplier</th> <th>Well Diameter</th> <th>Multplier</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	Multplier	Well Diameter	Multplier	1"	0.04	4"	0.65	2"	0.16	6"	1.47	3"	0.37	Other	radius <sup>2</sup> * 0.163
Well Diameter	Multplier	Well Diameter	Multplier														
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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1315	61.7	7.2	359	4.7	0	clear

Did well dewater? Yes ~~No~~                      Gallons actually evacuated: 0

Sampling Date: 4/21/03                      Sampling Time: 1315                      Depth to Water: 13.65

Sample I.D.: mw-4                      Laboratory: KJF                      SPL                      Other: STL

Analyzed for: TPH-G BTEX MTBE TPH-D                      Other: oxygens by \$260

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