

20 2523



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408.224.4724 800.477.7411  
Fax 408.225.8506

October 15, 2003  
Project No. SJ45-30L-1.000G

Alameda County  
OCT 20 2003  
Environmental Health

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

Re: **Quarterly Monitoring Report – Third Quarter 2003**  
**Shell-branded Service Station**  
**4530 Las Positas Road**  
**Livermore, California**

Dear Mr. Seery:

Delta Environmental Management, Inc. (Delta), on behalf of Shell Oil Products US (Shell), has prepared the following third 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 July 17, 2003. Depth to groundwater was measured in Wells MW-1 through MW-4. Groundwater elevation data 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.

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 July 17, 2003 was complex. No clear groundwater flow direction could be established.

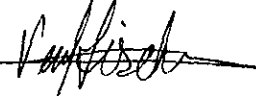
All analytes were below laboratory detection limits for all site wells.

Delta proposes 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 five quarters of monitoring. Ethanol, 1,2-DCA, and EDB were analyzed for the first time in the second quarter and have been below laboratory detection limits since sampling began.

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

Sincerely,

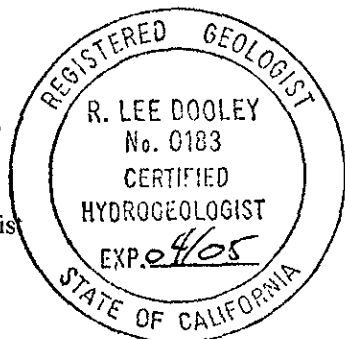
**Delta Environmental Consultants, Inc.**



Vera Fischer  
Staff Geologist



R. Lee Dooley  
Senior Hydrogeologist  
CHG 0183

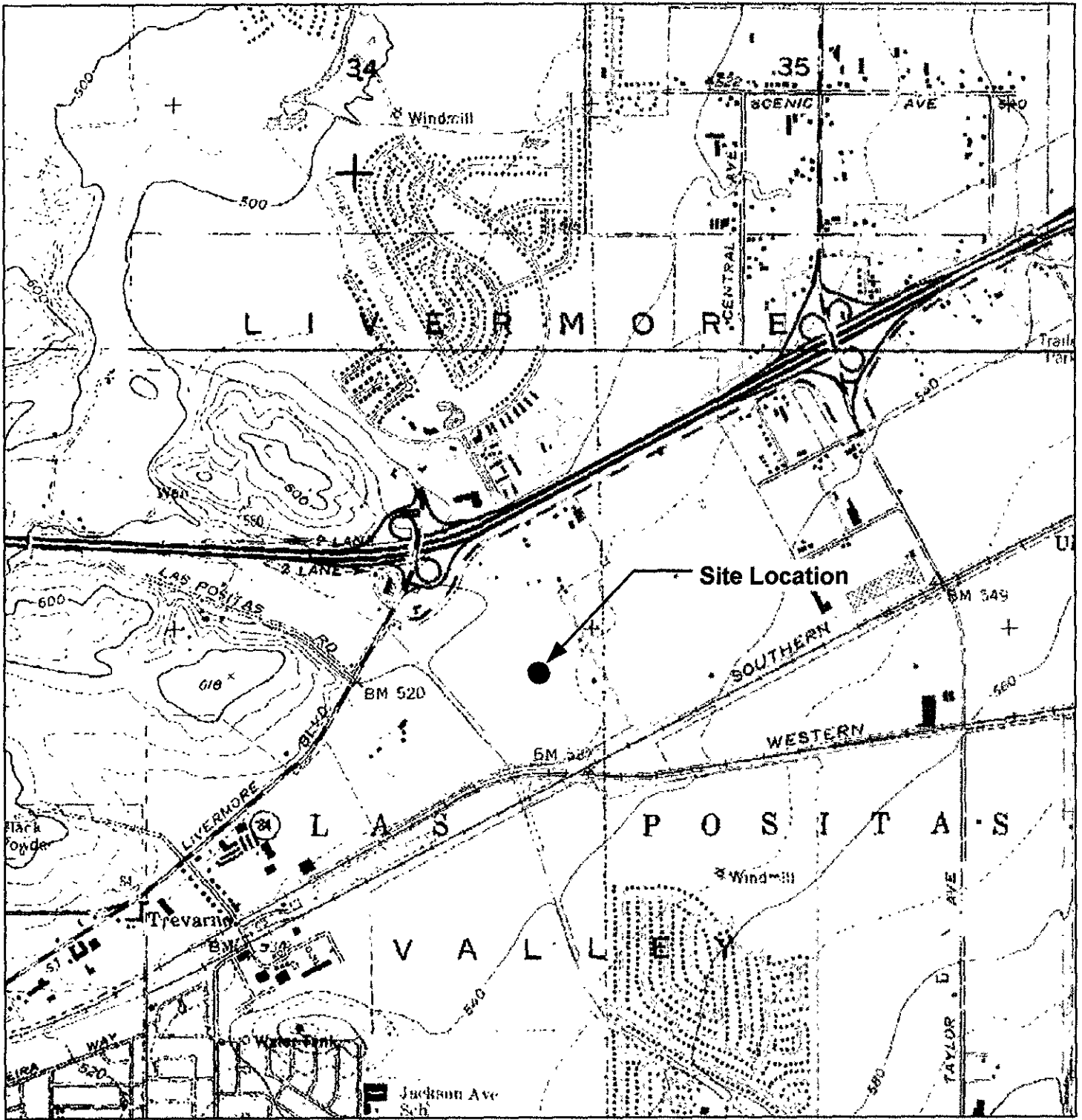


Attachments:

- 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, August 4, 2003

cc: 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



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



QUADRANGLE LOCATION

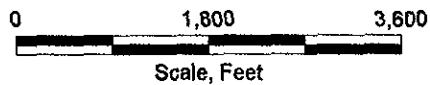
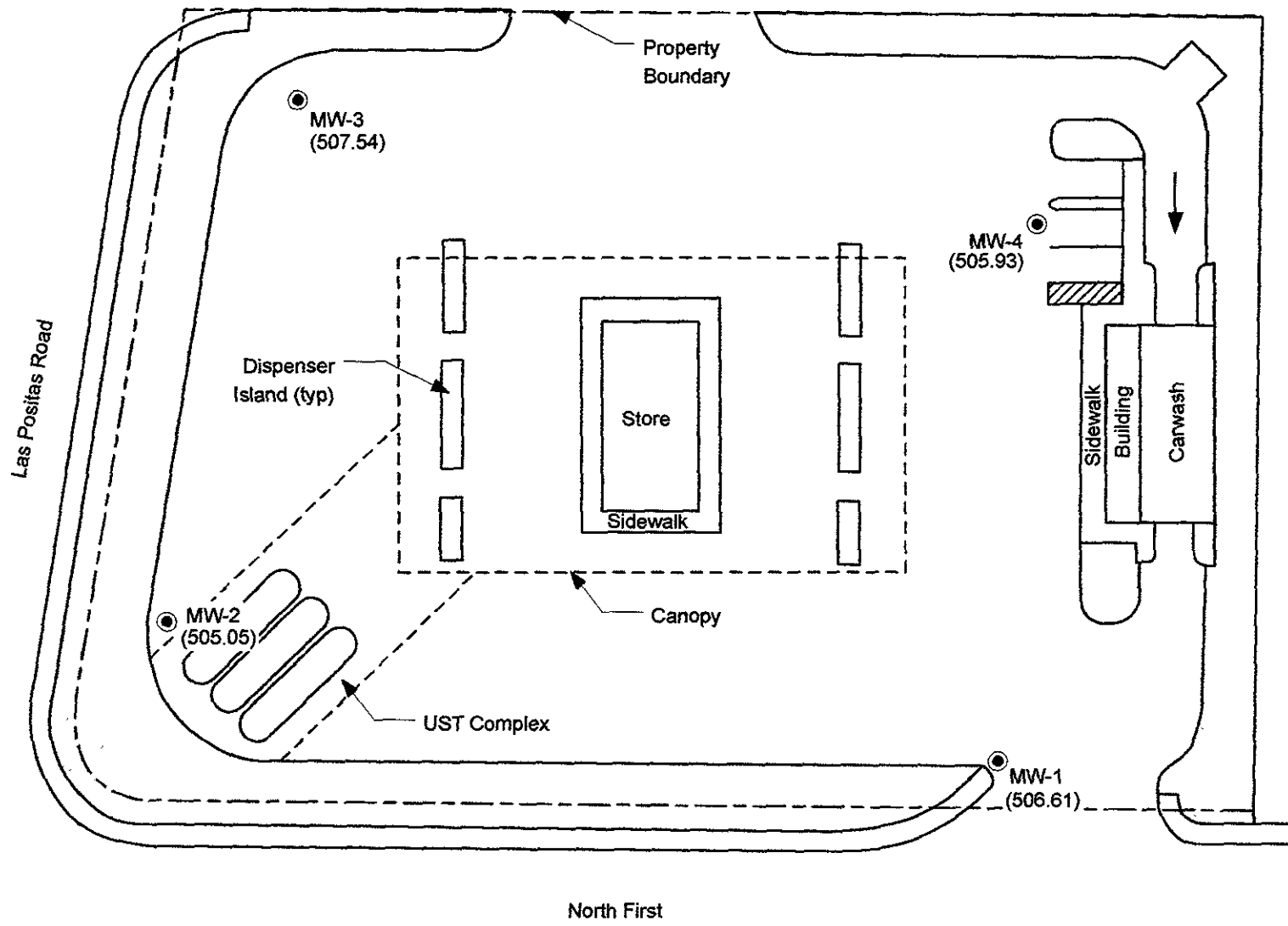


FIGURE 1  
 SITE LOCATION MAP

SHELL-BRANDED SERVICE STATION  
 4530 Las Positas Road  
 Livermore, California

PROJECT NO. SJ45-30L-1.000G	DRAWN BY VF 9/28/03
FILE NO. SJ45-30L-1.000G	PREPARED BY VF
REVISION NO	REVIEWED BY



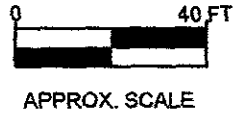


**FIGURE 2**  
**GROUNDWATER ELEVATION MAP, JULY 17, 2003**

**SHELL-BRANDED SERVICE STATION**  
 4530 Las Positas Road  
 Livermore, California

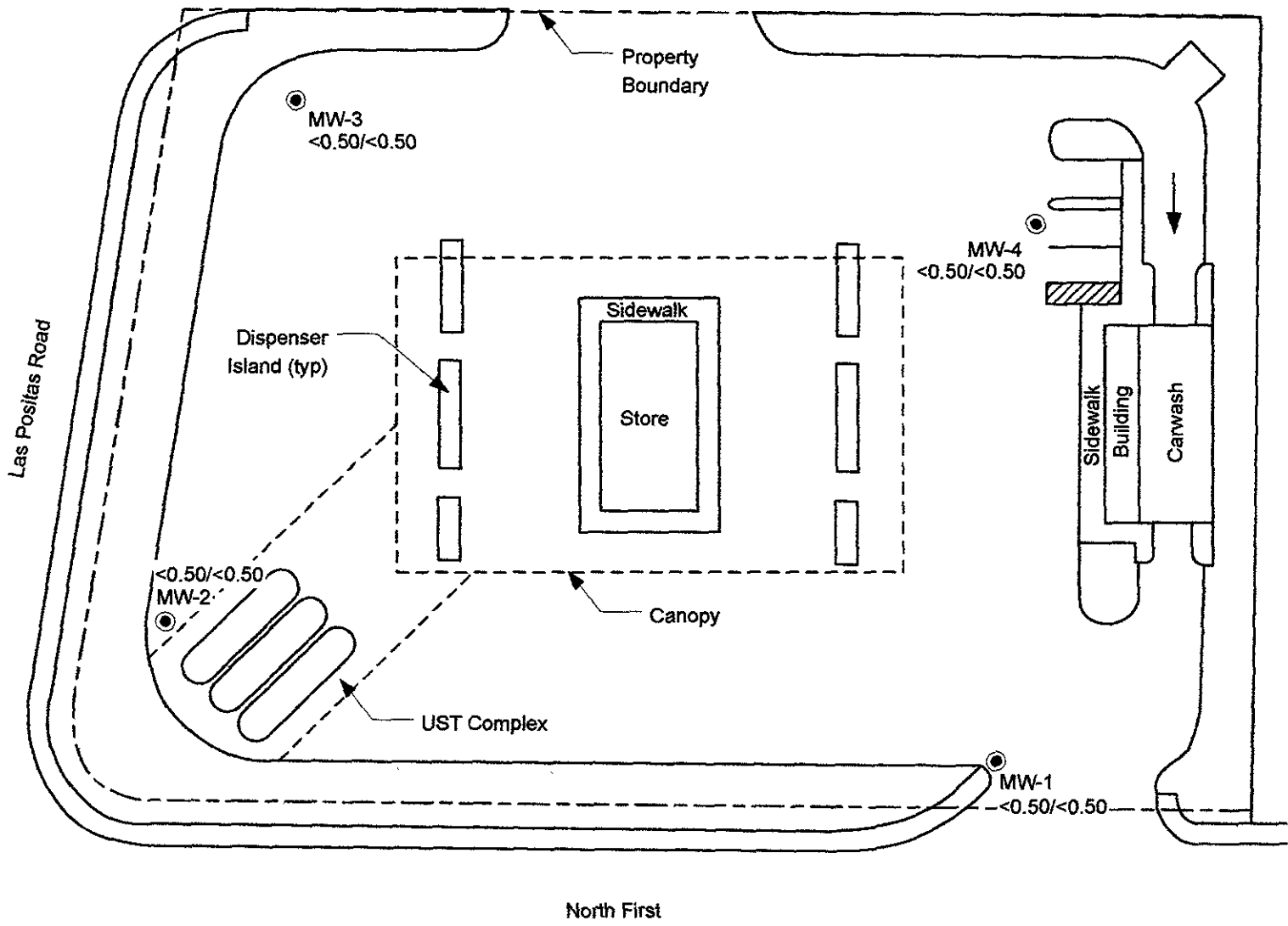
**LEGEND**

MW-2 ● **GROUNDWATER MONITORING WELL**  
 (507.22) **GROUNDWATER ELEVATION (MSL), 7/17/03**



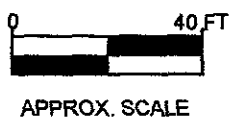
PROJECT NO. SJ45-30L-1.000G	DRAWN BY VF 9/30/03
FILE NO. SJ45-30-1.000G	PREPARED BY VF
REVISION NO. 1	REVIEWED BY





**LEGEND**

MW-2		<b>GROUNDWATER MONITORING WELL</b>
		<b>PLANTER</b>
<math><0.50/<0.50</math>		<b>BENZENE/MTBE (UG/L), 7/17/03</b>



**FIGURE 3**  
**BENZENE AND MTBE CONCENTRATION MAP, JULY 17, 2003**

**SHELL-BRANDED SERVICE STATION**  
 4530 Las Positas Road  
 Livermore, California

PROJECT NO. SJ45-30L-1.000G	DRAWN BY VF 9/30/03
FILE NO. SJ45-30-1.000G	PREPARED BY VF
REVISION NO. 1	REVIEWED BY



**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

August 4, 2003

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

Third Quarter 2003 Groundwater Monitoring at  
Shell-branded Service Station  
4530 Las Positas Road  
Livermore, CA

Monitoring performed on July 17, 2003

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Groundwater Monitoring Report 030717-MM-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: Garrett Haertel  
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
<b>MW-1</b>	<b>07/17/2003</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;0.50</b>	<b>519.86</b>	<b>13.25</b>	<b>506.61</b>
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
<b>MW-2</b>	<b>07/17/2003</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;0.50</b>	<b>518.50</b>	<b>13.45</b>	<b>505.05</b>
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
<b>MW-3</b>	<b>07/17/2003</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;0.50</b>	<b>518.93</b>	<b>11.39</b>	<b>507.54</b>
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	<1.0	2.0	519.44	12.93	506.51
<b>MW-4</b>	<b>07/17/2003</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>&lt;0.50</b>	<b>519.44</b>	<b>13.51</b>	<b>505.93</b>

**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.**

July 31, 2003

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Attn.: Leon Gearhart  
Project#: 030717-MM2  
Project: 97464710  
Site: 4530 Las Positas Rd., Livermore

Dear Mr. Gearhart,

Attached is our report for your samples received on 07/18/2003 14:30  
This report has been reviewed and approved for release. Reproduction of this report  
is permitted only in its entirety.

The report contains a Case Narrative detailing sample receipt and analysis.

Please note that any unused portion of the samples will be discarded after  
09/01/2003 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

**Blaine Tech Services, Inc.**

July 31, 2003

1680 Rogers Avenue  
San Jose, CA 95112-1105

Attn.: Leon Gearhart

Project#: 030717-MM2

Project: 97464710

Site: 4530 Las Positas Rd., Livermore

**Case Narrative**

**General and Sample Comments**

We (STL San Francisco) received 4 Water samples , on Friday, July 18, 2003 2:30 PM.

LCSD for QC batch 2003/07/29-2B.62 was outside of the control limits. MS/MSD verified accuracy for batch, data is reported as is.

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

**Alcohols by GC-FID**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

1680 Rogers Avenue

San Jose, CA 95112-1105

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

Project: 030717-MM2

97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW-1	07/17/2003 09:07	Water	1
MW-2	07/17/2003 09:35	Water	2
MW-3	07/17/2003 10:37	Water	3
MW-4	07/17/2003 10:21	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

07/28/2003 12:32

**Alcohols by GC-FID**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s):	8015M Alcohols	Test(s):	8015Mod
Sample ID:	MW-1	Lab ID:	2003-07-0622 - 1
Sampled:	07/17/2003 09:07	Extracted:	7/25/2003 12:00
Matrix:	Water	QC Batch#:	2003/07/25-01.20

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methanol	ND	0.50	mg/L	1.00	07/25/2003 16:29	
<b>Surrogates(s)</b>						
tert-Butyl alcohol	83.0	60-130	%	1.00	07/25/2003 16:29	

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

07/28/2003 12:32

**Alcohols by GC-FID**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s):	8015M Alcohols	Test(s):	8015Mod
Sample ID:	MW-2	Lab ID:	2003-07-0622 - 2
Sampled:	07/17/2003 09:35	Extracted:	7/25/2003 12:00
Matrix:	Water	QC Batch#:	2003/07/25-01.20

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methanol	ND	0.50	mg/L	1.00	07/25/2003 16:44	
<b>Surrogates(s)</b>						
tert-Butyl alcohol	96.1	60-130	%	1.00	07/25/2003 16:44	

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

07/28/2003 12:32

**Alcohols by GC-FID**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s): 8015M Alcohols	Test(s): 8015Mod
Sample ID: MW-3	Lab ID: 2003-07-0622 - 3
Sampled: 07/17/2003 10:37	Extracted: 7/25/2003 12:00
Matrix: Water	QC Batch#: 2003/07/25-01.20

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methanol	ND	0.50	mg/L	1.00	07/25/2003 16:55	
<b>Surrogates(s)</b>						
tert-Butyl alcohol	92.5	60-130	%	1.00	07/25/2003 16:55	



**Alcohols by GC-FID**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s):	8015M Alcohols	Test(s):	8015Mod
Sample ID:	MW-4	Lab ID:	2003-07-0622-4
Sampled:	07/17/2003 10:21	Extracted:	7/25/2003 12:00
Matrix:	Water	QC Batch#:	2003/07/25-01.20

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Methanol	ND	0.50	mg/L	1.00	07/25/2003 17:07	
<b>Surrogates(s)</b>						
tert-Butyl alcohol	84.5	60-130	%	1.00	07/25/2003 17:07	

**Alcohols by GC-FID**

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Batch QC Report		
Prep(s): 8015M Alcohols Method Blank MB: 2003/07/25-01.20-001	Water	Test(s): 8015Mod QC Batch # 2003/07/25-01.20 Date Extracted: 07/25/2003 12:00

Compound	Conc.	RL	Unit	Analyzed	Flag
Methanol	ND	0.50	mg/L	07/25/2003 12:31	
<b>Surrogates(s)</b> tert-Butyl alcohol	70.0	60-130	%	07/25/2003 12:31	

**Alcohols by GC-FID**

Blaine Tech Services, Inc.  
Attn.: Leon Gearhart

1680 Rogers Avenue  
San Jose, CA 95112-1105  
Phone: (408) 573-0555 Fax: (408) 573-7771  
Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Batch QC Report										
Prep(s): 8015M Alcohols						Test(s): 8015Mod				
Laboratory Control Spike				Water			QC Batch # 2003/07/25-01.20			
LCS	2003/07/25-01.20-002			Extracted: 07/25/2003			Analyzed: 07/25/2003 12:44			
LCSD	2003/07/25-01.20-003			Extracted: 07/25/2003			Analyzed: 07/25/2003 12:55			
Compound	Conc. mg/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Methanol	42.3	39.5	50.0	84.6	79.0	6.8	60-130	25		
<i>Surrogates(s)</i> tert-Butyl alcohol	48.9	45.9	50	97.8	91.8		60-130	0		

**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: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

**Samples Reported**

Sample Name	Date Sampled	Matrix	Lab #
MW-1	07/17/2003 09:07	Water	1
MW-2	07/17/2003 09:35	Water	2
MW-3	07/17/2003 10:37	Water	3
MW-4	07/17/2003 10:21	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

07/31/2003 12:58

**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: 030717-MM2

97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-1	Lab ID: 2003-07-0622 - 1
Sampled: 07/17/2003 09:07	Extracted: 7/30/2003 06:38
Matrix: Water	QC Batch#: 2003/07/29-2B.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	07/30/2003 06:38	
Benzene	ND	0.50	ug/L	1.00	07/30/2003 06:38	
Toluene	ND	0.50	ug/L	1.00	07/30/2003 06:38	
Ethylbenzene	ND	0.50	ug/L	1.00	07/30/2003 06:38	
Total xylenes	ND	1.0	ug/L	1.00	07/30/2003 06:38	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	07/30/2003 06:38	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	07/30/2003 06:38	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	07/30/2003 06:38	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	07/30/2003 06:38	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	07/30/2003 06:38	
1,2-DCA	ND	0.50	ug/L	1.00	07/30/2003 06:38	
EDB	ND	0.50	ug/L	1.00	07/30/2003 06:38	
Ethanol	ND	50	ug/L	1.00	07/30/2003 06:38	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	101.1	76-130	%	1.00	07/30/2003 06:38	
Toluene-d8	105.0	78-115	%	1.00	07/30/2003 06:38	

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: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s):	5030B	Test(s):	8260FAB
Sample ID:	MW-2	Lab ID:	2003-07-0622 - 2
Sampled:	07/17/2003 09:35	Extracted:	7/30/2003 19:46
Matrix:	Water	QC Batch#:	2003/07/30-1D.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	07/30/2003 19:46	
Benzene	ND	0.50	ug/L	1.00	07/30/2003 19:46	
Toluene	ND	0.50	ug/L	1.00	07/30/2003 19:46	
Ethylbenzene	ND	0.50	ug/L	1.00	07/30/2003 19:46	
Total xylenes	ND	1.0	ug/L	1.00	07/30/2003 19:46	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	07/30/2003 19:46	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	07/30/2003 19:46	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	07/30/2003 19:46	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	07/30/2003 19:46	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	07/30/2003 19:46	
1,2-DCA	ND	0.50	ug/L	1.00	07/30/2003 19:46	
EDB	ND	0.50	ug/L	1.00	07/30/2003 19:46	
Ethanol	ND	50	ug/L	1.00	07/30/2003 19:46	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	96.9	76-130	%	1.00	07/30/2003 19:46	
Toluene-d8	101.0	78-115	%	1.00	07/30/2003 19:46	

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

07/31/2003 12:58

**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: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s):	5030B	Test(s):	8260FAB
Sample ID:	MW-3	Lab ID:	2003-07-0622 - 3
Sampled:	07/17/2003 10:37	Extracted:	7/30/2003 20:08
Matrix:	Water	QC Batch#:	2003/07/30-1D.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	07/30/2003 20:08	
Benzene	ND	0.50	ug/L	1.00	07/30/2003 20:08	
Toluene	ND	0.50	ug/L	1.00	07/30/2003 20:08	
Ethylbenzene	ND	0.50	ug/L	1.00	07/30/2003 20:08	
Total xylenes	ND	1.0	ug/L	1.00	07/30/2003 20:08	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	07/30/2003 20:08	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	07/30/2003 20:08	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	07/30/2003 20:08	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	07/30/2003 20:08	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	07/30/2003 20:08	
1,2-DCA	ND	0.50	ug/L	1.00	07/30/2003 20:08	
EDB	ND	0.50	ug/L	1.00	07/30/2003 20:08	
Ethanol	ND	50	ug/L	1.00	07/30/2003 20:08	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	99.1	76-130	%	1.00	07/30/2003 20:08	
Toluene-d8	103.6	78-115	%	1.00	07/30/2003 20:08	

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

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Prep(s): 5030B	Test(s): 8260FAB
Sample ID: MW-4	Lab ID: 2003-07-0622 - 4
Sampled: 07/17/2003 10:21	Extracted: 7/30/2003 20:30
Matrix: Water	QC Batch#: 2003/07/30-1D.65

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	07/30/2003 20:30	
Benzene	ND	0.50	ug/L	1.00	07/30/2003 20:30	
Toluene	ND	0.50	ug/L	1.00	07/30/2003 20:30	
Ethylbenzene	ND	0.50	ug/L	1.00	07/30/2003 20:30	
Total xylenes	ND	1.0	ug/L	1.00	07/30/2003 20:30	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	07/30/2003 20:30	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	07/30/2003 20:30	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	07/30/2003 20:30	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	07/30/2003 20:30	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	07/30/2003 20:30	
1,2-DCA	ND	0.50	ug/L	1.00	07/30/2003 20:30	
EDB	ND	0.50	ug/L	1.00	07/30/2003 20:30	
Ethanol	ND	50	ug/L	1.00	07/30/2003 20:30	
<b>Surrogates(s)</b>						
1,2-Dichloroethane-d4	96.7	76-130	%	1.00	07/30/2003 20:30	
Toluene-d8	103.6	78-115	%	1.00	07/30/2003 20:30	

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**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: 030717-MM2

97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2003/07/29-2B.62-039

Water

Test(s): 8260FAB

QC Batch # 2003/07/29-2B.62

Date Extracted: 07/30/2003 00:39

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	07/30/2003 00:39	
Benzene	ND	0.5	ug/L	07/30/2003 00:39	
Toluene	ND	0.5	ug/L	07/30/2003 00:39	
Ethylbenzene	ND	0.5	ug/L	07/30/2003 00:39	
Total xylenes	ND	1.0	ug/L	07/30/2003 00:39	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	07/30/2003 00:39	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	07/30/2003 00:39	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	07/30/2003 00:39	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	07/30/2003 00:39	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	07/30/2003 00:39	
1,2-DCA	ND	0.5	ug/L	07/30/2003 00:39	
EDB	ND	0.5	ug/L	07/30/2003 00:39	
Ethanol	ND	50	ug/L	07/30/2003 00:39	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	94.3	76-130	%	07/30/2003 00:39	
Toluene-d8	103.1	78-115	%	07/30/2003 00:39	

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07/31/2003 12:58

**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: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

**Batch QC Report**

Prep(s): 5030B

Method Blank

MB: 2003/07/30-1D.65-011

Water

Test(s): 8260FAB

QC Batch # 2003/07/30-1D.65

Date Extracted: 07/30/2003 10:11

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	07/30/2003 10:11	
Benzene	ND	0.5	ug/L	07/30/2003 10:11	
Toluene	ND	0.5	ug/L	07/30/2003 10:11	
Ethylbenzene	ND	0.5	ug/L	07/30/2003 10:11	
Total xylenes	ND	1.0	ug/L	07/30/2003 10:11	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	07/30/2003 10:11	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	07/30/2003 10:11	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	07/30/2003 10:11	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	07/30/2003 10:11	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	07/30/2003 10:11	
1,2-DCA	ND	0.5	ug/L	07/30/2003 10:11	
EDB	ND	0.5	ug/L	07/30/2003 10:11	
Ethanol	ND	50	ug/L	07/30/2003 10:11	
<b>Surrogates(s)</b>					
1,2-Dichloroethane-d4	93.4	76-130	%	07/30/2003 10:11	
Toluene-d8	103.6	78-115	%	07/30/2003 10:11	

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07/31/2003 12:58

**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: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Batch QC Report										
Prep(s): 5030B						Test(s): 8260FAB				
Laboratory Control Spike			Water			QC Batch # 2003/07/29-2B.62				
LCS	2003/07/29-2B.62-048		Extracted: 07/30/2003			Analyzed: 07/30/2003 00:17				
LCSD	2003/07/29-2B.62-048		Extracted: 07/30/2003			Analyzed: 07/30/2003 00:17				
Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	32.2	<input type="checkbox"/>	25	128.8	<input type="checkbox"/>	<input type="checkbox"/>	69-129	20		<input type="checkbox"/> <input type="checkbox"/>
Toluene	31.6	<input type="checkbox"/>	25	126.4	<input type="checkbox"/>	<input type="checkbox"/>	70-130	20		<input type="checkbox"/> <input type="checkbox"/>
Methyl tert-butyl ether (MTBE)	33.3	<input type="checkbox"/>	25	133.2	<input type="checkbox"/>	<input type="checkbox"/>	65-165	20		<input type="checkbox"/> <input type="checkbox"/>
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	497	<input type="checkbox"/>	500	99.4	<input type="checkbox"/>	<input type="checkbox"/>	76-130			<input type="checkbox"/> <input type="checkbox"/>
Toluene-d8	525	<input type="checkbox"/>	500	105.0	<input type="checkbox"/>	<input type="checkbox"/>	78-115			<input type="checkbox"/> <input type="checkbox"/>

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07/31/2003 12:58

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

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

**Batch QC Report**

Prep(s): 5030B

Test(s): 8260FAB

**Laboratory Control Spike**

**Water**

**QC Batch # 2003/07/30-1D.65**

LCS 2003/07/30-1D.65-026

Extracted: 07/30/2003

Analyzed: 07/30/2003 09:26

LCSD 2003/07/30-1D.65-048

Extracted: 07/30/2003

Analyzed: 07/30/2003 09:48

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	26.0	26.2	25	104.0	104.8	0.8	69-129	20		
Toluene	26.5	26.1	25	106.0	104.4	1.5	70-130	20		
Methyl tert-butyl ether (MTBE)	22.9	21.2	25	91.6	84.8	7.7	65-165	20		
<b>Surrogates(s)</b>										
1,2-Dichloroethane-d4	437	446	500	87.4	89.2		76-130			
Toluene-d8	527	511	500	105.4	102.2		78-115			

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07/31/2003 12:58

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

Blaine Tech Services, Inc.

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Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

**Batch QC Report**

Prep(s): 5030B Test(s): 8260FAB

Matrix Spike ( MS / MSD ) Water QC Batch # 2003/07/29-2B.62

AMW-5 >> MS Lab ID: 2003-07-0635 - 007

MS: 2003/07/29-2B.62-024 Extracted: 07/30/2003 Analyzed: 07/30/2003 01:24  
Dilution: 1.00

MSD: 2003/07/29-2B.62-047 Extracted: 07/30/2003 Analyzed: 07/30/2003 01:47  
Dilution: 1.00

Compound	Conc. ug/L		Spk.Level	Recovery %			Limits %		Flags		
	MS	MSD		Sample	ug/L	MS	MSD	RPD	Rec.	RPD	MS
Benzene	30.4	27.1	ND	25	121.6	108.4	11.5	69-129	20		
Toluene	29.3	26.9	ND	25	117.2	107.6	8.5	70-130	20		
Methyl tert-butyl ether	36.2	35.7	4.31	25	127.6	125.6	1.6	65-165	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	493	502		500	98.6	100.3		76-130			
Toluene-d8	521	522		500	104.1	104.4		78-115			

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07/31/2003 12:58

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

Blaine Tech Services, Inc.

Attn.: Leon Gearhart

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

Project: 030717-MM2  
97464710

Received: 07/18/2003 14:30

Site: 4530 Las Positas Rd., Livermore

Batch QC Report

Prep(s): 5030B Test(s): 8260FAB  
**Matrix Spike (MS / MSD)** Water **QC Batch # 2003/07/30-1D:65**  
 MW-2 >> MS Lab ID: 2003-07-0622-002  
 MS: 2003/07/30-1D:65-001 Extracted: 07/30/2003 Analyzed: 07/30/2003 19:01  
 Dilution: 1.00  
 MSD: 2003/07/30-1D:65-024 Extracted: 07/30/2003 Analyzed: 07/30/2003 19:24  
 Dilution: 1.00

Compound	Conc. ug/L			Spk.Level	Recovery %			Limits %		Flags	
	MS	MSD	Sample	ug/L	MS	MSD	RPD	Rec.	RPD	MS	MSD
Benzene	25.4	25.6	ND	25	101.6	102.4	0.8	69-129	20		
Toluene	26.0	25.4	ND	25	104.0	101.6	2.3	70-130	20		
Methyl tert-butyl ether	23.3	23.6	ND	25	93.2	94.4	1.3	65-165	20		
<b>Surrogate(s)</b>											
1,2-Dichloroethane-d4	480	485		500	96.0	97.0		76-130			
Toluene-d8	514	506		500	102.8	101.2		78-115			

LAB: SIL

# SHELL Chain Of Custody Record

76192

Lab. Identification (if necessary):  
Agency:  
City, State, Zip:

Shell Project Manager to be invoiced:  
**Karen Petryna**  
**2003-07-0622**

INCIDENT NUMBER (S&E ONLY)  
9 7 4 6 4 7 1 0  
SAP or CRMT NUMBER (YS/CRMT)

DATE: 7/17/03  
PAGE: 1 of 1

ANALYZER COMPANY <b>Blaine Tech Services</b>	LOG CODE <b>BTSS</b>	SITE ADDRESS (Street and City) <b>4530 Las Positas Rd., Livermore</b>	LOGICAL CODE <b>pending</b>
ADDRESS <b>1680 Rogers Avenue, San Jose, CA 95112</b>	CONTACT NAME <b>Garrett Haefel</b>	PHONE NO. <b>(408)224-4724</b>	EMAIL <b>ghaefel@deltaenv.com</b>
PHONE NO. (M-F, 9-5) <b>408-573-0555</b>	FAX <b>408-573-7771</b>	EMAIL <b>gearhart@blainetech.com</b>	LAB USE ONLY

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

LA - RWQCB REPORT FORMAT  LIST AGENCY

GENERAL MTBE CONFIRMATION: HIGHEST \_\_\_\_\_ HIGHEST per BORING \_\_\_\_\_ ALL \_\_\_\_\_

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

### REQUESTED ANALYSIS

Field Sample Identification	SAMPLING DATE	TIME	MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (#02)B - Spill RL	MTBE (#200)B - Spill RL	Oxygenates (S) by (#200)B	Other	Microbial	1,2-DCA	EDG
MW-1	7/17/03	907	BW	6	X	X	X	X	X	X	X	X	X
MW-2		935		6	X	X	X	X	X	X	X	X	X
MW-3		1037		6	X	X	X	X	X	X	X	X	X
MW-4	✓	1021	✓	6	X	X	X	X	X	X	X	X	X

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

2.2°C  
 TEMPERATURE ON RECEIPT °C

Requested by (Signature) 	Received by (Signature) <b>SAS MIKE - WORLD FOR STL</b>	Date <b>7/18/03</b>	Time <b>14:30</b>
Requested by (Printed) <b>SAS MIKE</b>	Received by (Signature) 	Date <b>07/18/03</b>	Time <b>1550</b>
Requested by (Signature)	Received by (Signature)	Date	Time

## WELL GAUGING DATA

Project # 030717-MM2 Date 7/17/03 Client Shell

Site 4530 Las Positas Rd., 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 POC
Mw-1	2					13.25	22.25	POC
Mw-2	2					13.45	22.70	}
Mw-3	2					11.39	22.20	
Mw-4	2					13.51	22.61	



## SHELL WELL MONITORING DATA SHEET

BTS #: 030717-MM2	Site: 4530 Las Positas Rd., Livermore
Sampler: MM	Date: 7/17/03
Well I.D.: MW-1	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 22.25	Depth to Water (DTW): 13.25
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]: 15.05	

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

1.4 (Gals.) X 3 = 4.2 Gals.	Well Diameter Multiplier	Well Diameter Multiplier
1 Case Volume Specified Volumes Calculated Volume	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
856	79.2	7.3	1263	889	6.4	slightly cloudy
859	72.4	7.3	1339	>1000	2.9	cloudy
902	69.8	7.2	1345	1000	4.2	cloudy

Did well dewater? Yes  No  Gallons actually evacuated: 4.2

Sampling Date: 7/17/03 Sampling Time: 907 Depth to Water: 13.20

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: oxy's (6) by B260, Ethanol, Methanol, 1,2-DCE, EOP

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 #: 030717-MM2	Site: 4530 Las Positas Rd., Livermore
Sampler: MM	Date: 7/17/03
Well I.D.: MW-2	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 22.70	Depth to Water (DTW): 13.45
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]: <sup>0.25</sup> 15.3	

Purge Method: Bailer      Watera      Sampling Method: (Bailer)  
 Disposable Bailer      Peristaltic      Disposable Bailer  
 Middleburg      Extraction Pump      Extraction Port  
 Electric Submersible      Other \_\_\_\_\_      Dedicated Tubing

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

<u>1.5</u> (Gals.) X	<u>3</u> Specified Volumes =	<u>4.5</u> Gals. Calculated Volume
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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
925	71.7	7.3	1162	>1000	1.5	cloudy, brown
927	69.9	7.3	1165	>1000	3.0	" "
929	69.4	7.3	1181	>1000	4.5	

Did well dewater? Yes  No  Gallons actually evacuated: 4.5

Sampling Date: 7/17/03      Sampling Time: 935      Depth to Water: 13.99

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

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D Other: oxy's (6) by 8260, Ethanol, Methanol, 1,2-DCE, ED

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
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O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV
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## SHELL WELL MONITORING DATA SHEET

BTS #: 030717-MN2	Site: 4530 Las Posas Rd., Livermore
Sampler: MN	Date: 7/17/03
Well I.D.: MN-3	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 22.20	Depth to Water (DTW): 11.39
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]: <sup>10.81</sup> 13.5	

Purge Method: Bailer Disposable Bailer Middleburg Electric Submersible	Waterra Peristaltic Extraction Pump Other:	Sampling Method: (Bailer) Disposable Bailer Extraction Port Dedicated Tubing Other:
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1.7 (Gals.) X 3 = 5.1 Gals.	<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															
1 Case Volume	Specified Volumes	Calculated Volume																

Time	Temp (°F)	pH	Cond. (mS or μS)	Turbidity (NTUs)	Gals. Removed	Observations
953	73.0	7.5	1231	>1000	1.7	cloudy, light brown
955	71.9	8.0	1212	>1000	3.4	" "
957	70.9	8.0	1214	>1000	5.1	" " DTW = 17.15

Did well dewater? Yes (No) Gallons actually evacuated: 5.1

Sampling Date: 7/17/03 Sampling Time: 1037 Depth to Water: 1262

Sample I.D.: MN-3 Laboratory: (STL) Other:

Analyzed for: (TPH-G) (BTEX) MTBE TPH-D Other: hex's (6) by 8260, Ethanol, Methanol, 1,2-DCE, EDC

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
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O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV
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## SHELL WELL MONITORING DATA SHEET

BTS #: 030717-MM2	Site: 4530 Las Positas Rd., Livermore
Sampler: MM	Date: 7/17/03
Well I.D.: 4	Well Diameter: (2) 3 4 6 8
Total Well Depth (TD): 22.61	Depth to Water (DTW): 13.51
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 <sup>9.1</sup> x 0.20) + DTW]: 15.33	

Purge Method: Bailer Disposable Bailer Middleburg Electric Submersible	Watera Peristaltic Extraction Pump Other:	Sampling Method: Bailer Disposable Bailer Extraction Port Dedicated Tubing Other:
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1.5 (Gals.) X 3 = 4.5 Gals. 1 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 µS)	Turbidity (NTUs)	Gals. Removed	Observations
1011	71.0	7.8	1351	>1000	1.5	cloudy, brown
1013	70.1	7.9	1346	>1000	3.0	" "
1016	72.5	7.8	1327	>1000	4.5	clearing

Did well dewater? Yes  No  Gallons actually evacuated: 4.5

Sampling Date: 7/17/03      Sampling Time: 1021      Depth to Water: 15.20

Sample I.D.: MM-4      Laboratory: STL      Other: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D      Other: hex's (5) by 8260, Ethanol, Methanol, 1,2-DCE, EDH

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
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O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV
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# WELLHEAD INSPECTION CHECKLIST

Page 1 of 1

Client Shell Date 7/17/03

Site Address 4530 Las Positas Rd., Livermore

Job Number 030717-MM2 Technician AMM

Well ID	Well Inspected - No Corrective Action Required	Water Bailed 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: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_