RO2523

**Shell Oil Products US**

December 13, 2005

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

Dear Mr. Jerry Wickham:

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,
Shell Oil Products US

Denis L. Brown
Sr. Environmental Engineer

20945 S. Wilmington Avenue, Carson, CA 90810 P: (559) 645-9306; F: (559) 645-5643

R0252336

**Delta**
**Environmental**
**Consultants, Inc.**

*Solving environment-related business problems worldwide*

www.deltaenv.com

*175 Bernal Road • Suite 200*
*San Jose, California 95119 USA*

*408.224.4724 800.477.7411*
*Fax 408.224.4518*



## Letter of Transmittal

| | | |
|---|---|---|
| To: | Alameda County Health Care Services Agency | Date: 12/14/2005 |
| | Environmental Health Service - Environmental Protection | |
| | 1131 Harbor Bay Parkway, Suite 250 | Job No: SJ45-30L-1.2005 |
| | Alameda, California 94502-6577 | |
| Attn: | Jerry Wickham | |

We are sending the following items:

| Date | Copies | Description |
|---|---|---|
| 9-Dec-05 | 1 | **Quarterly Monitoring Report - Third Quarter 2005** |
| | | **Shell-branded Service Station** |
| | | **4530 Las Positas Road** |
| | | **Livermore, California** |
| | | |
| | | |

These are transmitted:

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

## Remarks

**Copies to:** Denis Brown, Shell Oil Products US
Isabel Mejia, Shell Oil Products US

By: Lena Martinez
Title: Project Manager Assistant/LFR

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*Fax 408.224.4518*

December 9, 2005
Project No. SJ45-30L-1.2005



Mr. Jerry Wickham
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 2005**
**Shell-branded Service Station**
**4530 Las Positas Road**
**Livermore, California**

Dear Mr. Wickham:

Delta Environmental Consultants, Inc. (Delta), on behalf of Shell Oil Products US (Shell), has prepared the following third quarter 2005 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.

## BACKGROUND

In September 2001, IT Corporation (IT) installed four site groundwater monitoring wells (MW-1 through MW-4, Figure 2). No soil samples were submitted for laboratory analysis during well installation activities. The wells were installed as part of Shell's GRoundwater ASsessment Program (GRASP). GRASP is a voluntary initiative by Shell to install groundwater monitoring wells at numerous retail service stations nationwide that do not have any active release cases but have been identified to be in close proximity to one or more water supply wells. Delta has field verified the nearest water supply wells as agricultural well 3S/2E 3H1, located approximately 2,500 feet northeast of the site; and unknown well 3S/2E 3M1, located approximately 1,800 feet northwest.

Following submittal of the third quarter 2002 GRASP Groundwater Monitoring Report, the Alameda County Health Care Services Agency (ACHCSA) notified Shell, in a letter dated October 10, 2002, that the site was placed in the local oversight program.

## QUARTERLY GROUND WATER MONITORING PROGRAM

Groundwater monitoring wells were gauged and sampled by Blaine on July 21, 2005. Depth to groundwater was measured in Wells MW-1 through MW-4. Groundwater elevation data is presented on Figure 2.

Groundwater samples were collected from Wells MW-1 through MW-4. Samples were submitted by Blaine to Severn Trent Laboratories (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.

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

## DISCUSSION

Depth to groundwater decreased in Wells MW-1, MW-2, and MW-3 by an average of 0.27 feet since last quarter, while depth to groundwater decreased in Well MW-4 by only 0.08 feet. The groundwater gradient at the site is complex. Previous monitoring events have not indicated a clear groundwater flow direction. In general, the flow direction at the site consistently appears to be towards both the northeast and the southwest, at a gradient of 0.01 ft/ft (essentially flat). On July 21, 2005, the groundwater flow direction appeared to be towards the southeast at a magnitude of less than 0.01 ft/ft. The regional groundwater flow direction in this area of the Livermore Valley is towards the southeast.

All analytes tested were below laboratory detection limits for all site wells during the third quarter 2005. MTBE has been below laboratory detection limits in all site wells for the past seven monitoring events. The maximum historic concentration of MTBE was 470 ug/L in Well MW-4 (July 2002). No other analytes have been detected in site wells since sampling began in 2001.

## RECOMMENDATIONS

Delta will prepare a comprehensive site conceptual model (SCM) spreadsheet for submittal to the Alameda County Health Care Services Agency (ACHCSA). The SCM, in electronic report format, will include recommendations for possible additional soil and groundwater investigation activities at the site in order to move towards case closure.

**REMARKS**

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

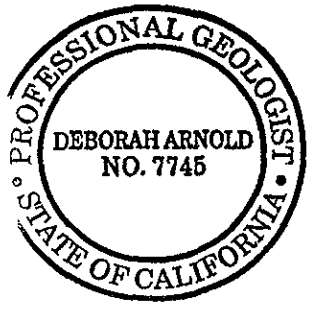
Please call if you have any questions regarding the contents of this letter.

Sincerely,
**Delta Environmental Consultants, Inc.**

Heather Buckingham
Senior Staff Geologist

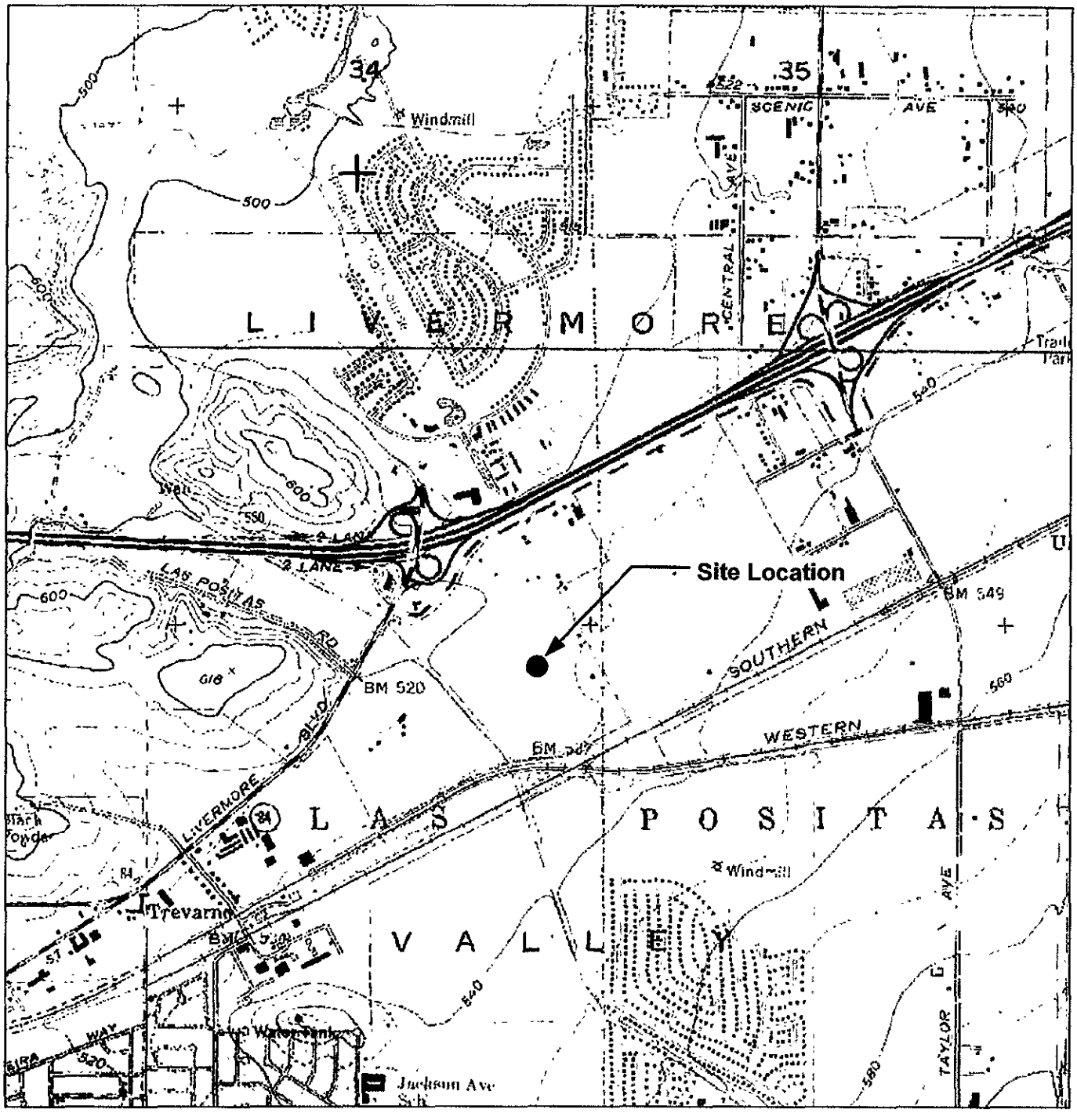
D. Arnold

Debbie Arnold
Project Manager
PG 7745




**Attachments:** Figure 1 – Site Location Map
Figure 2 – Groundwater Elevation Contour Map, July 21, 2005
Figure 3 – TPH-G, Benzene, and MTBE Concentrations Map, July 21, 2005
Attachment A – Groundwater Monitoring and Sampling Report, August 8, 2005

cc: Denis Brown, Shell Oil Products US




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

North

QUADRANGLE LOCATION

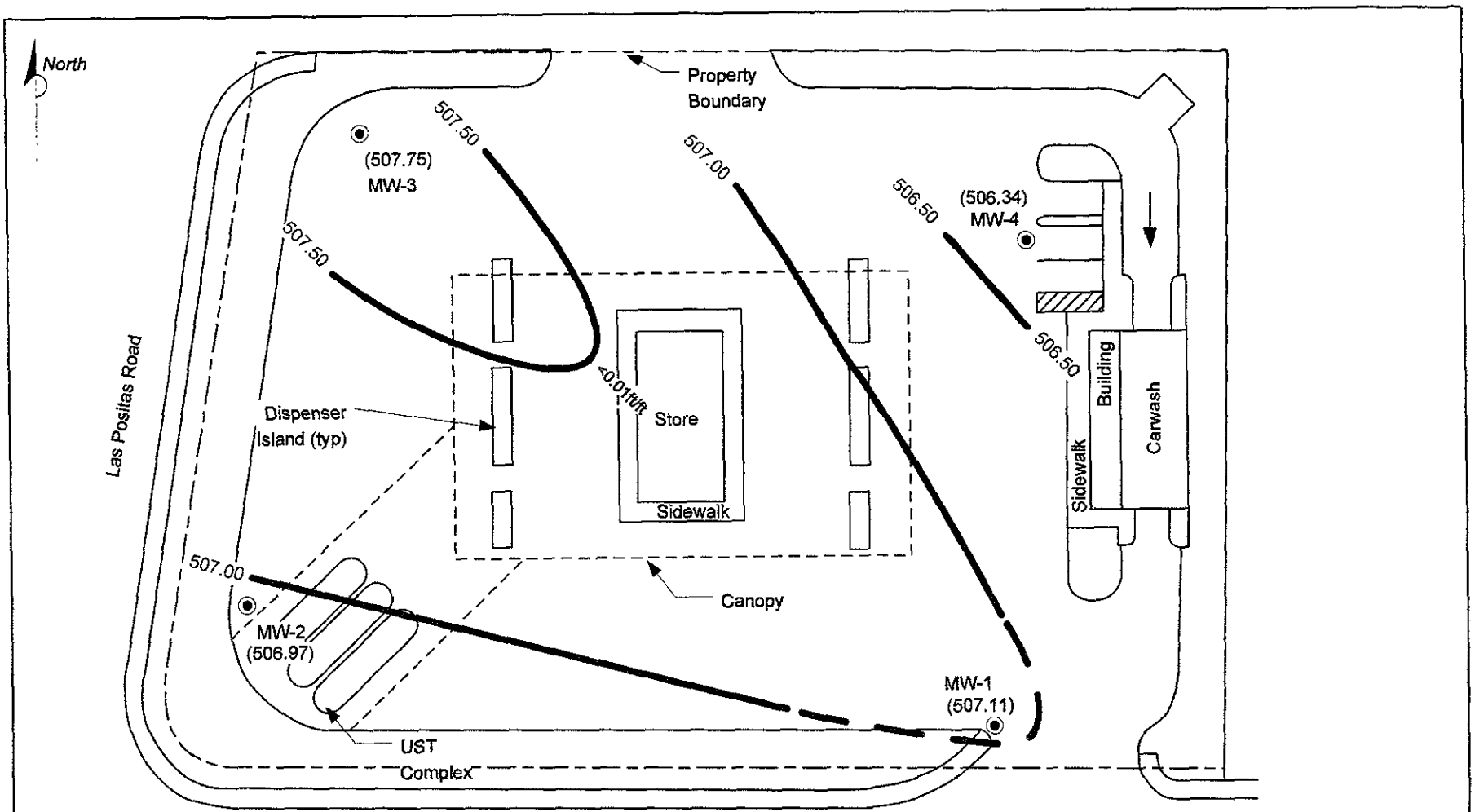
0 1,800 3,600
Scale, Feet

FIGURE 1
SITE LOCATION MAP

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

| | |
|---|---|
| PROJECT NO SJ45-30L-1 2004 | DRAWN BY VF 9/26/03 |
| FILE NO. SJ45-30L-1 2004 | PREPARED BY VF |
| REVISION NO. | REVIEWED BY |

Delta Environmental Consultants, Inc.




North First

**LEGEND**

MW-2 ◉ **GROUNDWATER MONITORING WELL**

(506.34) **GROUNDWATER ELEVATION (FEET-MSL), 07/21/05**

507.00 **GROUNDWATER ELEVATION CONTOUR**

<0.01 ft/ft **APPROXIMATE GROUNDWATER FLOW DIRECTION**

0 40 FT

APPROX. SCALE

FIGURE 2
GROUNDWATER ELEVATION CONTOUR MAP
JULY 21, 2005

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

| | |
|---|---|
| PROJECT NO. SJ45-30L-1.2005 | DRAWN BY JL 10/06/05 |
| FILE NO. SJ45-30-1.2005 | PREPARED BY HB |
| REVISION NO. 1 | REVIEWED BY |

Delta
Environmental Consultants, Inc.

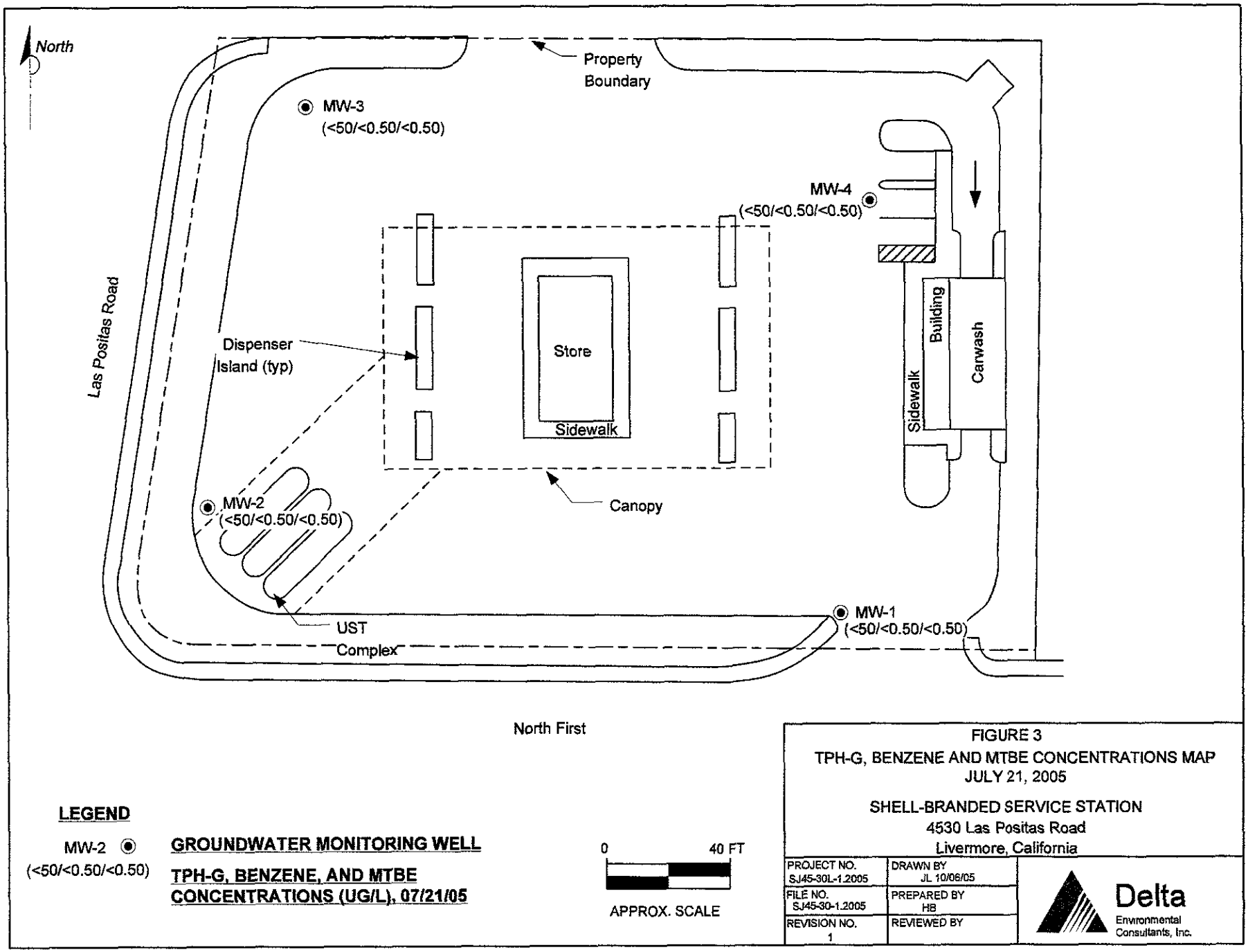



FIGURE 3
TPH-G, BENZENE AND MTBE CONCENTRATIONS MAP
JULY 21, 2005

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

| | |
|---|---|
| PROJECT NO. SJ45-30L-1.2005 | DRAWN BY JL 10/06/05 |
| FILE NO. SJ45-30-1.2005 | PREPARED BY HB |
| REVISION NO. 1 | REVIEWED BY |

Delta Environmental Consultants, Inc.

# Attachment A

## GROUNDWATER MONITORING AND SAMPLING REPORT

BLAINE
TECH SERVICES INC.

GROUNDWATER SAMPLING SPECIALISTS
SINCE 1985

August 8, 2005

Denis Brown
Shell Oil Products US
20945 S. Wilmington Avenue
Carson, CA 90810

Third Quarter 2005 Groundwater Monitoring at
Shell-branded Service Station
4530 Las Positas Road
Livermore, CA

Monitoring performed on July 21, 2005

Groundwater Monitoring Report **050721-PM-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/ks

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

cc: Garrett Haertel
Delta Environmental
175 Bernal Road, Suite 200
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) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 09/20/2001 | NA | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | NA | NA | NA |
| MW-1 | 07/09/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 519.86 | 13.13 | 506.73 |
| MW-1 | 10/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 519.86 | 13.17 | 506.69 |
| MW-1 | 01/24/2003 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 519.86 | 12.80 | 507.06 |
| MW-1 | 04/15/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.86 | 12.64 | 507.22 |
| MW-1 | 07/17/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.86 | 13.25 | 506.61 |
| MW-1 | 10/21/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.86 | 13.43 | 506.43 |
| MW-1 | 01/13/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.86 | 13.15 | 506.71 |
| MW-1 | 04/07/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 519.86 | 13.04 | 506.82 |
| MW-1 | 07/14/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 519.86 | 13.28 | 506.58 |
| MW-1 | 04/13/2005 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | 519.86 | 12.99 | 506.87 |
| **MW-1** | **07/21/2005** | **<50 a** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **<0.50** | **<2.0** | **<2.0** | **<2.0** | **<5.0** | **519.86** | **12.75** | **507.11** |
| MW-2 | 09/20/2001 | NA | <0.50 | <0.50 | <0.50 | <0.50 | 0.6 | <2.0 | <2.0 | <2.0 | <50 | NA | NA | NA |
| MW-2 | 07/09/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 518.50 | 12.41 | 506.09 |
| MW-2 | 10/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 518.50 | 12.34 | 506.16 |
| MW-2 | 01/24/2003 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 518.50 | 11.56 | 506.94 |
| MW-2 | 04/15/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.50 | 11.38 | 507.12 |
| MW-2 | 07/17/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.50 | 13.45 | 505.05 |
| MW-2 | 10/21/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.50 | 12.64 | 505.86 |
| MW-2 | 01/13/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.50 | 11.97 | 506.53 |
| MW-2 | 04/07/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 518.50 | 11.91 | 506.59 |
| MW-2 | 07/14/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 518.50 | 12.44 | 506.06 |
| MW-2 | 04/13/2005 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | 518.50 | 11.81 | 506.69 |
| **MW-2** | **07/21/2005** | **<50 a** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **<0.50** | **<2.0** | **<2.0** | **<2.0** | **<5.0** | **518.50** | **11.53** | **506.97** |

## 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) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-3 | 09/20/2001 | NA | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | NA | NA | NA |
| MW-3 | 07/09/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 518.93 | 11.58 | 507.35 |
| MW-3 | 10/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 518.93 | 11.17 | 507.76 |
| MW-3 | 01/24/2003 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 518.93 | 11.18 | 507.75 |
| MW-3 | 04/15/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.93 | 11.25 | 507.68 |
| MW-3 | 07/17/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.93 | 11.39 | 507.54 |
| MW-3 | 10/21/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.93 | 11.54 | 507.39 |
| MW-3 | 01/13/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 518.93 | 11.27 | 507.66 |
| MW-3 | 04/07/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 518.93 | 11.34 | 507.59 |
| MW-3 | 07/14/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 518.93 | 11.43 | 507.50 |
| MW-3 | 04/13/2005 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | 518.93 | 11.48 | 507.45 |
| **MW-3** | **07/21/2005** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **<0.50** | **<2.0** | **<2.0** | **<2.0** | **<5.0** | **518.93** | **11.18** | **507.75** |
| MW-4 | 11/06/2001 | NA | <0.50 | <0.50 | <0.50 | <0.50 | 16.0 | <2.0 | <2.0 | <2.0 | <50 | NA | NA | NA |
| MW-4 | 07/09/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 470 | <2.0 | <2.0 | <2.0 | <50 | 519.44 | 13.42 | 506.02 |
| MW-4 | 10/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 22 | <2.0 | <2.0 | <2.0 | <50 | 519.44 | 13.42 | 506.02 |
| MW-4 | 01/24/2003 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.0 | <2.0 | <2.0 | <50 | 519.44 | 13.07 | 506.37 |
| MW-4 | 04/15/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | 2.0 | <2.0 | <2.0 | <2.0 | <5.0 | 519.44 | 12.93 | 506.51 |
| MW-4 | 07/17/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.44 | 13.51 | 505.93 |
| MW-4 | 10/21/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.44 | 13.69 | 505.75 |
| MW-4 | 01/13/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <2.0 | <2.0 | <2.0 | <5.0 | 519.44 | 13.48 | 505.96 |
| MW-4 | 04/07/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 519.44 | 13.36 | 506.08 |
| MW-4 | 07/14/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | NA | NA | NA | NA | 519.44 | 13.47 | 505.97 |
| MW-4 | 04/13/2005 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | 519.44 | 13.18 | 506.26 |
| **MW-4** | **07/21/2005** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **<0.50** | **<2.0** | **<2.0** | **<2.0** | **<5.0** | **519.44** | **13.10** | **506.34** |

# 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) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (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
DIPE = Di-isopropyl ether, analyzed by EPA Method 8260B
ETBE = Ethyl tertiary butyl ether, analyzed by EPA Method 8260B
TAME = Tertiary amyl methyl ether, analyzed by EPA Method 8260B
TBA = Tertiary butyl alcohol, analyzed by EPA Method 8260B
TOC = Top of Casing Elevation
GW = Groundwater
ug/L = Parts per billion
MSL = Mean sea level
ft. = Feet
<n = Below detection limit
NA = Not applicable

Notes:
a = The concentration reported reflects individual or discrete unidentified peaks not matching a typical fuel pattern.
Survey data provided by KHM Environmental Management, Inc.

SEVERN TRENT STL

**Submission#: 2005-07-0669**

**Blaine Tech Services, Inc.**

August 04, 2005

1680 Rogers Avenue
San Jose, CA 95112-1105

Attn.: Leon Gearhart

Project#: BTS#050721-PM2
Project: 97464710
Site: 4530 Las Positas Rd., Livermore

Dear Mr.Gearhart,

Attached is our report for your samples received on 07/22/2005 16:01
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 09/05/2005 unless you have requested otherwise.
We appreciate the opportunity to be of service to you. If you have any questions,

You can also contact me via email. My email address is: mbrewer@stl-inc.com

Sincerely,

Melissa Brewer

Melissa Brewer
Project Manager

SEVERN TRENT STL

**Submission: 2005-07-0669**

## 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

### Samples Reported

| Sample Name | Date Sampled | Matrix | Lab # |
|---|---|---|---|
| MW-1 | 07/21/2005 12:44 | Water | 1 |
| MW-2 | 07/21/2005 13:09 | Water | 2 |
| MW-3 | 07/21/2005 13:51 | Water | 3 |
| MW-4 | 07/21/2005 14:20 | 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

Prep(s): 5030B
Sample ID: **MW-1**
Sampled: 07/21/2005 12:44
Matrix: Water
pH: <2

Test(s): 8260B
Lab ID: 2005-07-0669 - 1
Extracted: 7/30/2005 19:07
QC Batch#: 2005/07/30-2A.69

| Compound | Conc. | RL | Unit | Dilution | Analyzed | Flag |
|---|---|---|---|---|---|---|
| Gasoline [Shell] | ND | 50 | ug/L | 1.00 | 07/30/2005 19:07 | Q6 |
| Benzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:07 | |
| Toluene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:07 | |
| Ethylbenzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:07 | |
| Total xylenes | ND | 1.0 | ug/L | 1.00 | 07/30/2005 19:07 | |
| tert-Butyl alcohol (TBA) | ND | 5.0 | ug/L | 1.00 | 07/30/2005 19:07 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:07 | |
| Di-isopropyl Ether (DIPE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:07 | |
| Ethyl tert-butyl ether (ETBE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:07 | |
| tert-Amyl methyl ether (TAME) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:07 | |
| ***Surrogate(s)*** | | | | | | |
| 1,2-Dichloroethane-d4 | 93.9 | 73-130 | % | 1.00 | 07/30/2005 19:07 | |
| Toluene-d8 | 92.1 | 81-114 | % | 1.00 | 07/30/2005 19:07 | |

## 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

Prep(s): 5030B
Sample ID: **MW-2**
Sampled: 07/21/2005 13:09
Matrix: Water
pH: <2

Test(s): 8260B
Lab ID: 2005-07-0669 - 2
Extracted: 7/30/2005 19:25
QC Batch#: 2005/07/30-2A.69

| Compound | Conc. | RL | Unit | Dilution | Analyzed | Flag |
|---|---|---|---|---|---|---|
| Gasoline [Shell] | ND | 50 | ug/L | 1.00 | 07/30/2005 19:25 | Q6 |
| Benzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:25 | |
| Toluene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:25 | |
| Ethylbenzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:25 | |
| Total xylenes | ND | 1.0 | ug/L | 1.00 | 07/30/2005 19:25 | |
| tert-Butyl alcohol (TBA) | ND | 5.0 | ug/L | 1.00 | 07/30/2005 19:25 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:25 | |
| Di-isopropyl Ether (DIPE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:25 | |
| Ethyl tert-butyl ether (ETBE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:25 | |
| tert-Amyl methyl ether (TAME) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:25 | |
| ***Surrogate(s)*** | | | | | | |
| 1,2-Dichloroethane-d4 | 99.5 | 73-130 | % | 1.00 | 07/30/2005 19:25 | |
| Toluene-d8 | 95.4 | 81-114 | % | 1.00 | 07/30/2005 19:25 | |

## 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

Prep(s): 5030B
Sample ID: **MW-3**
Sampled: 07/21/2005 13:51
Matrix: Water
pH: <2

Test(s): 8260B
Lab ID: 2005-07-0669 - 3
Extracted: 7/30/2005 19:43
QC Batch#: 2005/07/30-2A.69

| Compound | Conc. | RL | Unit | Dilution | Analyzed | Flag |
|---|---|---|---|---|---|---|
| Gasoline [Shell] | ND | 50 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Benzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Toluene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Ethylbenzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Total xylenes | ND | 1.0 | ug/L | 1.00 | 07/30/2005 19:43 | |
| tert-Butyl alcohol (TBA) | ND | 5.0 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.50 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Di-isopropyl Ether (DIPE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:43 | |
| Ethyl tert-butyl ether (ETBE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:43 | |
| tert-Amyl methyl ether (TAME) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 19:43 | |
| ***Surrogate(s)*** | | | | | | |
| 1,2-Dichloroethane-d4 | 101.5 | 73-130 | % | 1.00 | 07/30/2005 19:43 | |
| Toluene-d8 | 94.2 | 81-114 | % | 1.00 | 07/30/2005 19:43 | |

## 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

Prep(s): 5030B
Sample ID: **MW-4**
Sampled: 07/21/2005 14:20
Matrix: Water
pH: <2

Test(s): 8260B
Lab ID: 2005-07-0669 - 4
Extracted: 7/30/2005 20:02
QC Batch#: 2005/07/30-2A.69

| Compound | Conc. | RL | Unit | Dilution | Analyzed | Flag |
|---|---|---|---|---|---|---|
| Gasoline [Shell] | ND | 50 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Benzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Toluene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Ethylbenzene | ND | 0.50 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Total xylenes | ND | 1.0 | ug/L | 1.00 | 07/30/2005 20:02 | |
| tert-Butyl alcohol (TBA) | ND | 5.0 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.50 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Di-isopropyl Ether (DIPE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 20:02 | |
| Ethyl tert-butyl ether (ETBE) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 20:02 | |
| tert-Amyl methyl ether (TAME) | ND | 2.0 | ug/L | 1.00 | 07/30/2005 20:02 | |
| ***Surrogate(s)*** | | | | | | |
| 1,2-Dichloroethane-d4 | 106.3 | 73-130 | % | 1.00 | 07/30/2005 20:02 | |
| Toluene-d8 | 93.3 | 81-114 | % | 1.00 | 07/30/2005 20:02 | |

# 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

## Batch QC Report

Prep(s): 5030B
**Method Blank**
MB: 2005/07/30-2A.69-005

**Water**

Test(s): 8260B
**QC Batch # 2005/07/30-2A.69**
Date Extracted: 07/30/2005 17:05

| Compound | Conc. | RL | Unit | Analyzed | Flag |
|---|---|---|---|---|---|
| Gasoline [Shell] | ND | 50 | ug/L | 07/30/2005 17:05 | |
| tert-Butyl alcohol (TBA) | ND | 5.0 | ug/L | 07/30/2005 17:05 | |
| Methyl tert-butyl ether (MTBE) | ND | 0.5 | ug/L | 07/30/2005 17:05 | |
| Di-isopropyl Ether (DIPE) | ND | 2.0 | ug/L | 07/30/2005 17:05 | |
| Ethyl tert-butyl ether (ETBE) | ND | 2.0 | ug/L | 07/30/2005 17:05 | |
| tert-Amyl methyl ether (TAME) | ND | 2.0 | ug/L | 07/30/2005 17:05 | |
| Benzene | ND | 0.5 | ug/L | 07/30/2005 17:05 | |
| Toluene | ND | 0.5 | ug/L | 07/30/2005 17:05 | |
| Ethylbenzene | ND | 0.5 | ug/L | 07/30/2005 17:05 | |
| Total xylenes | ND | 1.0 | ug/L | 07/30/2005 17:05 | |
| ***Surrogates(s)*** | | | | | |
| 1,2-Dichloroethane-d4 | 95.6 | 73-130 | % | 07/30/2005 17:05 | |
| Toluene-d8 | 93.4 | 81-114 | % | 07/30/2005 17:05 | |

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

Blaine Tech Services, Inc.
Attn.: Leon Gearhart

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

Project: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

## Batch QC Report

Prep(s): 5030B

Test(s): 8260B

**Laboratory Control Spike**

**Water**

**QC Batch # 2005/07/30-2A.69**

LCS 2005/07/30-2A.69-047
LCSD

Extracted: 07/30/2005

Analyzed: 07/30/2005 16:47

| Compound | Conc. ug/L | | Exp.Conc. | Recovery % | | RPD | Ctrl.Limits % | | Flags | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LCS | LCSD | | LCS | LCSD | % | Rec. | RPD | LCS | LCSD |
| Methyl tert-butyl ether (MTBE) | 26.4 | | 25 | 105.6 | | | 65-165 | 20 | | |
| Benzene | 23.9 | | 25 | 95.6 | | | 69-129 | 20 | | |
| Toluene | 26.0 | | 25 | 104.0 | | | 70-130 | 20 | | |
| ***Surrogates(s)*** | | | | | | | | | | |
| 1,2-Dichloroethane-d4 | 468 | | 500 | 93.6 | | | 73-130 | | | |
| Toluene-d8 | 471 | | 500 | 94.2 | | | 81-114 | | | |

# 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

## Batch QC Report

Prep(s): 5030B

Test(s): 8260B

**Matrix Spike ( MS / MSD )**

**Water**

**QC Batch # 2005/07/30-2A.69**

MS/MSD

Lab ID: 2005-07-0668 - 003

MS: 2005/07/30-2A.69-012

Extracted: 07/30/2005

Analyzed: 07/30/2005 18:12

Dilution: 1.00

MSD: 2005/07/30-2A.69-030

Extracted: 07/30/2005

Analyzed: 07/30/2005 18:30

Dilution: 1.00

| Compound | Conc. ug/L | | | Spk.Level | Recovery % | | | Limits % | | Flags | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MS | MSD | Sample | ug/L | MS | MSD | RPD | Rec. | RPD | MS | MSD |
| Methyl tert-butyl ether | 29.3 | 26.2 | 4.21 | 25 | 100.4 | 88.0 | 13.2 | 65-165 | 20 | | |
| Benzene | 22.4 | 21.9 | ND | 25 | 89.6 | 87.6 | 2.3 | 69-129 | 20 | | |
| Toluene | 23.7 | 22.3 | ND | 25 | 94.8 | 89.2 | 6.1 | 70-130 | 20 | | |
| ***Surrogate(s)*** | | | | | | | | | | | |
| 1,2-Dichloroethane-d4 | 483 | 459 | | 500 | 96.7 | 91.8 | | 73-130 | | | |
| Toluene-d8 | 469 | 465 | | 500 | 93.8 | 93.0 | | 81-114 | | | |

# 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: BTS#050721-PM2
97464710

Received: 07/22/2005 16:01

Site: 4530 Las Positas Rd., Livermore

## Legend and Notes

**Sample Comment**

Lab ID: 2005-07-0669 -1

Siloxane peaks were found in the sample which are not believed to be gasoline related. If they were to be quantified as gasoline, the concentration would be 56 ug/L.

Lab ID: 2005-07-0669 -2

Siloxane peaks were found in the sample which are not believed to be gasoline related. If they were to be quantified as gasoline, the concentration would be 77 ug/L.

**Result Flag**

Q6

The concentration reported reflect(s) individual or discrete unidentified peaks not matching a typical fuel pattern.

# SHELL Chain Of Custody Record

116277

Lab Identification (if necessary): STL

Address:

City, State, Zip:

**Shell Project Manager to be invoiced:** Karen Petryna

☑ SCIENCE & ENGINEERING ☐ TECHNICAL SERVICES ☐ CRMT HOUSTON

2005-07-0669

INCIDENT NUMBER (S&E ONLY): 97464710

SAP or CRMT NUMBER (TS/CRMT):

DATE: 7-21-05

PAGE: 1 of 1

| SAMPLING COMPANY | LOG CODE | SITE ADDRESS (Street and City) | GLOBAL ID NO. |
|---|---|---|---|
| Blaine Tech Services | BTSS | 4530 Las Positas Rd., Livermore | T0600194179 |

| ADDRESS | EDF DELIVERABLE TO (Responsible Party or Designee) | PHONE NO. | E-MAIL | CONSULTANT PROJECT NO. |
|---|---|---|---|---|
| 1680 Rogers Avenue, San Jose, CA 95112 | Heather Buckingham | (408)224-4724 | hbuckingham@deltaenv.com | BTS# 050721-PM2 |

| PROJECT CONTACT (Hardcopy or PDF Report to) | TELEPHONE | FAX | E-MAIL |
|---|---|---|---|
| Leon Gearhart | 408-573-0555 | 408-573-7771 | lgearhart@blainetech.com |

SAMPLER NAME(S) (Print): Paul Moore

LAB USE ONLY

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

☐ EA - RWQCB REPORT FORMAT ☐ UST AGENCY:

GCMS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

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

REQUESTED ANALYSIS

| LAB USE ONLY | Field Sample Identification | SAMPLING DATE | SAMPLING TIME | MATRIX | NO. OF CONT. | TPH - Gas, Purgeable | BTEX | MTBE (8021B - 5ppb RL) | MTBE (8260B - 0.5ppb RL) | Oxygenates (5) by (8260B) |
|---|---|---|---|---|---|---|---|---|---|---|
| | MW-1 | 7/21/05 | 1244 | W | 3 | X | X | | | X |
| | MW-2 | " | 1309 | " | 3 | X | X | | | X |
| | MW-3 | " | 1351 | " | 3 | X | X | | | X |
| | MW-4 | " | 1420 | " | 3 | X | X | | | X |

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

5 vc

TEMPERATURE ON RECEIPT C°

| Relinquished by (Signature) | Received by (Signature) | Date | Time |
|---|---|---|---|
| Paul Moore | Matthew Approved Sample Custodian | 7/21/05 | 1540 |
| Matthew Approved Sample Custodian | | 7/22/05 | 1001 |
| Fed Ex 7/22/05 1832 | | 7/22/05 | 1832 |

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client

DSQ Graphic (714) 895-8702

# WELLHEAD INSPECTION CHECKLIST



Date 7-21-05 Client SHELL

Site Address 4530 Las Positas Road. Livermore

Job Number 050721-PM2 Technician Paul Monroe

| Well ID | Well Inspected - No Corrective Action Required | Water Bailed From Wellbox | Wellbox Components Cleaned | Cap Replaced | Debris Removed From Wellbox | Lock Replaced | Other Action Taken (explain below) | Well Not Inspected (explain below) |
|---|---|---|---|---|---|---|---|---|
| MW-1 | X | | | | | | | |
| MW-2 | X | | | | | | | |
| MW-3 | X | | | | | | | |
| MW-4 | X | | | | | | | |
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NOTES:

# WELL GAUGING DATA

Project # 050721-PM2 Date 7-21-05 Client SHELL

Site 4530 Las Positas

| 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 | | | | | 12.75 | 22.30 | | |
| MW-2 | 2 | | | | | 11.53 | 22.73 | | |
| MW-3 | 2 | | | | | 11.18 | 22.80 | | |
| MW-4 | 2 | | | | | 13.10 | 22.55 | | |
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# SHELL WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 050721-PM2 | Site: SHELL 92995714 |
| Sampler: PM | Date: 7-21-05 |
| Well I.D.: MW-1 | Well Diameter: (2) 3 4 6 8 ___ |
| Total Well Depth (TD): 22.30 | Depth to Water (DTW): 12.75 |
| 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]: 14.66 | |

Purge Method: (Bailer)
Disposable Bailer
Positive Air Displacement
Electric Submersible
Waterra
Peristaltic
Extraction Pump
Other_____

Sampling Method: (Bailer)
Disposable Bailer
Extraction Port
Dedicated Tubing
Other: _____

| 1.5 (Gals.) X | 3 | = | 4.5 Gals. |
|---|---|---|---|
| 1 Case Volume | Specified Volumes | | Calculated Volume |

| Well Diameter | Multiplier | Well Diameter | Multiplier |
|---|---|---|---|
| 1" | 0.04 | 4" | 0.65 |
| 2" | 0.16 | 6" | 1.47 |
| 3" | 0.37 | Other | radius² * 0.163 |

| Time | Temp (°F) | pH | Cond. (mS or (uS)) | Turbidity (NTUs) | Gals. Removed | Observations |
|---|---|---|---|---|---|---|
| 1233 | 73.7 | 8.0 | 1324 | >1000 | 1.5 | tan |
| 1236 | 70.7 | 7.5 | 1340 | >1000 | 3 | " |
| 1239 | 71.6 | 7.8 | 1352 | >1000 | 4.5 | " |
| | | | | | | |
| | | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 4.5

Sampling Date: 7-21-05 Sampling Time: 1244 Depth to Water:

Sample I.D.: MW-1 Laboratory: (STL) Other_____

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

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 #: 050721-PM2 | Site: SHELL 92795/14 |
| Sampler: PM | Date: 7-21-05 |
| Well I.D.: MW-2 | Well Diameter: (2) 3 4 6 8 ___ |
| Total Well Depth (TD): 22.73 | Depth to Water (DTW): 11.53 |
| 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]: 13.77 | |

Purge Method: (Bailer) Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other_____

Sampling Method: (Bailer) Disposable Bailer; Extraction Port; Dedicated Tubing; Other: _____

1.8 (Gals.) X 3 = 5.4 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

| Well Diameter | Multiplier | Well Diameter | Multiplier |
|---|---|---|---|
| 1" | 0.04 | 4" | 0.65 |
| 2" | 0.16 | 6" | 1.47 |
| 3" | 0.37 | Other | radius² * 0.163 |

| Time | Temp (°F) | pH | Cond. (mS or (µS)) | Turbidity (NTUs) | Gals. Removed | Observations |
|---|---|---|---|---|---|---|
| 1258 | 75.6 | 8.2 | 1394 | 71000 | 1.8 | brown |
| 1301 | 72.2 | 7.8 | 1184 | 71000 | 3.6 | " |
| 1304 | 71.0 | 7.8 | 1223 | 71000 | 5.4 | " |
| | | | | | | |
| | | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 5.4

Sampling Date: 7-21-05 Sampling Time: 1309 Depth to Water: 11.55

Sample I.D.: MW-2 Laboratory: (STL) Other_____

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

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 #: 050721-PM2 | Site: SHELL 92995114 |
| Sampler: PM | Date: 7-21-05 |
| Well I.D.: MW-3 | Well Diameter: (2) 3 4 6 8 ___ |
| Total Well Depth (TD): 22.80 | Depth to Water (DTW): 11.18 |
| Depth to Free Product: | Thickness of Free Product (feet): |
| Referenced to: (TOC) 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: (Bailer) Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other_____

Sampling Method: (Bailer) Disposable Bailer; Extraction Port; Dedicated Tubing; Other:

| 1 Case Volume | | Specified Volumes | | Calculated Volume |
|---|---|---|---|---|
| 1.9 | (Gals.) X | 3 | = | 5.7 Gals. |

| Well Diameter | Multiplier | Well Diameter | Multiplier |
|---|---|---|---|
| 1" | 0.04 | 4" | 0.65 |
| 2" | 0.16 | 6" | 1.47 |
| 3" | 0.37 | Other | radius² * 0.163 |

| Time | Temp (°F) | pH | Cond. (mS or (µS)) | Turbidity (NTUs) | Gals. Removed | Observations |
|---|---|---|---|---|---|---|
| 1328 | 45.7 | 6.3 | 1236 | 488 | 1.9 | cloudy / tan |
| 1331 | 70.4 | 8.0 | 1187 | 71000 | 3.8 | brown |
| 1334 | 69.6 | 7.9 | 1200 | 71000 | 5.7 | " |
| | | | | DTW=16.50 @ 1336 | | |
| | | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 5.7

Sampling Date: 7-21-05 Sampling Time: 1351 Depth to Water: 1350

Sample I.D.: MW-3 Laboratory: (STL) Other_____

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

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 #: 050721-PM2 | Site: SHELL 9299514 |
| Sampler: PM | Date: 7-21-05 |
| Well I.D.: MW-4 | Well Diameter: (2) 3 4 6 8 ___ |
| Total Well Depth (TD): 22.55 | Depth to Water (DTW): 13.10 |
| 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]: 14.99 | |

Purge Method: (Bailer) Waterra
Disposable Bailer Peristaltic
Positive Air Displacement Extraction Pump
Electric Submersible Other_____

Sampling Method: (Bailer)
Disposable Bailer
Extraction Port
Dedicated Tubing
Other: _____

1.5 (Gals.) X 3 = 4.5 Gals.
1 Case Volume Specified Volumes Calculated Volume

| Well Diameter | Multiplier | Well Diameter | Multiplier |
|---|---|---|---|
| 1" | 0.04 | 4" | 0.65 |
| 2" | 0.16 | 6" | 1.47 |
| 3" | 0.37 | Other | radius² * 0.163 |

| Time | Temp (°F) | pH | Cond. (mS or (uS)) | Turbidity (NTUs) | Gals. Removed | Observations |
|---|---|---|---|---|---|---|
| 1408 | 73.2 | 8.5 | 1257 | 71000 | 1.5 | brown |
| 1411 | 70.5 | 7.8 | 1301 | 71000 | 3 | " |
| 1414 | 69.3 | 7.9 | 1311 | 71000 | 4.5 | " |
| | | | | | | |
| | | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 4.5

Sampling Date: 7-21-05 Sampling Time: 14:20 Depth to Water: 14.53

Sample I.D.: MW-4 Laboratory: (STL) Other_____

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

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 |