



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



June 10, 2003  
Project No. C85-4530 Las Positas

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**  
**4530 Las Positas Road**  
**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 25, 2003. Groundwater sampling was performed by Blaine Tech Services (Blaine), at the direction of KHM, on April 15, 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 15, 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); ethanol; 1, 2-dichloroethane (1, 2-DCA),

ethylene dibromide (EDB) using EPA Method 8260B. Benzene and MTBE concentrations are presented on Figure 3. Methanol will be added to next quarters parameters.

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

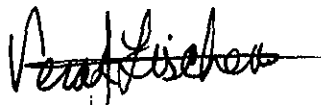
The general groundwater gradient on April 15, 2003 was toward the northeast at a magnitude of 0.003 feet/feet, consistent with last quarter.

MTBE was detected in Well MW-4 at 2.0 micrograms per liter (ug/l). All other analytes were below laboratory detection limits for all site wells.

KHM proposed that DIPE, ETBE, TAME, TBA, ethanol, 1, 2-DCA, and EDB be removed from the list of analyses. DIPE, ETBE, TAME, and TBA have never been detected in four quarters of monitoring. Ethanol, 1,2-DCA, and EDB were analyzed for the first time and were below laboratory detection limits.

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

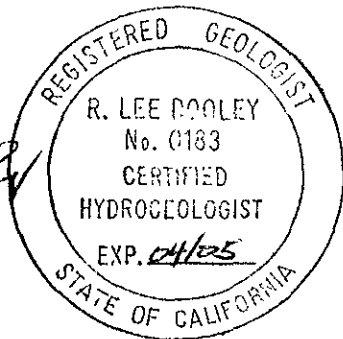
Sincerely,  
KHM Environmental Management, Inc.



Vera Fischer  
Staff Geologist



R. Lee Dooley  
Senior Hydrogeologist  
CHG 0183

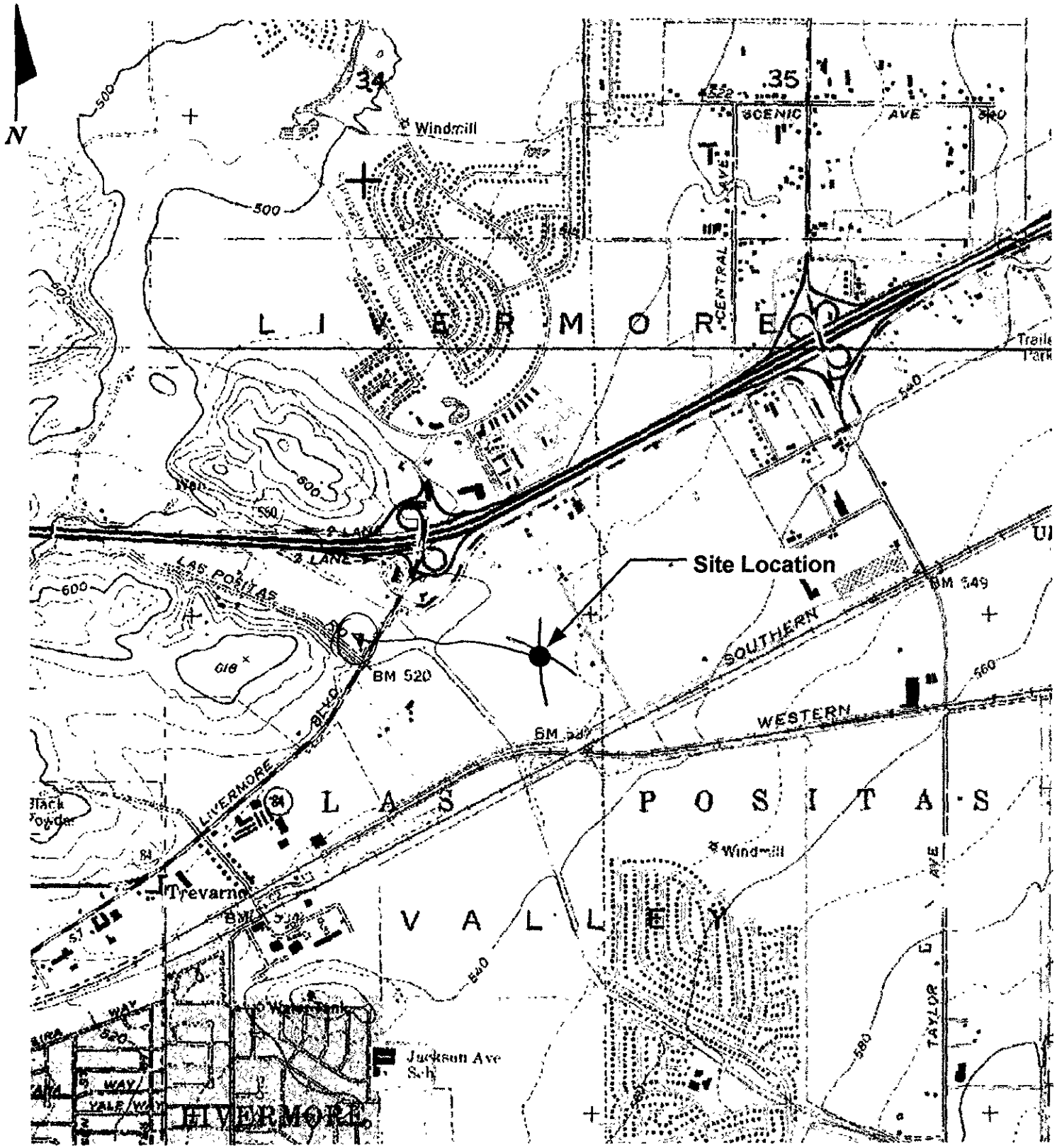


### Attachments:

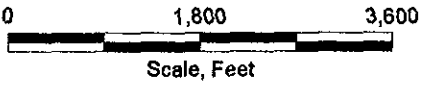
- Figure 1 – Site Location Map
- Figure 2 – Groundwater Elevation Contour Map
- Figure 3 – Benzene and MTBE Concentration Map

Attachment A – Groundwater Monitoring and Sampling Report, May 15, 2003

cc: Ms. Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91501-7869  
Chuck Headlee, RWQCB - San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, CA 94612  
Livermore-Pleasanton Fire Department, 4550 East Avenue, Livermore, CA 94550



Site Location



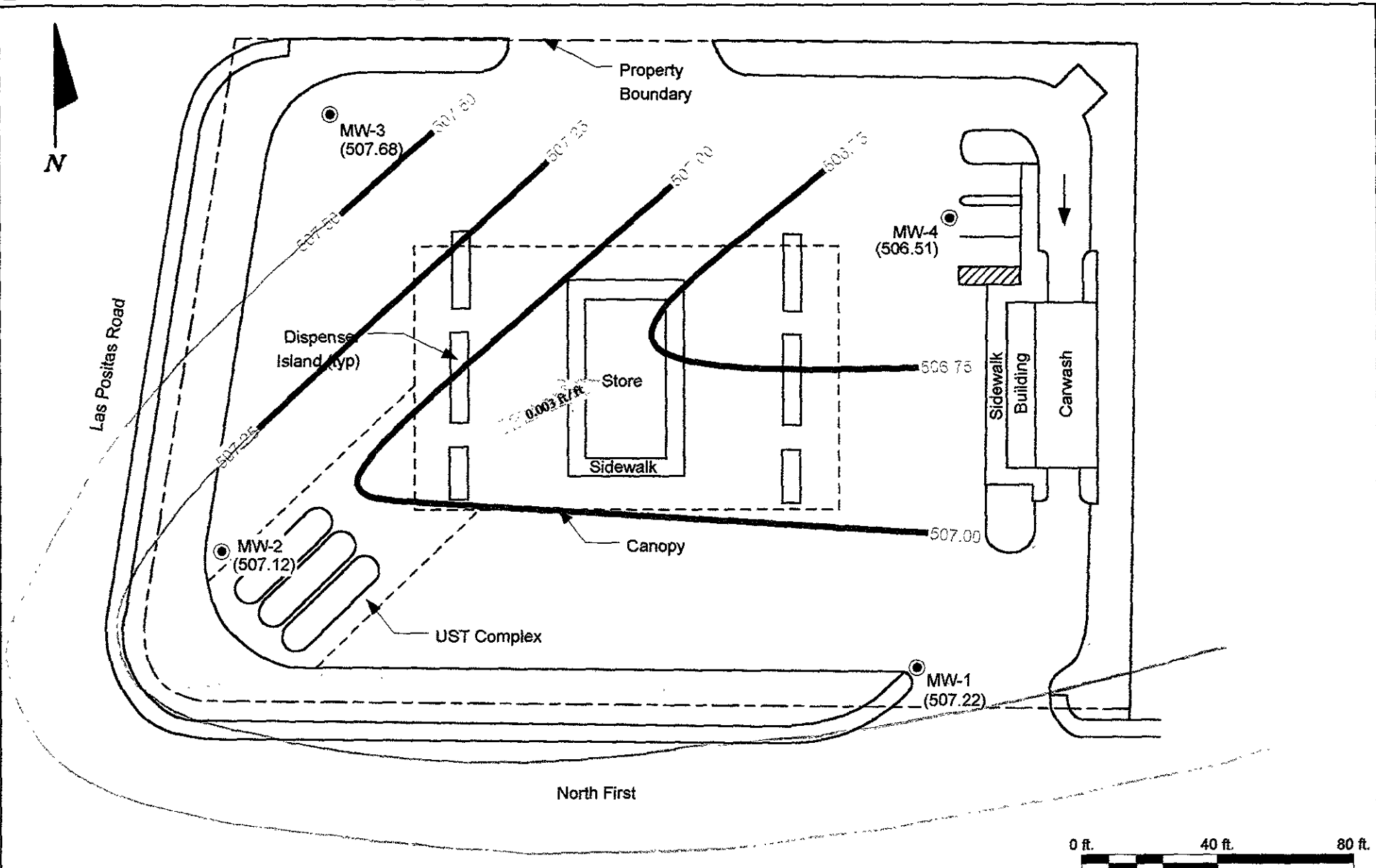
**KHM**  
ENVIRONMENTAL  
MANAGEMENT,  
INC.

**SITE LOCATION MAP**

**Shell-branded Service Station**  
4530 Las Positas Road  
Livermore, California

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

DATE	5/29/03	PROJECT	C85-4530 Las Positas	FIGURE	1
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**LEGEND**

- MW-2 ● **GROUNDWATER MONITORING WELL**
- (507.22) **GROUNDWATER ELEVATION (MSL), 4/15/03**
- 507.25 — **GROUNDWATER ELEVATION CONTOUR**
- ← 0.003 ft/ft **APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT**
- **PLANTER**

**KHM**  
 ENVIRONMENTAL  
 MANAGEMENT,  
 INC.

<b>GROUNDWATER ELEVATION CONTOUR MAP, APRIL 15, 2003</b>		
<b>Shell-branded Service Station 4530 Las Positas Road Livermore, California</b>		
DATE 5/28/03	PROJECT C85-4530 Las Positas	FIGURE 2

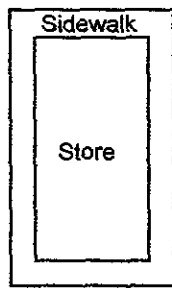


Las Positas Road

Property Boundary

MW-3  
<0.50/<0.50

Dispenser  
island (typ)



Store

Canopy

MW-4  
<0.50/2.0

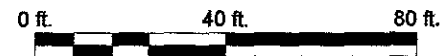
Sidewalk  
Building  
Carwash

<0.50/<0.50  
MW-2

UST Complex

MW-1  
<0.50/<0.50

North First



**LEGEND**

MW-2 ● **GROUNDWATER MONITORING WELL**

□ **PLANTER**

<0.50/<0.50 **BENZENE/MTBE (UG/L), 4/15/03**

**KHM**

ENVIRONMENTAL  
MANAGEMENT,  
INC.

**BENZENE AND MTBE CONCENTRATION MAP,  
APRIL 15, 2003**

**Shell-branded Service Station**  
4530 Las Positas Road  
Livermore, California

DATE 5/29/03

PROJECT C85-4530 Las Positas

FIGURE 3

**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

May 15, 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  
4530 Las Positas Road  
Livermore, CA

Monitoring performed on April 15, 2003

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Groundwater Monitoring Report **030415-MG-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. 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  
KHM Environmental  
6234 San Ignacio Avenue, Suite E  
San Jose, CA 95119



**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4530 Las Positas Road**  
**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	519.86	13.13	506.73
MW-1	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	519.86	13.17	506.69
MW-1	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	519.86	12.80	507.06
MW-1	04/15/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	519.86	12.64	507.22
MW-2	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	518.50	12.41	506.09
MW-2	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	518.50	12.34	506.16
MW-2	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	518.50	11.56	506.94
MW-2	04/15/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	518.50	11.38	507.12
MW-3	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	518.93	11.58	507.35
MW-3	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	518.93	11.17	507.76
MW-3	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	518.93	11.18	507.75
MW-3	04/15/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	518.93	11.25	507.68
MW-4	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	470	519.44	13.42	506.02
MW-4	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	22	519.44	13.42	506.02
MW-4	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	519.44	13.07	506.37
MW-4	04/15/2003	<50	<0.50	<0.50	<0.50	<0.50	2.0	519.44	12.93	506.51

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**4530 Las Positas Road**  
**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)
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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.**

April 30, 2003

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Attn.: Leon Gearhart  
Project#: 030415-MG-1  
Project: 97464710  
Site: 4530 Las Positas Rd. Livermore

Dear Mr.Gearhart,

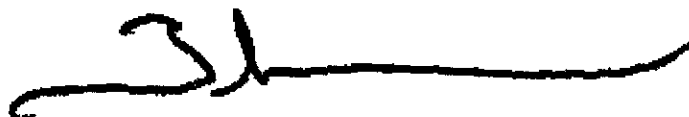
Attached is our report for your samples received on 04/16/2003 16:20  
This report has been reviewed and approved for release. Reproduction of this report  
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after  
05/31/2003 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: 030415-MG-1  
97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-1	04/15/2003 13:56	Water	1
MW-2	04/15/2003 13:20	Water	2
MW-3	04/15/2003 14:25	Water	3
MW-4	04/15/2003 14:15	Water	4

**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: 030415-MG-1  
97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-1	Lab ID: 2003-04-0420 - 1
Sampled: 04/15/2003 13:56	Extracted: 4/28/2003 20:16
Matrix: Water	QC Batch#: 2003/04/28-01.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	04/28/2003 20:16	
Benzene	ND	0.50	ug/L	1.00	04/28/2003 20:16	
Toluene	ND	0.50	ug/L	1.00	04/28/2003 20:16	
Ethylbenzene	ND	0.50	ug/L	1.00	04/28/2003 20:16	
Total xylenes	ND	1.0	ug/L	1.00	04/28/2003 20:16	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	04/28/2003 20:16	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	04/28/2003 20:16	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	04/28/2003 20:16	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	04/28/2003 20:16	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	04/28/2003 20:16	
1,2-DCA	ND	0.5	ug/L	1.00	04/28/2003 20:16	
EDB	ND	0.5	ug/L	1.00	04/28/2003 20:16	
Ethanol	ND	50	ug/L	1.00	04/28/2003 20:16	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	91.3	76-114	%	1.00	04/28/2003 20:16	
Toluene-d8	96.4	88-110	%	1.00	04/28/2003 20:16	

Severn Trent Laboratories, Inc.

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

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

05/01/2003 15:07

**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: 030415-MG-1

97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Prep(s):	5030B	Test(s):	8260FAB
Sample ID:	MW-2	Lab ID:	2003-04-0420 - 2
Sampled:	04/15/2003 13:20	Extracted:	4/28/2003 21:23
Matrix:	Water	QC Batch#:	2003/04/28-01.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	04/28/2003 21:23	
Benzene	ND	0.50	ug/L	1.00	04/28/2003 21:23	
Toluene	ND	0.50	ug/L	1.00	04/28/2003 21:23	
Ethylbenzene	ND	0.50	ug/L	1.00	04/28/2003 21:23	
Total xylenes	ND	1.0	ug/L	1.00	04/28/2003 21:23	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	04/28/2003 21:23	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	04/28/2003 21:23	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	04/28/2003 21:23	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	04/28/2003 21:23	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	04/28/2003 21:23	
1,2-DCA	ND	0.5	ug/L	1.00	04/28/2003 21:23	
EDB	ND	0.5	ug/L	1.00	04/28/2003 21:23	
Ethanol	ND	50	ug/L	1.00	04/28/2003 21:23	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	88.7	76-114	%	1.00	04/28/2003 21:23	
Toluene-d8	95.4	88-110	%	1.00	04/28/2003 21:23	

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

05/01/2003 15:07

**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: 030415-MG-1  
97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Prep(s):	5030B	Test(s):	8260FAB
Sample ID:	MW-3	Lab ID:	2003-04-0420 - 3
Sampled:	04/15/2003 14:25	Extracted:	4/28/2003 21:45
Matrix:	Water	QC Batch#:	2003/04/28-01.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	04/28/2003 21:45	
Benzene	ND	0.50	ug/L	1.00	04/28/2003 21:45	
Toluene	ND	0.50	ug/L	1.00	04/28/2003 21:45	
Ethylbenzene	ND	0.50	ug/L	1.00	04/28/2003 21:45	
Total xylenes	ND	1.0	ug/L	1.00	04/28/2003 21:45	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	04/28/2003 21:45	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	04/28/2003 21:45	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	04/28/2003 21:45	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	04/28/2003 21:45	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	04/28/2003 21:45	
1,2-DCA	ND	0.5	ug/L	1.00	04/28/2003 21:45	
EDB	ND	0.5	ug/L	1.00	04/28/2003 21:45	
Ethanol	ND	50	ug/L	1.00	04/28/2003 21:45	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	93.9	76-114	%	1.00	04/28/2003 21:45	
Toluene-d8	92.1	88-110	%	1.00	04/28/2003 21:45	

Severn Trent Laboratories, Inc.

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

05/01/2003 15:07

**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: 030415-MG-1  
97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-4	Lab ID: 2003-04-0420 - 4
Sampled: 04/15/2003 14:15	Extracted: 4/28/2003 22:07
Matrix: Water	QC Batch#: 2003/04/28-01.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	04/28/2003 22:07	
Benzene	ND	0.50	ug/L	1.00	04/28/2003 22:07	
Toluene	ND	0.50	ug/L	1.00	04/28/2003 22:07	
Ethylbenzene	ND	0.50	ug/L	1.00	04/28/2003 22:07	
Total xylenes	ND	1.0	ug/L	1.00	04/28/2003 22:07	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	04/28/2003 22:07	
Methyl tert-butyl ether (MTBE)	2.0	0.50	ug/L	1.00	04/28/2003 22:07	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	04/28/2003 22:07	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	04/28/2003 22:07	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	04/28/2003 22:07	
1,2-DCA	ND	0.5	ug/L	1.00	04/28/2003 22:07	
EDB	ND	0.5	ug/L	1.00	04/28/2003 22:07	
Ethanol	ND	50	ug/L	1.00	04/28/2003 22:07	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	93.7	76-114	%	1.00	04/28/2003 22:07	
Toluene-d8	95.1	88-110	%	1.00	04/28/2003 22:07	

Severn Trent Laboratories, Inc.

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05/01/2003 15:07



**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: 030415-MG-1  
97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Batch QC Report					
Prep(s): 5030B				Test(s): 8260FAB	
Method Blank		Water		QC Batch # 2003/04/28-01.65	
MB: 2003/04/28-01.65-025				Date Extracted: 04/28/2003 15:51	

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	04/28/2003 15:51	
Benzene	ND	0.5	ug/L	04/28/2003 15:51	
Toluene	ND	0.5	ug/L	04/28/2003 15:51	
Ethylbenzene	ND	0.5	ug/L	04/28/2003 15:51	
Total xylenes	ND	1.0	ug/L	04/28/2003 15:51	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	04/28/2003 15:51	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	04/28/2003 15:51	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	04/28/2003 15:51	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	04/28/2003 15:51	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	04/28/2003 15:51	
1,2-DCA	ND	0.5	ug/L	04/28/2003 15:51	
EDB	ND	0.5	ug/L	04/28/2003 15:51	
Ethanol	ND	50	ug/L	04/28/2003 15:51	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	91.8	76-114	%	04/28/2003 15:51	
Toluene-d8	96.6	88-110	%	04/28/2003 15:51	

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

05/01/2003 15:07

**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: 030415-MG-1

97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260FAB

**Laboratory Control Spike**

**Water**

**QC Batch # 2003/04/28-01.65**

LCS 2003/04/28-01.65-026

Extracted: 04/28/2003

Analyzed: 04/28/2003 15:07

LCSD 2003/04/28-01.65-001

Extracted: 04/28/2003

Analyzed: 04/28/2003 15:29

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	24.8	24.6	25.0	99.2	98.4	0.8	69-129	20		
Toluene	23.0	24.9	25.0	92.0	99.6	7.9	70-130	20		
Methyl tert-butyl ether (MTBE)	29.5	32.3	25.0	118.0	129.2	9.1	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	467	467	500	93.4	93.4		76-114	0		
Toluene-d8	479	482	500	95.8	96.4		88-110	0		

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05/01/2003 15:07

**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: 030415-MG-1  
97464710

Received: 04/16/2003 16:20

Site: 4530 Las Positas Rd. Livermore

Batch QC Report			
Prep(s): 5030B			Test(s): 8260FAB
<b>Matrix Spike ( MS / MSD )</b>	<b>Water</b>		<b>QC Batch # 2003/04/28-01.65</b>
MW-1 >> MS			Lab ID: 2003-04-0420 - 001
MS: 2003/04/28-01.65-023	Extracted: 04/28/2003		Analyzed: 04/28/2003 20:38
			Dilution: 1.00
MSD: 2003/04/28-01.65-024	Extracted: 04/28/2003		Analyzed: 04/28/2003 21:01
			Dilution: 1.00

Compound	Conc. ug/L			Spk.Level ug/L	Recovery			Limits %		Flags	
	MS	MSD	Sample		MS	MSD	RPD	Rec.	RPD	MS	MSD
Benzene	23.9	23.5	ND	25.0	95.6	94.0	1.7	69-129	20		
Toluene	23.3	23.0	ND	25.0	93.2	92.0	1.3	70-130	20		
Methyl tert-butyl ether	28.4	27.9	ND	25.0	113.6	111.6	1.8	65-165	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	458	452		500	91.6	90.5		76-114			
Toluene-d8	472	478		500	94.4	95.7		88-110			

LAB: STL

# SHELL Chain Of Custody Record

73472

at location (if necessary),  
Address  
City State Zip

Shell Project Manager to be invoiced:  
 SCIENCE & ENGINEERING  
 TECHNICAL SERVICES  
 CRMT HOUSTON

**Karen Petryna**

**2003-04-0420**

INCIDENT NUMBER (S&E ONLY)  
 9 | 7 | 4 | 6 | 4 | 7 | 1 | 0

SAP or CRMT NUMBER (TS/CRMT)

DATE: 4/15/03  
 PAGE: 1 of 1

Client Name: **Blaine Tech Services** | Lab Code: **BTSS** | Site Address (Street and City): **4530 Las Positas Rd., Livermore** | Lab Status: **pending**

Client Address: **1680 Rogers Avenue, San Jose, CA 95112**

Client Contact: **Leon Gearhart** | Phone: **408-573-0555** | Fax: **408-573-7771** | Email: **lgearhart@blaintech.com**

Lab Contact: **Debbie Arnold** | Phone: **(408)224-4724** | Email: **darnold@khm1.com**

Project/Contract No. or Job Project ID: **BTSS # 030415-1161**

Sampler Name(s) (Print): **Morgan Gillies**

TURNAROUND TIME (BUSINESS DAYS):  
 10 DAYS  5 DAYS  72 HOURS  48 HOURS  24 HOURS  LESS THAN 24 HOURS

LA - RIVOC'S REPORT FORMAT  LIST AGENCY

GC/MS/MS/CF CONFIRMATION: HIGHEST \_\_\_\_\_ HIGHEST per BORING \_\_\_\_\_ ALL \_\_\_\_\_

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

REQUESTED ANALYSIS

TPH - Gas, Purgeable	BTX	MTBE (8021B - 8ppb RL)	MTBE (8280B - 0.5ppb RL)	Oxygenates (8) by (8260B)

FIELD NOTES:  
 Contained/Preservative or PID Readings or Laboratory Notes  
4.2

TEMPERATURE ON RECEIPT C/

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONES	TPH - Gas, Purgeable	BTX	MTBE (8021B - 8ppb RL)	MTBE (8280B - 0.5ppb RL)	Oxygenates (8) by (8260B)
		DATE	TIME							
	MW-1	4/15/03	1756	GW	3	XX				XX
	MW-2		1320			XX				XX
	MW-3		1425			XX				XX
	MW-4		1415			XX				XX

Requested by (Signature): <i>[Signature]</i>	Received by (Signature): <i>[Signature]</i>	Date: <u>4/16/03</u>	Time: <u>1620</u>
Requested by (Signature): <i>[Signature]</i>	Received by (Signature): <i>[Signature]</i>	Date: <u>4-16-03</u>	Time: <u>1737</u>

# WELLHEAD INSPECTION CHECKLIST

Page 1 of 1

Client Shell Date 4/15/03  
 Site Address 4530 Las Positas Rd., Livermore, CA  
 Job Number 030415-M61 Technician MB

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
MW-1	X							
MW-2	X							
MW-3	X							
MW-4	X							

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

WELL GAUGING DATA

Project # 030415-MG1 Date 4/15/03 Client Shell

Site 4530 Las Positas Rd., Livermore, CA

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 TOC
MW-1	2					12.64	22.25	✓
MW-2	2					11.38	22.70	
MW-3	2					11.25	22.20	
MW-4	2					12.93	22.61	

## WELL MONITORING DATA SHEET

Project #: 030415-M61	Client: Shell 97464710
Sampler: M6	Start Date: 4/15/03
Well I.D.: MW-1	Well Diameter: (2) 3 4 6 8
Total Well Depth: 22.25	Depth to Water: 12.64
Before:                      After:	Before:                      After:
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 = 14.56

Purge Method: 9.6l                      Sampling Method: ~~X~~ Bailer                      9.6l

Bailer                      Waterra                      Disposable Bailer  
 Disposable Bailer                      Peristaltic                      Extraction Port  
 Middleburg                      Extraction Pump                      Dedicated Tubing  
 Electric Submersible                      Other: \_\_\_\_\_

1.5 (Gals.) X 3 = 4.5

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> * 0.16

Time	Temp. (°F or °C)	pH	Conductivity (mS or µS)	Turbidity (NTU)	Gals. Removed	Observations
1345	65.4	7.4	1345	>200	2.0	CLOUDY
1348	64.2	7.4	1346	>200	4.0	
1350	64.2	7.4	1344	>200	5.0	

Did well dewater? Yes  No  Gallons actually evacuated: 5

Sampling Time: 1356                      Sampling Date: 4/15/03 DTW = 12.70'

Sample I.D.: MW-1                      Laboratory: STL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxygenates by 8260

Equipment Blank I.D.: @ Time Duplicate I.D.:

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

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

## SHELL WELL MONITORING DATA SHEET

BTS #: 030415-M61	Site: 97464710
Sampler: M6	Date: 4/15/03
Well I.D.: MW-2	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 22.70	Depth to Water (DTW): 11.38
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]: 13.64 <sup>(11.32)</sup>	

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

1.8 (Gals.) X	3	= 5.4 Gals.
I 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
1307	65.9	7.3	1206	>200	2.0	BROWN
1310	66.5	7.3	1211	>200	4.0	CLOUDY
1312	66.7	7.3	1211	>200	6.0	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 6	
Sampling Date: 4/15/03	Sampling Time: 1320	Depth to Water: 11.76
Sample I.D.: MW-2	Laboratory: Kiff	SPL Other: STL
Analyzed for: (TPH-G) (BTEX) MTBE TPH-D	Other: Oxygenates 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	



## SHELL WELL MONITORING DATA SHEET

BTS #: 030415-MG1	Site: 97464710
Sampler: M6	Date: 4/15/03
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 22.50	Depth to Water (DTW): 11.25
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]: 13.50	

Purge Method:  Bailor  Disposable Bailor  Middleburg  Electric Submersible

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

Sampling Method:  Bailor  Disposable Bailor  Extraction Port  Dedicated Tubing

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

<u>1.8</u> (Gals.) X	<u>3</u> Specified Volumes	<u>= 5.4</u> Gals. 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 <u>µS</u> )	Turbidity (NTUs)	Gals. Removed	Observations
1222	64.5	7.3	1253	> 200	2.0	Brown, Cloudy
1225	64.9	7.4	1255	> 200	4.0	
1229	65.3	7.4	1255	> 200	6.0	DTW = 18.70'

Did well dewater? Yes  No  Gallons actually evacuated: 6.0

Sampling Date: 4/15/03 Sampling Time: 1425 Depth to Water: 11.42

Sample I.D.: MW-3 Laboratory: Kiff SPL Other: STL

Analyzed for: (TPH-G BTEX) MTBE TPH-D Other: Oxygenates by 8260

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

BTS #: <u>030415-MW-1</u>	Site: <u>97464710</u>
Sampler: <u>MW</u>	Date: <u>4/15/03</u>
Well I.D.: <u>MW-4</u>	Well Diameter: <u>2</u> 3 4 6 8
Total Well Depth (TD): <u>22.61</u>	Depth to Water (DTW): <u>12.93</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>9.68 + 12.93 = 14.87</u>	

Purge Method:  Bailer       Water  
 Disposable Bailer       Peristaltic  
 Middleburg       Extraction Pump  
 Electric Submersible       Other \_\_\_\_\_

Sampling Method:  Bailer  
 Disposable Bailer  
 Extraction Port  
 Dedicated Tubing  
 Other: \_\_\_\_\_

$1.5 \text{ (Gals.)} \times 3 = 4.5 \text{ Gals.}$ <p>1 Case Volume      Specified Volumes      Calculated Volume</p>	<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 µS)	Turbidity (NTUs)	Gals. Removed	Observations
1156	66.0	6.8	1141	>200	1.75	Brown, silty
1157	Well dewatered @ $\approx$ 3 gal's				DTW = 19.95'	
1413	64.5	7.4	1313	78	—	Slightly Cloudy

Did well dewater?  Yes     No      Gallons actually evacuated: 3

Sampling Date: 4/15/03    Sampling Time: 1415    Depth to Water: 12.95

Sample I.D.: MW-4      Laboratory: KHF    SPL    Other: STL

Analyzed for: TPH-G BTEX    MTBE    TPH-D    Other: Oxygenates by 8260

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