

R02525



Shell Oil Products US

October 18, 2005

Re: **Monitoring Well Installation Report
Former Shell Service Station
318 South Livermore Ave.
Livermore, California**

Alameda County
OCT 24 2005
Environmental Health

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



Solving environment-related business problems worldwide

www.deltaenv.com

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October 18, 2005
Project No. SJ31-8LI-1

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

Alameda County
OCT 24 2005
Environmental Health

**Re: Monitoring Well Installation Report
Former Shell Service Station
318 South Livermore Ave.
Livermore, California**

Dear Mr. Wickham,

Delta Environmental Consultants, Inc. (Delta), on behalf of Shell Oil Products US (Shell), has prepared this report documenting the results of the recent groundwater monitoring well installation (MW-9) at the above-referenced site. Well MW-9 was installed in order to monitor low-level concentrations of petroleum hydrocarbons and fuel oxygenates detected in groundwater southwest of the former dispenser islands during the recent (June 2005) soil and groundwater investigation. The Alameda County Health Care Services Agency (ACHCSA) approved installation of Well MW-9 in a letter to Shell dated July 18, 2005.

BACKGROUND

The following sections present a brief description of the former service station and a brief summary of previous site soil and groundwater investigations.

SITE DESCRIPTION

The site is located on the eastern corner of South Livermore Avenue and Third Street in Livermore, California (Figure 1). The site was formerly the location of a Shell-branded service station. The former service station consisted of a building containing vehicle service bays and a small convenience store, five fuel dispensers, three 12,000-gallon fuel underground storage tanks (USTs), and one 550-gallon waste oil UST. The former station plan is presented on Figure 2.

A member of:



PREVIOUS INVESTIGATIONS

Monitoring Wells MW-1 through MW-4

In March 1989, a sample of backfill material was collected from around the fill pipe of the regular leaded UST formerly located near the southern corner of the site (Figure 2). The sample was found to contain total petroleum hydrocarbons as gasoline (TPH-G) at 37,000 parts per million (ppm). Subsequently, the ACHCSA required that groundwater at the site be assessed. In May 1990, following UST replacement activities, four groundwater monitoring wells (MW-1 through MW-4) were installed adjacent to former site USTs (Figure 2). TPH-G was not detected in any of the soil samples collected from the borings for the monitoring wells. TPH-G and benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds) were detected in groundwater samples collected from Wells MW-3 and MW-4. The highest concentration of TPH-G detected was 90 micrograms per liter (ug/l). The wells were monitored through 1995 when case closure was granted by the ACHCSA and the wells destroyed.

Monitoring Wells MW-5 through MW-8

In September 2001, IT Corporation installed four site groundwater monitoring wells (MW-5 through MW-8) as part of Shell's voluntary Groundwater Assessment Program (GRASP). Only one soil sample was collected from the borings for site wells. Sample MW-7 at 35 feet below grade (bg) was analyzed for TPH-G, BTEX compounds, and fuel oxygenates. All analytes tested were below the laboratory method detection limit. Thirteen quarterly groundwater sampling events have now been performed to date. The ACHCSA recently approved a reduction in sampling frequency from quarterly to semi-annually for Wells MW-5 through MW-8. A summary of historic groundwater monitoring data is provided as Attachment A. Groundwater beneath the site typically fluctuates by about 8 to 10 feet annually, and the predominant groundwater gradient is towards the west at approximately 0.02 feet/feet.

With the exception of Well MW-7, low-level (< 260 ug/l) concentrations of TPH-G and BTEX compounds have only been detected once in groundwater samples collected on November 13, 2003. TPH-G was also detected at 75 ug/l in Well MW-7 on November 11, 2004. The results are questioned as TPH-G and BTEX compounds have been below the laboratory method detection limit in all other groundwater samples. Methyl tert butyl ether (MTBE) and diisopropyl ether (DIPE) are the only two fuel oxygenates that have been detected in groundwater. The maximum concentration of MTBE detected in groundwater from the last four sampling events is 2.2 ug/l – Well MW-7, November 11, 2004. DIPE has been detected once, in the October 25, 2002 sample from Well MW-8 at 3.3 ug/l. Groundwater samples were analyzed for lead scavengers, 1,2-Dichloroethane (1,2-DCA) and 1,2-Dibromoethane (EDB), twice – during fourth quarter 2004 and during second quarter 2005. EDB was not detected in any groundwater sample. 1,2-DCA was detected once in Well MW-8 at 3.2 ug/l – November 11, 2004, and twice in Well MW-7 at a maximum concentration of 2.3 ug/l – November 11, 2004.

Fuel System Removal

In December 2003 and January 2004, site USTs, fuel dispensers and associated product piping, and the oil/water separator were removed. Delta collected soil samples during removal activities. Soil analytical results were presented to Mr. Paul M. Smith, Hazardous Materials Inspector for the Livermore – Pleasanton Fire Department in a report titled *Underground Storage Tank, Product Piping, and Dispenser Removals Report, Former Shell Service Station, 318 Livermore Avenue, Livermore, California*, dated January 16, 2004.

Analytical data indicated minimal petroleum hydrocarbon impact to soil beneath the site. TPH-G was detected in only one soil sample (4.9 milligrams per kilogram (mg/kg)). Benzene and MTBE were not detected in any soil sample. Tert-butanol (TBA) was detected in one soil sample at 0.016 mg/kg. Total lead, exceeding the California Department of Toxic Substances Preliminary Remediation Goal of 150 mg/kg, was detected in only one soil sample. Total lead was detected at 380 mg/kg in the soil sample collected at a depth of 2.5 feet beneath the fuel dispenser island designated P1.

Lead Impacted Soil Excavation and Investigation

On May 4, 2005, Delta directed the excavation of soil in the area beneath the former eastern fuel dispenser (P1) island (Figure 2). Approximately 100 cubic yards of soil was removed during initial excavation activities. Two of the confirmation soil samples collected during the initial over-excavation activities resulted in total lead detections that were above the ACHCSA approved cleanup goal of 150 mg/kg.

On May 18, 2005, Delta directed the excavation of an additional 75 cubic yards of lead impacted soil (Figure 2). Three of the confirmation soil samples collected during the additional over-excavation activities were above the ACHCSA approved cleanup goal. Lead impacts appeared to be limited to depths between 2 and 4 feet bg within a dark brown soil unit. The presence of concrete debris below grade indicated that this portion of the site was underlain by fill materials to a depth of approximately 5 feet bg. Delta concluded that the lead impacts appeared to be associated with the fill material, rather than with the former fuel dispensers.

On June 7, 2005, Delta directed the excavation of six "potholes" in order to laterally define the extent of lead impacted soil (Figure 2). Concrete debris was observed in two locations, and one sample resulted in a total lead detection that was above the ACHCSA approved cleanup goal (PH-4). Shell proposed to over-excavate approximately an additional 250 cubic yards at the site in order to address the lead impacted soils observed at PH-4 (Figure 2). ACHCSA approved over-excavation activities will continue to be performed at the site during October 2005.

Soil and Groundwater Investigation

On June 2 and 3, 2005, Delta directed the advancement of three soil borings, B-1 through B-3 (Figure 2). Borings B-1 and B-3 were located southwest of the former fuel dispenser islands, adjacent to South Livermore Avenue. Boring B-2 was located in the footprint of the pre-1989 UST complex, in the approximate area of the former leaded gasoline UST.

Lead was detected in all retained soil samples at concentrations ranging from 3.8 to 17 mg/kg, well below the cleanup goal of 150 mg/kg. No other analytes were detected in soil samples. A summary of soil boring analytical results are included in Table 1.

One groundwater sample was collected from Boring B-2 at a depth of approximately 25 feet bg. Two depth discrete groundwater samples were collected from each Boring B-1 and B-3 within coarse-grained sand and gravel materials (approximately 30 feet bg) and within the depth interval (36 to 55 feet bg) that is screened by existing site wells. Depth discrete groundwater samples collected from Borings B-1 and B-3 contained concentrations of TPH-G, BTEX compounds, MTBE, 1,2-DCA and total lead. The grab groundwater sample from Boring B-2 only contained total lead. Groundwater analytical results and sample depth intervals are summarized on Table 2.

DOWNGRADIENT MONITORING WELL INSTALLATION (MW-9)

On September 15, 2005, Delta supervised the installation of one additional on-site monitoring well (MW-9) in the direction of the primary shallow groundwater gradient (see rose diagram on Figure 2). Well MW-9 is located southwest of the site's former fuel dispenser islands and west of the former fuel USTs (Figure 2). The well was installed under permit from Zone 7 Water Resources Management. A copy of the drilling permit is included as Attachment B.

Well MW-9 was installed using 10-inch diameter hollow-stem augers operated by Gregg Drilling (License C57- 485165). The well was constructed of 4-inch diameter polyvinylchloride (PVC) casing and manufactured well screen. The well was screened with a 4-foot interval of 0.010-inch well screen within a well graded gravel unit encountered between 28 and 32 feet bg. A #2/12 sand pack was installed from the bottom of hole to 1 feet above the well screen. Two feet of bentonite was placed above the sand pack, and a cement grout seal was then placed to approximately 1 feet bg. A traffic-rated vault box was installed flush to the ground surface over the well.

SOIL SAMPLING AND ANALYSIS

Prior to drilling, the boring for Well MW-9 was excavated with an air-knife to approximately 7 feet bg in order to minimize potential damage to any unidentified underground utilities. The boring for Well MW-9 was then advanced using 6.5-inch diameter augers, and sampled at 5-foot intervals to a depth of 25 feet bg. The boring for Well MW-9 was continuously sampled from 25 to 35 feet bg in order to locate and determine the thickness of the gravel layer anticipated at approximately 28 feet bg. The boring was subsequently overdrilled with 10-inch augers for well installation. A Delta field geologist examined and logged the soil core samples collected from the well boring. A photo-ionization detector (PID) was used to monitor the collected soil samples for the presence of petroleum hydrocarbons. All samples were submitted for laboratory testing. PID concentration readings were recorded on the geologist's field log (Attachment C).

A total of seven retained soil samples from Well MW-9 were submitted to Severn Trent Laboratories, Inc. (STL) in Pleasanton, California for analysis of TPH-G, BTEX compounds, MTBE, TBA, 1,2-DCA, and EDB by EPA Method 8260B. In addition, samples were also analyzed for total lead by EPA Method 6010B.

Lead was detected in all seven soil samples at concentrations ranging from 5 mg/kg to 12 mg/kg. All other analytes tested were below the laboratory detection limits (Table 1). Certified soil analytical results and chain-of-custody documentation from the testing laboratory are included as Attachment D.

HYDROGEOLOGY

Well graded sands and gravels were encountered in the boring for Well MW-9 between the ground surface and approximately 13 feet bg, underlain by a sandy clay deposit to total depth. A 4-foot thick gravel layer was logged between 28 and 32 feet bg. Groundwater was encountered in the gravel layer, which stabilized at approximately 30 feet bg in the well. The boring log and well construction detail for Well MW-9 are presented in Attachment C.

MONITORING WELL DEVELOPMENT AND SAMPLING

Blaine Tech Services (Blaine) developed Well MW-9 on September 19, 2005. The well was developed by use of a surge block and submersible pump to remove turbid water. On September 23, 2005, Blaine gauged and sampled Well MW-9. The depth to groundwater in the well was measured at 27.95 feet below top of well casing. Blaine's well development and monitoring data sheets are contained in Attachment F.

WELL LOCATION AND ELEVATION SURVEY

On October 14, 2005, Mid Coast Engineers of Watsonville, California surveyed the latitude, longitude and elevation of Well MW-9. The survey report is contained in Attachment E. Survey data will be uploaded into the State of California Geotracker database.

GROUNDWATER ANALYSIS

The groundwater sample collected from Well MW-9 was analyzed by STL in Pleasanton, California for the following parameters: TPH-G, BTEX compounds, MTBE, TBA, and 1,2-DCA by EPA Method 8260B, EDB by EPA Method 504.1, and total lead by 6010B. TPH-G was detected at a concentration of 290 ug/l. BTEX compounds were detected at concentrations ranging from 2.7 ug/l (toluene) to 53 ug/l (benzene). MTBE and TBA were detected in Well MW-9 at concentrations of 12 ug/l and 14 ug/l, respectively. The lead scavenger 1,2-DCA was also detected at a concentration of 1.3 ug/l. Groundwater analytical data is summarized on Blaine's Well Concentrations Table included as Attachment A and included on Table 2. Groundwater certified analytical results and chain-of-custody documentation from the testing laboratory are included as Attachment G.

SUMMARY AND CONCLUSIONS

- Residual petroleum hydrocarbons do not appear to exist in the site soils immediately adjacent to the location of former site fuel dispensers. No petroleum hydrocarbons, fuel oxygenates, or lead scavengers were detected in any of the soil samples collected during installation of Well MW-9.
- The initial groundwater sample from newly installed Well MW-9 contains the historic maximum concentrations (≤ 290 ug/l) of petroleum hydrocarbons and fuel oxygenates at the site to date.
- Well MW-9 is screened within the coarse-grained materials unit between approximately 28 and 32 feet bg, indicating that groundwater impacts appear to be concentrated within this unit.
- Only low-levels (≤ 75 ug/l) of TPH-G, MTBE, and 1, 2-DCA have been detected in site wells (screen interval = 36 to 55 feet bg) over the past year.
- It is likely that groundwater concentrations beneath the site will attenuate over time given the lack of a continued source of petroleum hydrocarbons on-site.
- The predominant groundwater gradient at the site is towards the west, in the direction of downgradient Wells MW-7, MW-8 and MW-9. Wells MW-7 through MW-9 will be used to monitor plume stability.
- No apparent sensitive receptors exist within approximately $\frac{1}{2}$ mile down gradient of the site. Two municipal water supply wells have been identified to be located approximately 1,500 feet up gradient of the site (Figure 1).

Per ACHCSA, Well MW-9 will be sampled on a quarterly basis for four quarters.

Results of additional over-excavation activities at the site will be reported in a subsequent report to the ACHCSA within 30-days following completion of field activities.

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.

If you have any questions regarding this site, please contact Debbie Arnold (Delta) at (408) 224-4724 or Denis Brown (Shell) at (707) 865-0251.

Sincerely,

Delta Environmental Consultants, Inc.



Heather Buckingham
Senior Staff Geologist



Debbie Arnold
Project Manager
PG 7745



ATTACHMENTS:

Table 1 – Summary of Soil Boring Analytical Data

Table 2 – Summary of Groundwater Analytical Data

Figure 1 – Site Location and Well Survey Map

Figure 2 – Site Map

Attachment A – Well Concentrations Table (Blaine)

Attachment B – Zone 7 Drilling Permit

Attachment C – Boring Log and Well Construction Detail (MW-9)

Attachment D – Laboratory Certified Analytical Results and Chain-of-Custody Documentation for Soil Samples

Attachment E – Well Location and Survey Elevation Data

Attachment F – Well Development and Monitoring Data Sheets

Attachment G – Laboratory Certified Analytical Results and Chain-of-Custody Documentation for Groundwater Samples

cc: Denis Brown, Shell Oil Products US, Carson

Betty Graham, RWQCB, Oakland

Chris Davidson, Redevelopment Agency, City of Livermore, Livermore

Paul Smith, Livermore-Pleasanton Fire Department, Pleasanton

Table 1
Summary of Soil Boring Analytical Data
Former Shell Service Station
318 South Livermore Avenue, Livermore, California

Sample Designation	Date Sampled	Depth (feet)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	EDB (ug/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
Boring Advancements												
B-1@5'	6/2/2005	5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	3.8
B-1@10'	6/2/2005	10	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.068	<0.005	4.9
B-1@15'	6/2/2005	15	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	6.9
B-1@20'	6/2/2005	20	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.067	<0.005	8.2
B-1@25'	6/2/2005	25	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.068	<0.005	7.1
B-1@30'	6/2/2005	30	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.069	<0.005	4.4
B-1@35'	6/2/2005	35	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	7
B-2@5'	6/2/2005	5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.068	<0.005	3.9
B-2@10'	6/2/2005	10	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.069	<0.005	4.4
B-2@15'	6/2/2005	15	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.069	<0.005	5.8
B-2@20'	6/2/2005	20	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	6.8
B-2@25'	6/2/2005	25	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.069	<0.005	5.7
B-2@30'	6/2/2005	30	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.067	<0.005	4.7
B-3@5'	6/2/2005	5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.069	<0.005	4.4
B-3@10'	6/3/2005	10	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.067	<0.005	17
B-3@15'	6/3/2005	15	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.069	<0.005	7.7
B-3@20'	6/3/2005	20	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	7.4
B-3@25'	6/3/2005	25	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	6.5
B-3@30'	6/3/2005	30	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.068	<0.005	4.3
B-3@35'	6/3/2005	35	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	7
B-3@40'	6/3/2005	40	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.068	<0.005	7
B-3@45'	6/3/2005	45	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.070	<0.005	6.5
MW-9 Well Installation												
MW-9@5'	9/15/2005	5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	12
MW-9@10'	9/15/2005	10	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	5
MW-9@15'	9/15/2005	15	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	9
MW-9@20'	9/15/2005	20	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	8.4
MW-9@25.5'	9/15/2005	25.5	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	6.5
MW-9@30'	9/15/2005	30	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	8.1
MW-9@35'	9/15/2005	35	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	7.5

Table 1
Summary of Soil Boring Analytical Data
Former Shell Service Station
318 South Livermore Avenue, Livermore, California

Sample Designation	Date Sampled	Depth (feet)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	EDB (ug/kg)	1,2-DCA (mg/kg)	Lead (mg/kg)
Notes:												
mg/kg = milligrams per kilogram				TBA = Tert-butanol								
ug/kg = micrograms per kilogram				EDB = Ethylene Dibromide								
TPH-G = Total petroleum hydrocarbons as gasoline				1,2-DCA = 1,2-Dichloroethane								
MTBE = Methyl tert-butyl ether												

Table 2
Summary of Groundwater Analytical Data
Former Shell Service Station
318 South Livermore Avenue, Livermore, California

Sample Designation	Date Sampled	Sample Interval (feet)	TPH-G (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylene (ug/l)	MTBE (ug/l)	TBA (ug/l)	EDB (ug/l)	1,2-DCA (ug/l)	Lead (ug/l)
Groundwater Grab Samples												
B-1@30'	6/2/2005	29-30	83	8.4	1.1	1.1	2.9	1.5	<5.0	<0.02	<0.5	0.21
B-1@40.5'	6/3/2005	38-40.5	130	<0.5	<0.5	<0.5	<1	5	<5.0	<0.02	81	0.12
B-2@25'	6/2/2005	25	<50	<0.5	<0.5	<0.5	<1	<0.5	<5.0	<0.02	<0.5	0.56
B-3@31'	6/3/2005	29.5-31	240	2.4	<0.5	0.73	<1	2	<5.0	<0.02	0.64	NA
GRAB B-3@31'	6/3/2005	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.094
HYDROPUNCH B-3@31'	6/3/2005	29.5-31	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.22
B-3@51'	6/3/2005	49-51	<50	<0.5	<0.5	<0.5	<1	<0.5	<5.0	<0.02	<0.5	0.032
Groundwater Sample												
MW-9	9/23/2005	28-32	290	53	2.7	7.8	34	12	14	<0.02	1.3	0.3

Notes:

ug/l = micrograms per liter

NA = not analyzed

TPH-G = Total petroleum hydrocarbons as gasoline

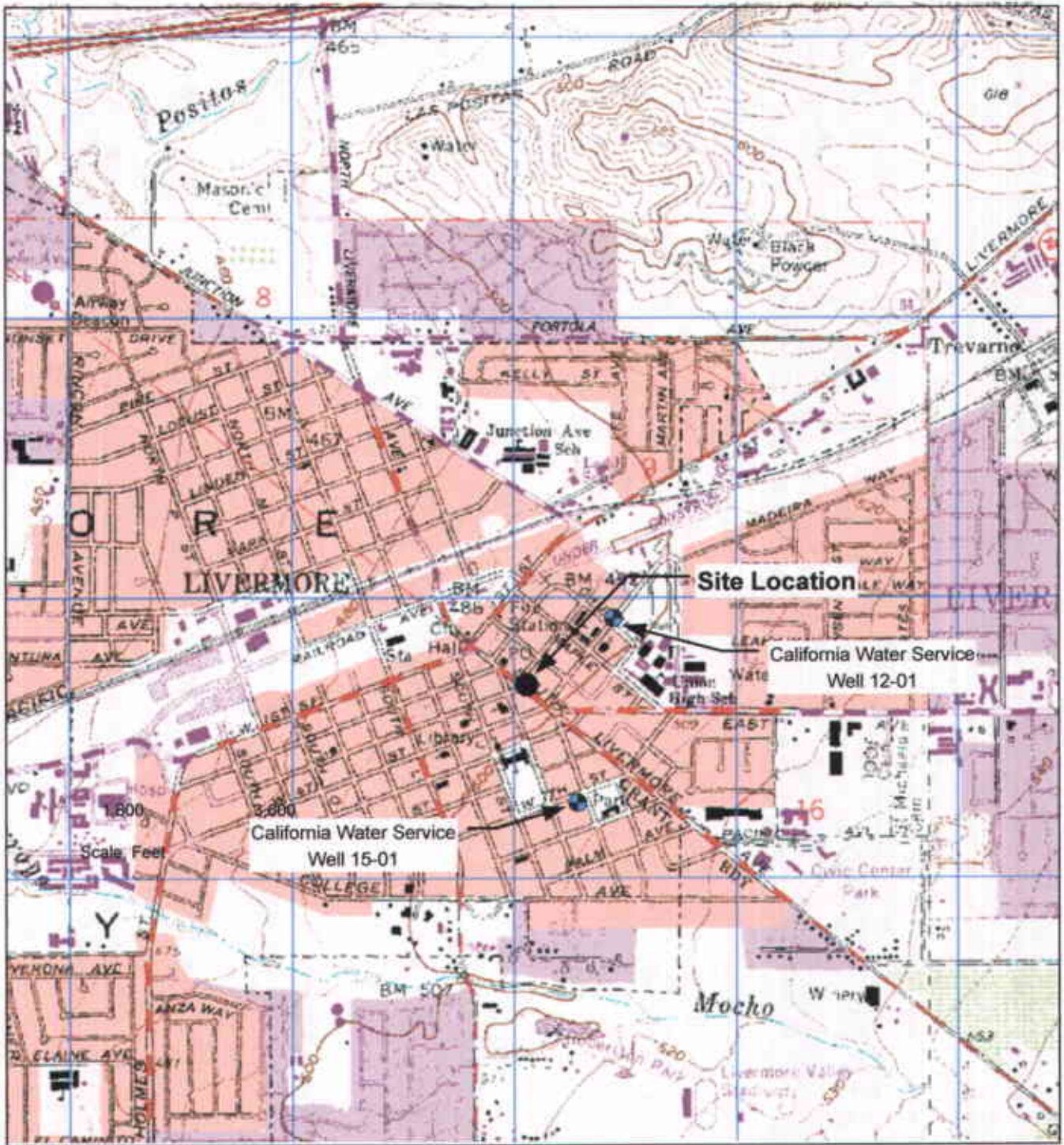
MTBE = Methyl tert-butyl ether

TBA = Tert-butanol

EDB = Ethylene Dibromide

1,2-DCA = 1,2-Dichloroethane

Sample GRAB B-3@31' was collected in case Sample HYDROPUNCH B-3@31' did not contain a sufficient amount of groundwater for lead analysis



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

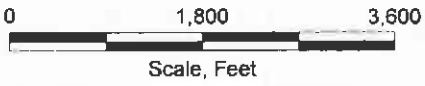
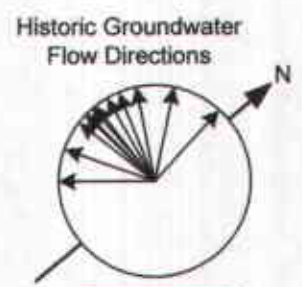


FIGURE 1
SITE LOCATION AND WELL SURVEY MAP
FORMER SHELL-BRANDED SERVICE STATION
318 South Livermore Avenue
Livermore, CA

PROJECT NO. SJ31-BLI-1.2005	DRAWN BY VF 9/25/03
FILE NO. SJ31-BLI-1.2005	PREPARED BY VF
REVISION NO. 2	REVIEWED BY

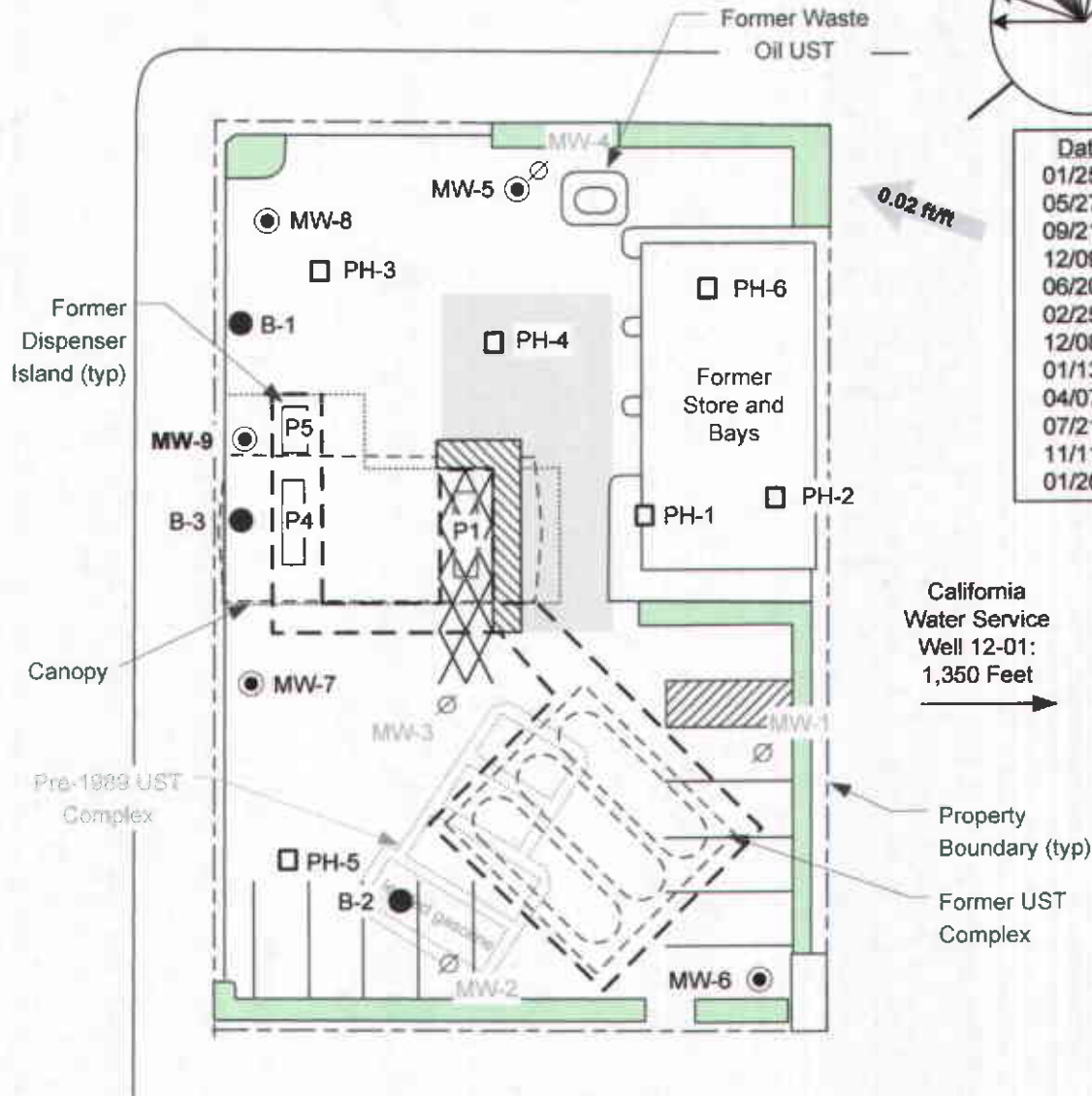
Delta
Environmental
Consultants, Inc.



Third Street

Former Waste Oil UST

South Livermore Avenue



Dates	
01/25/93	
05/27/93	
09/21/93	
12/09/93	
06/20/94	
02/25/95	
12/08/01	
01/13/04	
04/07/04	
07/21/04	
11/11/04	
01/26/05	

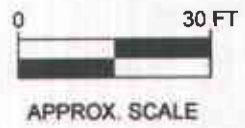
California Water Service Well 12-01: 1,350 Feet

California Water Service Well 15-01: 1,530 Feet

Property Boundary (typ)
Former UST Complex

LEGEND

- B-2 ● **SOIL BORING (JUNE 2005)**
- MW-6 ● **GROUNDWATER MONITORING WELL**
- MW-1 ∅ **FORMER GROUNDWATER MONITORING WELL**
- ← 0.012 ft/ft **APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT (4/13/05)**
- PH-6 □ **POTHOLE LOCATION AND DESIGNATION**
- ▨ **EXCAVATION AREA (5-4-05)**
- ▩ **EXCAVATION AREA (5-18-05)**
- **APPROVED EXCAVATION AREA**



**FIGURE 2
SITE MAP**

**FORMER SHELL-BRANDED SERVICE STATION
318 South Livermore Avenue
Livermore, California**

PROJECT NO: SJ31-BLI-1.2005	DRAWN BY JL 10/11/05
FILE NO: SJ31-BLI-1.2005	PREPARED BY JL
REVISION NO. 1	REVIEWED BY

Attachment A

WELL CONCENTRATIONS TABLE (BLAINE)

BLAINE
TECH SERVICES INC.

GROUNDWATER SAMPLING SPECIALISTS
SINCE 1985

October 11, 2005

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

Third Quarter 2005 Groundwater Monitoring at
Shell-branded Service Station
318 South Livermore Avenue
Livermore, CA

Monitoring performed on September 19 and 23, 2005

Groundwater Monitoring Report 050923-DA-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,

Mike Ninokata
Project Coordinator

MN/ks

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

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

WELL CONCENTRATIONS
Shell-branded Service Station
318 South Livermore Avenue
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)
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MW-5	09/18/2001	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA	NA
MW-5	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	495.47	34.85	460.62
MW-5	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	495.47	37.26	458.21
MW-5	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	495.47	27.30	468.17
MW-5	04/17/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	495.47	27.84	467.63
MW-5	07/17/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	495.47	30.54	464.93
MW-5	11/13/2003	60	<0.50	1.5	1.7	9.6	<0.50	<2.0	<2.0	<2.0	<5.0	495.47	33.94	461.53
MW-5	01/13/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	495.47	26.59	468.88
MW-5	04/07/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	495.47	25.44	470.03
MW-5	07/21/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	495.47	32.34	463.13
MW-5	11/11/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	495.47	33.24	462.23
MW-5	01/26/2005	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	495.47	26.80	468.67
MW-5	04/13/2005	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	495.47	22.58	472.89

MW-6	09/18/2001	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA	NA
MW-6	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	497.57	35.41	462.16
MW-6	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	2.5	<2.0	<2.0	<2.0	<50	497.57	37.92	459.65
MW-6	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	497.57	27.71	469.86
MW-6	04/17/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	497.57	28.28	469.29
MW-6	07/17/2003	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	497.57	30.56	467.01
MW-6	11/13/2003	90	<0.50	2.6	2.4	12	<0.50	<2.0	<2.0	<2.0	<5.0	497.57	34.18	463.39
MW-6	01/13/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	497.57	27.16	470.41
MW-6	04/07/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	497.57	25.88	471.69
MW-6	07/21/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	497.57	32.74	464.83
MW-6	11/11/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	497.57	33.75	463.82
MW-6	01/26/2005	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	497.57	26.89	470.68

WELL CONCENTRATIONS
Shell-branded Service Station
318 South Livermore Avenue
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)
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MW-6	04/13/2005	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	497.57	23.05	474.52
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MW-7	09/18/2001	NA	<0.50	<0.50	<0.50	<0.50	1.2	<2.0	<2.0	<2.0	<50	NA	NA	NA
MW-7	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	2.0	<2.0	<2.0	<2.0	<50	495.58	34.29	461.29
MW-7	10/25/2002	<50	<0.50	<0.50	<0.50	<0.50	1.9	<2.0	<2.0	<2.0	<50	495.58	36.80	458.78
MW-7	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	0.89	<2.0	<2.0	<2.0	<50	495.58	26.75	468.83
MW-7	04/17/2003	<50	<0.50	<0.50	<0.50	<1.0	4.0	<2.0	<2.0	<2.0	<5.0	495.58	27.31	468.27
MW-7	07/17/2003	<50	<0.50	<0.50	<0.50	<1.0	3.2	<2.0	<2.0	<2.0	<5.0	495.58	30.02	465.56
MW-7	11/13/2003	72	<0.50	0.62	0.57	3.2	1.4	<2.0	<2.0	<2.0	<5.0	495.58	33.85	461.73
MW-7	01/13/2004	<50	<0.50	<0.50	<0.50	<1.0	0.85	NA	NA	NA	NA	495.58	27.13	468.45
MW-7	04/07/2004	<50	<0.50	<0.50	<0.50	<1.0	0.71	NA	NA	NA	NA	495.58	25.13	470.45
MW-7	07/21/2004	<50	<0.50	<0.50	<0.50	<1.0	1.8	NA	NA	NA	NA	495.58	31.68	463.90
MW-7	11/11/2004	75	<0.50	<0.50	<0.50	<1.0	2.2	<2.0	<2.0	<2.0	<5.0	495.58	32.92	462.66
MW-7	01/26/2005	<50	<0.50	<0.50	<0.50	<1.0	1.8	<2.0	<2.0	<2.0	<5.0	495.58	26.60	468.98
MW-7	04/13/2005	<50	<0.50	<0.50	<0.50	<0.50	0.87	<0.50	<0.50	<0.50	<5.0	495.58	23.25	472.33

MW-8	09/18/2001	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA	NA
MW-8	07/09/2002	<50	<0.50	<0.50	<0.50	<0.50	6.9	<2.0	<2.0	<2.0	<50	494.90	34.46	460.44
MW-8	10/25/2002	140	<0.50	<0.50	<0.50	<0.50	2.2	3.3	<2.0	<2.0	<50	494.90	36.98	457.92
MW-8	01/24/2003	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	494.90	27.35	467.55
MW-8	04/17/2003	<50	<0.50	<0.50	<0.50	<1.0	0.67	<2.0	<2.0	<2.0	<5.0	494.90	27.44	467.46
MW-8	07/17/2003	<50	<0.50	<0.50	<0.50	<1.0	0.50	<2.0	<2.0	<2.0	<5.0	494.90	32.29	462.61
MW-8	11/13/2003	260	1.5	2.3	2.9	16	1.4	<2.0	<2.0	<2.0	<5.0	494.90	33.08	461.82
MW-8	01/13/2004	<50	<0.50	<0.50	<0.50	<1.0	0.92	NA	NA	NA	NA	494.90	26.18	468.72
MW-8	04/07/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	494.90	25.10	469.80
MW-8	07/21/2004	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	494.90	31.97	462.93

WELL CONCENTRATIONS
Shell-branded Service Station
318 South Livermore Avenue
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-8	11/11/2004	<50	<0.50	<0.50	<0.50	<1.0	0.82	<2.0	<2.0	<2.0	<5.0	494.90	32.80	462.10
MW-8	01/26/2005	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	494.90	26.00	468.90
MW-8	04/13/2005	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	494.90	22.81	472.09
MW-9	09/19/2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.89	NA
MW-9	09/23/2005	290	53	2.7	7.8	34	12	<2.0	<2.0	<2.0	14	NA	27.95	NA

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:

Survey data provided by KHM Environmental Management, Inc.

Attachment B

ZONE 7 DRILLING PERMIT



ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 454-5728

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 318 S. Livermore Ave.
Livermore, CA

PERMIT NUMBER 25137
WELL NUMBER 3S/2E-9N8
APN 097-0108-009-03

California Coordinates Source _____ ft. Accuracy _____ ft.
CCN _____ ft. CCE _____ ft.
APN 97-108-9-3

PERMIT CONDITIONS

(Circled Permit Requirements Apply)

CLIENT Name Shell Oil Products U.S.
Address 20945 S. Wilmington Ave. Phone 707-865-0251
City Castroville, CA Zip 95010

A. GENERAL

1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

APPLICANT Name Delta Environmental Consultants, Inc.
Address 175 Beenal Rd, S#200 Phone 408-224-4724
City San Jose, CA Zip 95119

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.
3. An access port at least 0.5 inches in diameter is required on the wellhead for water level measurements.
4. A sample port is required on the discharge pipe near the wellhead.

TYPE OF PROJECT

Well Construction	Geotechnical Investigation
Cathodic Protection ..	General ..
Water Supply ..	Contamination ..
Monitoring X	Well Destruction ..

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WELL USE

New Domestic ..	Irrigation ..
Municipal ..	Remediation ..
Industrial ..	Groundwater Monitoring X
Dewatering ..	Other ..

D. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

DRILLING METHOD:

Mud Rotary ..	Air Rotary ..	Hollow Stem Auger X
Cable Tool ..	Direct Push ..	Other ..

E. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

DRILLING COMPANY Geogg Drilling and Testing
DRILLER'S LICENSE NO. JJ 485165

F. WELL DESTRUCTION. See attached.

WELL PROJECTS

Drill Hole Diameter <u>12</u> in.	Maximum Depth <u>35</u> ft.
Casing Diameter <u>4</u> in.	Number <u>MW-9</u>
Surface Seal Depth <u>23</u> ft.	

G. SPECIAL CONDITIONS. Submit to Zone 7 within 60 days after the completion of permitted work the well installation report including all soil and water laboratory analysis results.

SOIL BORINGS

Number of Borings _____	Maximum Depth _____ ft.
Hole Diameter _____ in.	

ESTIMATED STARTING DATE September 15, 2005
ESTIMATED COMPLETION DATE September 15, 2005

Approved Wyman Hong Date 8/16/05
Wyman Hong

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Heather Buckingham Date 7/26/05

ATTACH SITE PLAN OR SKETCH

Attachment C

BORING LOG AND WELL CONSTRUCTION DETAIL (MW-9)

Delta

Environmental Consultants, Inc.

Project No:	SJ31-8LI-1	Client:	Shell Oil Products US	Well No:	MW-9
Logged By:	Heather Buckingham	Location:	318 S. Livermore Ave., Livermore	Page 1 of 2	
Driller:	Gregg	Date Drilled:	9/15/2005	Location Map	
Drilling Method:	HSA	Hole Diameter:	10 inch	Please see site map	
Sampling Method:	CA Mod. Split Shoe	Hole Depth:	32 ft		
Casing Type:	40-sched. PVC	Well Diameter:	4 inch		
Slot Size:	0.01	Well Depth:	32 feet		
Gravel Pack:	#2/12	Casing Stickup:	NA		

Elevation

Northing

Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
					0		AF	Base rock 6"
					1			
					2		SW	Well Graded SAND with Gravel: medium brown; 30 to 40% 1/4" gravels; trace gravels up to 1.5"
					3			
					4			
					5			
		dry	0.1		6			
					7			
					8			
					9		GW	Well Graded GRAVEL with Silt and Sand: orangish tan; 10-15% silt; 20-30% fine grained sand; 60-70% gravels from 1/4" to 3/4"
					10			
					11			
					12			
					13			
		moist	1.2		14		CL	Lean CLAY with Sand: medium brown; 20-30% fine to medium grained sand; moderate plasticity
					15			
					16			
					17			
					18			
					19			
					20			
			0.9		21			
					22			

air knifed & hand augered

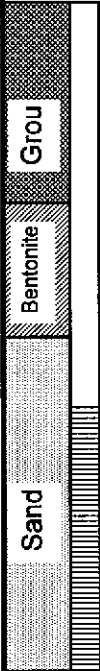
Grout

Delta

Environmental Consultants, Inc.

Project No: SJ31-8LI-1	Client: Shell Oil Products US	Boring No: MW-9
Logged By: Heather Buckingham	Location: 318 S. Livermore Ave., Livermore	Page 2 of 2
Driller: Gregg	Date Drilled: 9/15/2005	Location Map Please see site map
Drilling Method: HSA	Hole Diameter: 10 inch	
Sampling Method: CA Mod. Split Shoe	Hole Depth: 32 ft	
Casing Type: 40-sched. PVC	Well Diameter: 4 inch	
Slot Size: 0.01	Well Depth: 32 ft	
Gravel Pack: #2/12	Casing Stickup: NA	

Well Completion		Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery	Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill	Casing									
			damp	3.4		23			CL	Lean CLAY with Sand: continued
						24				
						25				
						26				
						27				
						28				
						29			GW	Well Graded GRAVEL with sand and silt: grey; 10-15% silt; 15-25% well graded sand; gravel size ranges from 1/4" to 3/4"
				0.8		30				
						31				
						32				
						33			CL	Lean CLAY with Sand: (same as above)
						34				
				0.7		35				Boring terminated at 35 feet below grade (bg)
						36				Depth interval 32 to 35 feet bg drilled out with 6.5-inch augers only.
						37				
						38				
						39				
						40				
						41				
						42				
						43				
						44				



Attachment D

**LABORATORY CERTIFIED ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY
DOCUMENTATION FOR SOIL SAMPLES**

Delta Env. Consultants San Jose

September 27, 2005

175 Bernal Road, Suite 200
San Jose, CA 95119

Attn.: Debbie Arnold

Project#: SJ31-8LI-1

Project: 97464709

Site: 318 South Livermore Ave.

Dear Ms. Arnold:

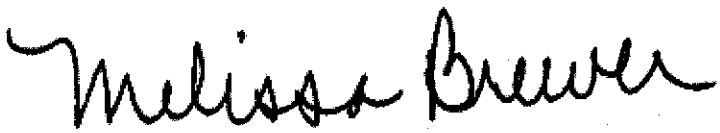
Attached is our report for your samples received on 09/16/2005 13:45
This report has been reviewed and approved for release. Reproduction of this report
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after
10/31/2005 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
Project Manager

Total Lead

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

175 Bernal Road, Suite 200

San Jose, CA 95119

Phone: (408) 224-4724 Fax: (408) 224-4518

Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-9@5'	09/15/2005 09:10	Soil	1
MW-9@10'	09/15/2005 10:03	Soil	2
MW-9@15'	09/15/2005 10:05	Soil	3
MW-9@20'	09/15/2005 10:11	Soil	4
MW-9@25.5'	09/15/2005 10:16	Soil	5
MW-9@30'	09/15/2005 10:26	Soil	6
MW-9@35'	09/15/2005 10:45	Soil	7

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

09/22/2005 13:35

Total Lead

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

175 Bernal Road, Suite 200

San Jose, CA 95119

Phone: (408) 224-4724 Fax: (408) 224-4518

Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 3050B	Test(s): 6010B
Sample ID: MW-9@5'	Lab ID: 2005-09-0447 - 1
Sampled: 09/15/2005 09:10	Extracted: 9/21/2005 13:37
Matrix: Soil	QC Batch#: 2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	12	1.0	mg/Kg	1.00	09/21/2005 20:37	

Total Lead

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

175 Bernal Road, Suite 200

San Jose, CA 95119

Phone: (408) 224-4724 Fax: (408) 224-4518

Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 3050B	Test(s): 6010B
Sample ID: MW-9@10	Lab ID: 2005-09-0447 - 2
Sampled: 09/15/2005 10:03	Extracted: 9/21/2005 13:37
Matrix: Soil	QC Batch#: 2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	5.0	1.0	mg/Kg	1.00	09/21/2005 20:47	

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09/22/2005 13:35

Total Lead

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

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San Jose, CA 95119

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 3050B	Test(s): 6010B
Sample ID: MW-9@15'	Lab ID: 2005-09-0447 - 3
Sampled: 09/15/2005 10:05	Extracted: 9/21/2005 13:37
Matrix: Soil	QC Batch#: 2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	9.0	1.0	mg/Kg	1.00	09/21/2005 20:51	

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09/22/2005 13:35

Total Lead

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Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 3050B	Test(s): 6010B
Sample ID: MW-9@20	Lab ID: 2005-09-0447 - 4
Sampled: 09/15/2005 10:11	Extracted: 9/21/2005 13:37
Matrix: Soil	QC Batch#: 2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	8.4	1.0	mg/Kg	1.00	09/21/2005 20:54	

Total Lead

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s):	3050B	Test(s):	6010B
Sample ID:	MW-9@25.5	Lab ID:	2005-09-0447 - 5
Sampled:	09/15/2005 10:16	Extracted:	9/21/2005 13:37
Matrix:	Soil	QC Batch#:	2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	6.5	1.0	mg/Kg	1.00	09/21/2005 20:58	

Total Lead

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 3050B	Test(s): 6010B
Sample ID: MW-9@30	Lab ID: 2005-09-0447 - 6
Sampled: 09/15/2005 10:26	Extracted: 9/21/2005 13:37
Matrix: Soil	QC Batch#: 2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	8.1	1.0	mg/Kg	1.00	09/21/2005 21:02	

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09/22/2005 13:35

Total Lead

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Project: SJ31-8Li-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 3050B	Test(s): 6010B
Sample ID: MW-9@35	Lab ID: 2005-09-0447 - 7
Sampled: 09/15/2005 10:45	Extracted: 9/21/2005 13:37
Matrix: Soil	QC Batch#: 2005/09/21-04.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	7.5	1.0	mg/Kg	1.00	09/21/2005 21:05	

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09/22/2005 13:35

Total Lead

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Batch QC Report

Prep(s): 3050B

Method Blank

MB: 2005/09/21-04.15-065

Soil

Test(s): 6010B

QC Batch # 2005/09/21-04.15

Date Extracted: 09/21/2005 13:37

Compound	Conc.	RL	Unit	Analyzed	Flag
Lead	ND	1.0	mg/Kg	09/21/2005 19:36	

Total Lead

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Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Batch QC Report

Prep(s): 3050B

Test(s): 6010B

Laboratory Control Spike

Soil

QC Batch # 2005/09/21-04.15

LCS 2005/09/21-04.15-066

Extracted: 09/21/2005

Analyzed: 09/21/2005 19:38

LCSD 2005/09/21-04.15-067

Extracted: 09/21/2005

Analyzed: 09/21/2005 19:42

Compound	Conc. mg/Kg		Exp.Conc.	Recovery %		RPD	Ctr.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Lead	104	106	100.0	104.0	106.0	1.9	80-120	20		

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09/22/2005 13:35

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

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

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San Jose, CA 95119
Phone: (408) 224-4724 Fax: (408) 224-4518

Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-9@5'	09/15/2005 09:10	Soil	1
MW-9@10'	09/15/2005 10:03	Soil	2
MW-9@15'	09/15/2005 10:05	Soil	3
MW-9@20'	09/15/2005 10:11	Soil	4
MW-9@25.5'	09/15/2005 10:16	Soil	5
MW-9@30'	09/15/2005 10:26	Soil	6
MW-9@35'	09/15/2005 10:45	Soil	7

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09/26/2005 17:43

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

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

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Phone: (408) 224-4724 Fax: (408) 224-4518

Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 5030B

Test(s): 8260B

Sample ID: MW-9@5

Lab ID: 2005-09-0447 - 1

Sampled: 09/15/2005 09:10

Extracted: 9/22/2005 11:44

Matrix: Soil

QC Batch#: 2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 11:44	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 11:44	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 11:44	
Surrogate(s)						
1,2-Dichloroethane-d4	88.3	76-124	%	1.00	09/22/2005 11:44	
Toluene-d8	96.1	75-116	%	1.00	09/22/2005 11:44	

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

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Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 5030B Test(s): 8260B
Sample ID: MW-9@10 Lab ID: 2005-09-0447 - 2
Sampled: 09/15/2005 10:03 Extracted: 9/22/2005 12:10
Matrix: Soil QC Batch#: 2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 12:10	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 12:10	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 12:10	
Surrogate(s)						
1,2-Dichloroethane-d4	83.8	76-124	%	1.00	09/22/2005 12:10	
Toluene-d8	99.2	75-116	%	1.00	09/22/2005 12:10	

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

Delta Env. Consultants San Jose
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Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 5030B Test(s): 8260B
Sample ID: MW-9@15' Lab ID: 2005-09-0447 - 3
Sampled: 09/15/2005 10:05 Extracted: 9/22/2005 12:36
Matrix: Soil QC Batch#: 2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 12:36	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 12:36	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 12:36	
Surrogate(s)						
1,2-Dichloroethane-d4	84.4	76-124	%	1.00	09/22/2005 12:36	
Toluene-d8	97.1	75-116	%	1.00	09/22/2005 12:36	

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

Delta Env. Consultants San Jose

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 5030B

Test(s): 8260B

Sample ID: MW-9@20

Lab ID: 2005-09-0447 - 4

Sampled: 09/15/2005 10:11

Extracted: 9/22/2005 13:02

Matrix: Soil

QC Batch#: 2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 13:02	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 13:02	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 13:02	
Surrogate(s)						
1,2-Dichloroethane-d4	84.9	76-124	%	1.00	09/22/2005 13:02	
Toluene-d8	96.6	75-116	%	1.00	09/22/2005 13:02	

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

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 5030B Test(s): 8260B
 Sample ID: MW-9@25.5 Lab ID: 2005-09-0447 - 5
 Sampled: 09/15/2005 10:16 Extracted: 9/22/2005 13:28
 Matrix: Soil QC Batch#: 2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 13:28	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 13:28	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 13:28	
Surrogate(s)						
1,2-Dichloroethane-d4	88.8	76-124	%	1.00	09/22/2005 13:28	
Toluene-d8	98.6	75-116	%	1.00	09/22/2005 13:28	

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

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s): 5030B Test(s): 8260B
Sample ID: MW-9@30 Lab ID: 2005-09-0447 - 6
Sampled: 09/15/2005 10:26 Extracted: 9/22/2005 13:54
Matrix: Soil QC Batch#: 2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 13:54	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 13:54	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 13:54	
Surrogate(s)						
1,2-Dichloroethane-d4	89.8	76-124	%	1.00	09/22/2005 13:54	
Toluene-d8	99.1	75-116	%	1.00	09/22/2005 13:54	

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09/26/2005 17:43

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

Delta Env. Consultants San Jose

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Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-9@35	Lab ID:	2005-09-0447 - 7
Sampled:	09/15/2005 10:45	Extracted:	9/22/2005 14:21
Matrix:	Soil	QC Batch#:	2005/09/22-1A.62

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	1.00	09/22/2005 14:21	
Benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
Toluene	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
Ethyl benzene	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
Total xylenes	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	1.00	09/22/2005 14:21	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
1,2-DCA	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
EDB	ND	0.0050	mg/Kg	1.00	09/22/2005 14:21	
Surrogate(s)						
1,2-Dichloroethane-d4	89.1	76-124	%	1.00	09/22/2005 14:21	
Toluene-d8	97.2	75-116	%	1.00	09/22/2005 14:21	

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

Delta Env. Consultants San Jose

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2005/09/22-1A.62-001

Test(s): 8260B

Soil

QC Batch # 2005/09/22-1A.62

Date Extracted: 09/22/2005 09:01

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline [Shell]	ND	1.0	mg/Kg	09/22/2005 09:01	
tert-Butyl alcohol (TBA)	ND	0.010	mg/Kg	09/22/2005 09:01	
Methyl tert-butyl ether (MTBE)	ND	0.0050	mg/Kg	09/22/2005 09:01	
1,2-DCA	ND	0.0050	mg/Kg	09/22/2005 09:01	
EDB	ND	0.0050	mg/Kg	09/22/2005 09:01	
Benzene	ND	0.0050	mg/Kg	09/22/2005 09:01	
Toluene	ND	0.0050	mg/Kg	09/22/2005 09:01	
Ethyl benzene	ND	0.0050	mg/Kg	09/22/2005 09:01	
Total xylenes	ND	0.0050	mg/Kg	09/22/2005 09:01	
Surrogates(s)					
1,2-Dichloroethane-d4	87.0	76-124	%	09/22/2005 09:01	
Toluene-d8	99.5	75-116	%	09/22/2005 09:01	

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

Delta Env. Consultants San Jose

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Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike

Soil

QC Batch # 2005/09/22-1A.62

LCS 2005/09/22-1A.62-035

Extracted: 09/22/2005

Analyzed: 09/22/2005 08:35

LCSD

Compound	Conc. mg/Kg		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Methyl tert-butyl ether (MTBE)	0.0495		0.05	99.0			65-165	20		
Benzene	0.0551		0.05	110.2			69-129	20		
Toluene	0.0562		0.05	112.4			70-130	20		
Surrogates(s)										
1,2-Dichloroethane-d4	416		500	83.2			76-124			
Toluene-d8	487		500	97.4			75-116			

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09/26/2005 17:43

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

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Project: SJ31-8LI-1

97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Matrix Spike (MS / MSD)

Soil

QC Batch # 2005/09/22-1A.62

MS/MSD

Lab ID: 1998-09-0003 - 001

MS: 2005/09/22-1A.62-036

Extracted: 09/22/2005

Analyzed: 09/22/2005 10:00

Dilution: 1.00

MSD: 2005/09/22-1A.62-037

Extracted: 09/22/2005

Analyzed: 09/22/2005 10:26

Dilution: 1.00

Compound	Conc. mg/Kg		Spk.Level mg/Kg	Recovery %			Limits %		Flags		
	MS	MSD		Sample	MS	MSD	RPD	Rec.	RPD	MS	MSD
Methyl tert-butyl ether	0.0523	0.0423	ND	0.049019	106.7	86.0	21.5	65-165	20		R1
Benzene	0.0533	0.0481	ND	0.049019	108.7	97.7	10.7	69-129	20		
Toluene	0.0533	0.0479	ND	0.049019	108.7	97.3	11.1	70-130	20		
Surrogate(s)											
1,2-Dichloroethane-d4	423	381		500	84.6	76.2		76-124			
Toluene-d8	494	497		500	98.8	99.4		75-116			

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

09/26/2005 17:43

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

Delta Env. Consultants San Jose

Attn.: Debbie Arnold

175 Bernal Road, Suite 200

San Jose, CA 95119

Phone: (408) 224-4724 Fax: (408) 224-4518

Project: SJ31-8LI-1
97464709

Received: 09/16/2005 13:45

Site: 318 South Livermore Ave.

Legend and Notes

Result Flag

R1

Analyte RPD was out of QC limits.

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

09/26/2005 17:43

Page 12 of 12

EQUIVA Services LLC Chain Of Custody Record

97549

1220 Quarry Lane
Pleasanton, CA

(925)484-1919 (925)484-1066 fax

Equiva Project Manager to be invoiced:

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CRMT HISTORY

Denis Brown

2005-09-0447

INCIDENT NUMBER (S&E ONLY)

9 7 4 6 4 7 0 9

SAP or CRMT NUMBER (TSICRMT)

DATE: 9/16/05

PAGE: 1 of 1

SAMPLING COMPANY: **Delta Environmental Consultants** ADDRESS: **175 Bernal Rd #200, San Jose, CA 95119** SITE ADDRESS (Street and City): **318 South Livermore Ave.** CLIENT ID#: **T0600156427**

PROJECT CONTACT (Name and POC Position): **Dabbie Arnold** PROJECT CONTRACT (To Whom the Party is Designated): **Heather Buckingham** PHONE NO: **408-224-4724** EMAIL: **hbuckingham@dellaenv.com** CONSULTANT PROJECT NO.: **SJ31-8LI-1**

TELEPHONE: **(408) 224-4724** FAX: **(408) 226-8508** E-MAIL: **darnold@dellaenv.com** SAMPLER NAME(S) (Print): **Heather Buckingham** LAB USE ONLY

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

LA - RWQCE REPORT FORMAT USE AGENCY:

OC/MAS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NEEDED

REQUESTED ANALYSIS

TPH - Gas, Purgeable	MTBE (8021B - 9ppb RL)	MTBE (8280B - 9.9ppb RL)	Oxygenates (8) by (8280B)	Ethanol (8280B)	TBA	1,2-DCA and EDB (8260B)	EPA 5035 Extraction for Volatiles	VOCs Halogenated/Aromatic (8021B)	TRPH (418.1)	Vapor VOCs STEX: MTBE (TO-16)	Vapor VOCs Full List (TO-16)	Vapor TPH (ASTM D1646)	Vapor Fixed Gases (ASTM D1646)	Test for Disposal (48-)	Total Lead 8010B	TPH - Diesel, Extractable (8015m)	MTBE (8280B) Confirmation, See Note	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
----------------------	------------------------	--------------------------	---------------------------	-----------------	-----	-------------------------	-----------------------------------	-----------------------------------	--------------	-------------------------------	------------------------------	------------------------	--------------------------------	-------------------------	------------------	-----------------------------------	-------------------------------------	--

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	STEX	MTBE (8021B - 9ppb RL)	MTBE (8280B - 9.9ppb RL)	Oxygenates (8) by (8280B)	Ethanol (8280B)	TBA	1,2-DCA and EDB (8260B)	EPA 5035 Extraction for Volatiles	VOCs Halogenated/Aromatic (8021B)	TRPH (418.1)	Vapor VOCs STEX: MTBE (TO-16)	Vapor VOCs Full List (TO-16)	Vapor TPH (ASTM D1646)	Vapor Fixed Gases (ASTM D1646)	Test for Disposal (48-)	Total Lead 8010B	TPH - Diesel, Extractable (8015m)	MTBE (8280B) Confirmation, See Note	TEMPERATURE ON RECEIPT °C	
		DATE	TIME																							
	MW-9@5'	9/15/2005	9:10	soil	1	X	X	X			X	X														
	MW-9@10'	9/15/2005	10:03	soil	1	X	X	X			X	X														
	MW-9@15'	9/15/2005	10:05	soil	1	X	X	X			X	X														
	MW-9@20'	9/15/2005	10:11	soil	1	X	X	X			X	X														
	MW-9@25.5'	9/15/2005	10:16	soil	1	X	X	X			X	X														
	MW-9@30'	9/15/2005	10:26	soil	1	X	X	X			X	X														
	MW-9@35'	9/15/2005	10:45	soil	1	X	X	X			X	X														

Authorized by (Signature): <i>Heather Buckingham</i> Date: 9/16/05 Time: 1345	Received by (Signature): <i>SR-SF</i> Date: 9/16/05 Time: 1530
Authorized by (Signature): <i>SR-SF</i> Date: 9/16/05 Time: 1530	Received by (Signature): <i>Jean Muller</i> Date: 9/16/05 Time: 1530

Attachment E

WELL LOCATION AND SURVEY ELEVATION DATA



Mid Coast Engineers

Civil Engineers and Land Surveyors

70 Penny Lane, Suite A - Watsonville, CA 95076
phone: (831) 724-2580
fax: (831) 724-8025
e-mail: lee@mce1.com

Richard A. Wadsworth
Civil Engineer

Stanley O. Nielsen
Land Surveyor

Lee D. Vaage
Land Surveyor

Jeff S. Nielsen
Land Surveyor

October 17, 2005

Heather Buckingham
Delta Environmental Consultants, Inc.
175 Bernal Road, Suite 200
San Jose, CA 95119

Re: **Former Shell-Branded Service Station, 318 South Livermore Avenue at Third Street,
Livermore, California; Delta Project No. SJ31-8LI-1.2005, MCE Job No. 05210**

Dear Ms. Buckingham,

As you requested, on October 14 we surveyed one new monitoring well located at the referenced site. Our findings are listed on the attached sheets, expressed in State Plane Coordinates and Latitude/Longitude, and are consistent with our previous survey of January 17, 2002.

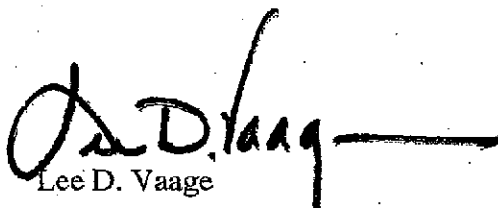
A notch was cut in the north rim of the PVC casing (TOC) and a cross chiseled in the north rim of the box (TOB).

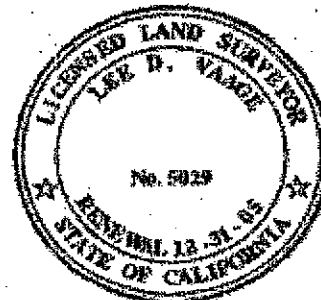
Measurements were obtained from conventional survey techniques in combination with GPS techniques (Code CGPS), using control points AA3815 (HPGN D CA 04 FK) and AA3816 (HPGN D CA 04 FL) as published by NGS/NOAA, and listed on their web site. Latitude and Longitude as shown were determined from the California Coordinate System, Zone 3, NAD 83 Datum. The accuracy range of the reported information is +/- 1cm. GPS equipment is the Trimble 5700/5800 system (Code T57).

The benchmark is City of Livermore No. D 30, a city monument at East Avenue and Fifth Street. Elevation = 501.361 feet, NGVD 29.

Please let me know if you have questions or need additional information.

Yours truly,


Lee D. Vaage



FORMER SHELL-BRANDED SERVICE STATION
318 South Livermore Avenue
Livermore, California

DELTA Project No. SJ31-8LI-1.2005

Project : 05210

User name MCE Date & Time 3:48:20 PM 10/17/2005
Coordinate System US State Plane 1983 Zone California Zone 3 0403
Project Datum NAD 1983 (Conus)
Vertical Datum NGVD29
Coordinate Units US survey feet
Distance Units US survey feet
Elevation Units US survey feet

Point Number	Northing	Easting	Elevation	Description
222	2072817.91	6195272.86	494.77	MW-9toc
223	2072818.21	6195273.11	495.61	MW-9tob

FORMER SHELL-BRANDED SERVICE STATION**318 South Livermore Avenue
Livermore, California****DELTA Project No. SJ31-8LI-1.2005**

Project: 05210

User name MCE Date & Time 3:48:20 PM 10/17/2005

Coordinate System US State Plane 1983 Zone California Zone 3 0403

Project Datum NAD 1983 (Conus)

Vertical Datum NGVD29

Coordinate Units US survey feet

Distance Units US survey feet

Elevation Units US survey feet

Point Number	Latitude	Longitude	Elevation	Description
222	37.680751560°N	121.766136939°W	494.77	MW-9toc
223	37.680752399°N	121.766136065°W	495.61	MW-9tob

	A	B	C	D	E	F	G	H	I	J	K	L
1	FORMER SHELL-BRANDED SERVICE STATION											
2	318 South Livermore Avenue											
3	Livermore, California											
4												
5	DELTA Project No. SJ31-8LI-1.2005											
6												
7	Project : 05210											
8	User name MCE Date & Time 3:48:20 PM 10/17/2005											
9	Coordinate System US State Plane 1983 Zone California Zone 3 0403											
10	Project Datum NAD 1983 (Conus)											
11	Vertical Datum NGVD29											
12	Coordinate Units US survey feet											
13	Distance Units US survey feet											
14	Elevation Units US survey feet											
15												
16		MW-9	MW	10/14/2005	37.6807516	-121.7661369	CGPS	NAD83	1	Mid Coast Engineers	T57	top of casing

	A	B	C	D	E	F	G	H	I	J	K
1	FORMER SHELL-BRANDED SERVICE STATION										
2	318 South Livermore Avenue										
3	Livermore, California										
4											
5	DELTA Project No. SJ31-8LI-1.2005										
6											
7	Project : 05210										
8	User name MCE Date & Time 3:48:20 PM 10/17/2005										
9	Coordinate System US State Plane 1983 Zone California Zone 3 0403										
10	Project Datum NAD 1983 (Conus)										
11	Vertical Datum NGVD29										
12	Coordinate Units US survey feet										
13	Distance Units US survey feet										
14	Elevation Units US survey feet										
15											
16		MW-9	10/14/2005	494.77	CGPS	29	0.5		Mid Coast Engineers		top of casing

Attachment F

WELL DEVELOPMENT AND MONITORING DATA SHEETS

WELL GAUGING DATA

Project # 050919-BA1 Date 9/19/05 Client Shell

Site 318 S. Livermore, 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 TOC	
MW-9	4					27.89 30.73	31.81 31.81	TOC	

WELL DEVELOPMENT DATA SHEET

Project #: 050919-BA1	Client: Shell
Developer: Brian Alcom	Date Developed: 9/19/05
Well I.D. MW-9	Well Diameter: (circle one) 2 3 <u>4</u> 6
Total Well Depth: Before 31.81 After 31.81	Depth to Water: Before 27.89 After 30.73
Reason not developed:	If Free Product, thickness:
Additional Notations:	

Volume Conversion Factor (VCF): {12 x (d ² /4) x π} / 231	Well dia.	VCF	
where	2"	=	0.16
12 = in / foot	3"	=	0.37
d = diameter (in.)	4"	=	0.65
π = 3.1416	6"	=	1.47
231 = in ³ /gal	10"	=	4.08
	12"	=	6.87

80% = 28.67

<u>2.6</u>	X	<u>10</u>	=	<u>26.0</u>
1 Case Volume		Specified Volumes		gallons

- Purging Device:
- Bailer
 - Suction Pump
 - Electric Submersible
 - Positive Air Displacement

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or <u>µS</u>)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0755						Began surging well for 15 minutes w/ 4" block
0815						Began purging w/ PAD pump @ < 1/4 gpm
0828	69.0	7.4	2,276	>1,000	2.6	silty brown, no odor
0843	69.9	7.4	1,872	>1,000	5.2	" " ^{Well} Dewatered
1045						Began resurging well - very slow recharge. DW=29.20
1100						Resumed purging w/ PAD pump @ < 1/4 gpm
1114	78.9	7.4	1,657	>1,000	7.8	silty brown, no odor ^{HARD} BOTTOM
1118						Well Dewatered @ 8.8 gallons
1400						Began Resurging well - DW=29.25
1415						Resumed purging w/ PAD Pump @ < 1/4 gpm
1425	77.6	7.4	1,362	>1,000	10.4	silty brown, no odor
1435	74.7	8.1	1,367	>1,000	13.0	" "
1435						Well Dewatered @ 13 gallons - 5 CV Removed
Did Well Dewater? <u>Yes</u>		If yes, note above.		Gallons Actually Evacuated:		13

WELL GAUGING DATA

Project # 050923-PA2 Date 9/23/05 Client Shell

Site 318 S. Livermore Ave. 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-9	4					27.95	31.42	TOC	

SHELL WELL MONITORING DATA SHEET

BTS #: 050923-DAZ	Site: 318 S. Livermore Ave. Livermore, CA
Sampler: DA	Date: 9/23/05
Well I.D.: MW-9	Well Diameter: 2 3 <input checked="" type="radio"/> 6 8
Total Well Depth (TD): 31.82	Depth to Water (DTW): 27.95
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <input checked="" type="radio"/> PVO Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 28.72	

Purge Method: Bailer Watera Sampling Method: Bailer
 Disposable Bailer Peristaltic Disposable Bailer
 Positive Air Displacement Extraction Pump Extraction Port
 2" Electric Submersible Other _____ Dedicated Tubing

2.5 (Gals.) X 3 = 7.5 Gals. Case Volume Specified Volumes Calculated Volume	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Well Diameter</th> <th>Multiplier</th> <th>Well Diameter</th> <th>Multiplier</th> </tr> </thead> <tbody> <tr> <td>1"</td> <td>0.04</td> <td>4"</td> <td>0.65</td> </tr> <tr> <td>2"</td> <td>0.16</td> <td>6"</td> <td>1.47</td> </tr> <tr> <td>3"</td> <td>0.37</td> <td>Other</td> <td>radius² * 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 ² * 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 ² * 0.163														

Time	Temp (°F)	pH	Cond. (mS or μ S)	Turbidity (NTUs)	Gals. Removed	Observations
1242	68.1	6.7	1151	30	2.50	clear
1244	68.7	6.8	1214	71000	5	cloudy, red orange color
1246	68.9	6.8	1220	71000	7.5	"

Did well dewater? Yes No Gallons actually evacuated: 7.5

Sampling Date: 9/23/05 Sampling Time: 1250 Depth to Water: 30.50 @ site departure

Sample I.D.: MW-9 Laboratory: STD Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: oxis, EDB, Lead

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

Attachment G

**LABORATORY CERTIFIED ANALYTICAL REPORT AND CHAIN-OF-CUSTODY
DOCUMENTATION FOR GROUNDWATER SAMPLES**

Blaine Tech Services, Inc.

October 04, 2005

1680 Rogers Avenue
San Jose, CA 95112-1105
Attn.: Leon Gearhart
Project#: BTS#050923-DA1
Project: 97464709
Site: 318 S. Livermore Ave., Livermore

Dear Mr. Gearhart,


Attached is our report for your samples received on 09/23/2005 16:10
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
11/07/2005 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
Project Manager

Total Lead

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-9	09/23/2005 12:50	Water	1

Total Lead

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Prep(s): 3010A	Test(s): 6010B
Sample ID: MW-9	Lab ID: 2005-09-0651 - 1
Sampled: 09/23/2005 12:50	Extracted: 9/28/2005 11:35
Matrix: Water	QC Batch#: 2005/09/28-03.15

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Lead	0.30	0.0050	mg/L	1.00	09/29/2005 12:00	

Total Lead

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Batch QC Report

Prep(s): 3010A

Method Blank

MB: 2005/09/28-03.15-051

Water

Test(s): 6010B

QC Batch # 2005/09/28-03.15

Date Extracted: 09/28/2005 11:35

Compound	Conc.	RL	Unit	Analyzed	Flag
Lead	ND	0.0050	mg/L	09/29/2005 11:40	

Total Lead

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Batch QC Report

Prep(s): 3010A

Test(s): 6010B

Laboratory Control Spike

Water

QC Batch # 2005/09/28-03.15

LCS 2005/09/28-03.15-052

Extracted: 09/28/2005

Analyzed: 09/29/2005 11:42

LCSD 2005/09/28-03.15-053

Extracted: 09/28/2005

Analyzed: 09/29/2005 11:46

Compound	Conc. mg/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Lead	0.492	0.497	0.500	98.4	99.4	1.0	80-120	20		

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

09/29/2005 15:11

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-9	09/23/2005 12:50	Water	1

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

09/29/2005 16:49

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Prep(s): 5030B Test(s): 8260B
Sample ID: MW-9 Lab ID: 2005-09-0651 - 1
Sampled: 09/23/2005 12:50 Extracted: 9/28/2005 02:52
Matrix: Water QC Batch#: 2005/09/27-2D.64
pH: <2

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline [Shell]	290	50	ug/L	1.00	09/28/2005 02:52	
Benzene	53	0.50	ug/L	1.00	09/28/2005 02:52	
Toluene	2.7	0.50	ug/L	1.00	09/28/2005 02:52	
Ethylbenzene	7.8	0.50	ug/L	1.00	09/28/2005 02:52	
Total xylenes	34	1.0	ug/L	1.00	09/28/2005 02:52	
tert-Butyl alcohol (TBA)	14	5.0	ug/L	1.00	09/28/2005 02:52	
Methyl tert-butyl ether (MTBE)	12	0.50	ug/L	1.00	09/28/2005 02:52	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	1.00	09/28/2005 02:52	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	1.00	09/28/2005 02:52	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	1.00	09/28/2005 02:52	
1,2-DCA	1.3	0.50	ug/L	1.00	09/28/2005 02:52	
Surrogate(s)						
1,2-Dichloroethane-d4	109.4	73-130	%	1.00	09/28/2005 02:52	
Toluene-d8	107.3	81-114	%	1.00	09/28/2005 02:52	

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2005/09/27-2D.64-059

Water

Test(s): 8260B

QC Batch # 2005/09/27-2D.64

Date Extracted: 09/27/2005 19:59

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline [Shell]	ND	50	ug/L	09/27/2005 19:59	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	09/27/2005 19:59	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	09/27/2005 19:59	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	09/27/2005 19:59	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	09/27/2005 19:59	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	09/27/2005 19:59	
1,2-DCA	ND	0.5	ug/L	09/27/2005 19:59	
Benzene	ND	0.5	ug/L	09/27/2005 19:59	
Toluene	ND	0.5	ug/L	09/27/2005 19:59	
Ethylbenzene	ND	0.5	ug/L	09/27/2005 19:59	
Total xylenes	ND	1.0	ug/L	09/27/2005 19:59	
Surrogates(s)					
1,2-Dichloroethane-d4	100.6	73-130	%	09/27/2005 19:59	
Toluene-d8	106.0	81-114	%	09/27/2005 19:59	

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

09/29/2005 16:49

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#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike

Water

QC Batch # 2005/09/27-2D.64

LCS 2005/09/27-2D.64-038

Extracted: 09/27/2005

Analyzed: 09/27/2005 19:38

LCSD

Compound	Conc. ug/L		Exp.Conc.	Recovery %		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Methyl tert-butyl ether (MTBE)	25.3		25	101.2			65-165	20		
Benzene	27.2		25	108.8			69-129	20		
Toluene	27.3		25	109.2			70-130	20		
Surrogates(s)										
1,2-Dichloroethane-d4	473		500	94.6			73-130			
Toluene-d8	543		500	108.6			81-114			

Severn Trent Laboratories, Inc.

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09/29/2005 16:49

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

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

Project: BTS#050923-DA1
97464709

Received: 09/23/2005 16:10

Site: 318 S. Livermore Ave., Livermore

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Matrix Spike (MS / MSD)

Water

QC Batch # 2005/09/27-2D.64

MS/MSD

Lab ID: 2005-09-0643 - 004

MS: 2005/09/27-2D.64-060

Extracted: 09/27/2005

Analyzed: 09/27/2005 21:38

Dilution: 1.00

MSD: 2005/09/27-2D.64-061

Extracted: 09/27/2005

Analyzed: 09/27/2005 21:59

Dilution: 1.00

Compound	Conc. ug/L			Spk.Level ug/L	Recovery %			Limits %		Flags	
	MS	MSD	Sample		MS	MSD	RPD	Rec.	RPD	MS	MSD
Methyl tert-butyl ether	26.2	26.4	ND	25	104.8	105.6	0.8	65-165	20		
Benzene	27.4	26.6	ND	25	109.6	106.4	3.0	69-129	20		
Toluene	26.3	26.3	ND	25	105.2	105.2	0.0	70-130	20		
Surrogate(s)											
1,2-Dichloroethane-d4	506	514		500	101.2	102.8		73-130			
Toluene-d8	540	531		500	108.0	106.2		81-114			

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

09/29/2005 16:49



STL

STL Denver
4955 Yarrow Street
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171
www.stl-inc.com

ANALYTICAL REPORT

Project Name: 97464709

Project/Reference Number: BTS#050923-DA1

STL-SF # 2005-09-0651

STL Denver Lot Number: D5I280181

Melissa Brewer

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Severn Trent Laboratories, Inc. / STL Denver

Michael P. Phillips
Project Manager

October 4, 2005

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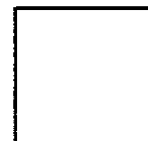
Standard Deliverables

Report Contents

Total Number of Pages

Standard Deliverables

The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.



- **Table of Contents**
- **Case Narrative**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **Analytical Results**
- **QC Data Association Summary**
- **Chain-of-Custody**

Project Narrative

Lot D5I280181

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Arrival and Receipt

One sample was received under chain of custody on September 28, 2005. The sample was received in good condition at a temperature of 3.6°C.

GC Semivolatiles, EPA-DW 504.1

No MS/MSD associated with batch 5273218 was performed due to insufficient sample volume.

No other anomalies were observed.

EXECUTIVE SUMMARY - Detection Highlights

D5I280181

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>
NO DETECTABLE PARAMETERS				

METHODS SUMMARY

DSI280181

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
EDB/DBCP/123-TCP in Water by Microextraction and G	EPA-DW 504.1	SW846 8011

References:

EPA-DW "Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, December 1988 and its Supplements.

METHOD / ANALYST SUMMARY

D5I280181

<u>ANALYTICAL METHOD</u>	<u>ANALYST</u>	<u>ANALYST ID</u>
EPA-DW 504.1	Mike Dobransky	008777

References:

EPA-DW "Methods for the Determination of Organic Compounds in Drinking Water", EPA/600/4-88/039, December 1988 and its Supplements.

SAMPLE SUMMARY

D5I280181

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
HLJMP	001	MW-9	09/23/05	12:50

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

STL SAN FRANCISCO

Client Sample ID: MW-9

GC Semivolatiles

Lot-Sample #...: D5I280181-001 Work Order #...: HLJMP1AA Matrix.....: WATER
Date Sampled...: 09/23/05 12:50 Date Received...: 09/28/05
Prep Date.....: 09/29/05 Analysis Date...: 09/30/05
Prep Batch #...: 5273218 Analysis Time...: 03:19
Dilution Factor: 1
Method.....: EPA-DW 504.1

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
1,2-Dibromoethane (EDB)	ND	0.020	ug/L	0.0053
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		
	<u>RECOVERY</u>	<u>LIMITS</u>		
1,2-Dibromopropane	118	(70 - 130)		

QC DATA ASSOCIATION SUMMARY

D5I280181

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	WATER	EPA-DW 504.1		5273218	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D5I280181
MB Lot-Sample #: D5I300000-218

Work Order #...: HLRRClAA

Matrix.....: WATER

Analysis Date...: 09/30/05
Dilution Factor: 1

Prep Date.....: 09/29/05

Analysis Time...: 03:01

Prep Batch #...: 5273218

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>	
1,2-Dibromoethane (EDB)	ND	0.020	ug/L	EPA-DW 504.1
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>		
	<u>RECOVERY</u>	<u>LIMITS</u>		
1,2-Dibromopropane	80	(70 - 130)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D5I280181 Work Order #...: HLRR1AC Matrix.....: WATER
 LCS Lot-Sample#: D5I300000-218
 Prep Date.....: 09/29/05 Analysis Date...: 09/30/05
 Prep Batch #...: 5273218 Analysis Time...: 02:23
 Dilution Factor: 1

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
1,2-Dibromoethane (EDB)	94	(70 - 130)	EPA-DW 504.1

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
1,2-Dibromopropane	113	(70 - 130)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D5I280181 Work Order #...: HLRRCLAC Matrix.....: WATER
 LCS Lot-Sample#: D5I300000-218
 Prep Date.....: 09/29/05 Analysis Date...: 09/30/05
 Prep Batch #...: 5273218 Analysis Time...: 02:23
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
1,2-Dibromoethane (EDB)	0.250	0.235	ug/L	94	EPA-DW 504.1

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
1,2-Dibromopropane	113	(70 - 130)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

3.6°
9/28/05

SEVERN
TRENT

STL

Chain of Custody

Date Shipped: 9/27/2005

2005-09-0651 - 1

From:
STL San Francisco (CL)
1220 Quarry Lane
Pleasanton, CA 94566-4756

To:
STL Denver
4955 Yarrow Street
Arvada, CO 80002

Project Manager: Melissa Brewer
Phone: Ext:
Fax: (925) 484-1096
Email: mbrewer@stl-inc.com

Phone: (303) 736-0100 Ext:
Fax: (303) 431-7171
Contact: Sample Receiving
Phone: (303) 421-6611 Ext:

CL Submission #: 2005-09-0651
CL PO #:

Project #: BTS#050923-DA1
Project Name: 97464709
EDF Global ID: T0600101249

Client Sample ID	CL#	Sampled	Matrix	TAT
Analysis			Method	
MW-9	1	9/23/2005 12:50:00PM	Water	
EDF Field ID: MW-9				
Subcontract - EDB by EPA 504 /*504.1*/			504	10 Day

PLEASE INCLUDE QC WITH FAXED AND HARD-COPY RESULTS

Due 10-03-05

RELINQUISHED BY: 1.

Signature: *[Signature]* Time: 1500
Printed Name: Bryan Thomas Date: 9/27/05
Company: STL-SF

RELINQUISHED BY: 2.

Signature: _____ Time: _____
Printed Name: _____ Date: _____
Company: _____

RELINQUISHED BY: 3.

Signature: _____ Time: _____
Printed Name: _____ Date: _____
Company: _____

RECEIVED BY: 1.

Signature: *[Signature]* Time: 0930
Printed Name: Aaron Bindel Date: 9/28
Company: STL-Den

RECEIVED BY: 2.

Signature: _____ Time: _____
Printed Name: _____ Date: _____
Company: _____

RECEIVED BY: 3.

Signature: _____ Time: _____
Printed Name: _____ Date: _____
Company: _____

LAB: STL

SHELL Chain Of Custody Record

99869

Lab Identification (if necessary):

Address:

City, State, Zip:

Shell Project Manager to be invoiced:

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CRMT HOUSTON

Denis Brown

2005-09-0651

INCIDENT NUMBER (S&E ONLY)

9 7 4 6 4 7 0 9

SAP or CRMT NUMBER (TS/CRMT)

DATE: 9/23/05

PAGE: 1 of 1

SAMPLING COMPANY: Blaine Tech Services			LOG CODE: BTSS			SITE ADDRESS (Street and City): 318 S. Livermore Ave., Livermore					GLOBAL ID NO.: T0600101249											
ADDRESS: 1680 Rogers Avenue, San Jose, CA 95112						EDF DELIVERABLE TO (Responsible Party or Designee): Heather Buckingham				PHONE NO.: (408)224-4724		E-MAIL: hbuckingham@deltaenv.com		CONSULTANT PROJECT NO.: 050923-DA1								
PROJECT CONTACT (Hardcopy or PDF Report to): Leon Gearhart						SAMPLER NAME(S) (PIN): David Allbut					LAB USE ONLY		BTS #									
TELEPHONE: 408-573-0555		FAX: 408-573-7771		E-MAIL: lgearhart@blainetech.com																		
TURNAROUND TIME (BUSINESS DAYS): <input type="checkbox"/> 10 DAYS <input checked="" type="checkbox"/> 5 DAYS <input type="checkbox"/> 72 HOURS <input type="checkbox"/> 48 HOURS <input type="checkbox"/> 24 HOURS <input type="checkbox"/> LESS THAN 24 HOURS													REQUESTED ANALYSIS				FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes				TEMPERATURE ON RECEIPT <u>2</u> °C	
<input type="checkbox"/> LA - RWQCB REPORT FORMAT <input type="checkbox"/> LIST AGENCY: _____																						
GC/MS MTBE CONFIRMATION: HIGHEST _____ HIGHEST per BORING _____ ALL _____																						
SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS <u>NOT</u> NEEDED <input type="checkbox"/>																						
LAB USE ONLY	Field Sample Identification		SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by 8260	1,2-DCA by 8260	EDB by 604.1	Lead by 6010B									
			DATE	TIME																		
	MW-9	9/23/05	1250	W	7	X	X	X	X	X	X	X										
Relinquished by: (Signature) <i>David Allbut</i>						Received by: (Signature) <i>Heather Buckingham</i>						Date: <u>9/23/05</u>		Time: <u>15:08 1610</u>								
Relinquished by: (Signature) <i>Heather Buckingham</i>						Received by: (Signature) <i>Sam Rulka</i>						Date: <u>9/23/05</u>		Time: <u>18:30</u>								
Relinquished by: (Signature) <i>Sam Rulka</i>												Date: <u>9/23/05</u>		Time: <u>18:30</u>								