R02525

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 408.225.8506

January 20, 2005
Project No. SJ31-8LI-1.2004

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

Re: **Investigation and Excavation Work Plan – Second Revision**
Former Shell-branded Service Station
318 South Livermore Avenue
Livermore, California

Dear Mr. Schultz:

Delta Environmental Consultants, Inc. (Delta), on behalf of Shell Oil Products US (Shell), has prepared this revised *Investigation and Excavation Work Plan* for the above referenced site in order to address technical comments provided by the Alameda County Health Care Services Agency (ACHCSA) in a letter to Shell, dated December 20, 2004. Delta, on behalf of Shell, previously submitted both an *Excavation Work Plan* (dated August 26, 2004) and a Revised *Investigation and Excavation Work Plan* (dated November 3, 2004) concerning the detection of petroleum hydrocarbons and fuel oxygenates in soil and groundwater at the subject site. The ACHCSA requested additional modifications to the latest work plan based on the following technical comments outlined below. Modifications are to be submitted to the ACHCSA for review by January 20, 2005.

WORK PLAN

1. Downgradient Groundwater Sampling

Delta proposed to drill one Geoprobe™ boring (B-1) west of the former fuel dispensers at the location shown on Figure 1. A historic groundwater flow direction diagram, included on Figure 1, indicates that the horizontal flow gradient at the site has varied from north to southwest since the mid-1990s. Due to the historical fluctuation in the groundwater flow direction, the ACHCSA requires that more than one boring be advanced in the downgradient direction of the former dispensers. Delta proposes to drill a second

boring (B-3) immediately southwest of the former fuel dispensers (toward South Livermore Avenue). The location of B-3 is shown on Figure 1.

2. Depth-Discrete Groundwater Sampling

Based on the Well Concentrations Table included as Attachment A, first encountered groundwater at the site ranges between approximately 25 feet and 33 feet below grade (bg) seasonally. Since September 2001, groundwater levels appear to have risen to within 26 feet bg during the winter and spring months. Site Wells MW-5 through MW-8 are screened between approximately 38 feet bg and 53 feet bg.

Delta previously proposed to collect a groundwater sample for laboratory analysis from Boring B-1 at first encountered groundwater. The ACHCSA notes the fluctuation in depth to groundwater beneath the site as the reason for collecting depth-discrete groundwater samples from site borings. Specifically, a gravel layer at approximately 28 feet bg at the site, was identified as a potential shallow aquifer unit. Delta concurs that depth-discrete groundwater sampling is warranted in order to properly characterize groundwater located within the 28-foot gravel unit as compared to groundwater within the screened intervals of site wells. Delta will collect two discrete groundwater samples for laboratory analysis from each boring, B-1 and B-3.

In addition, Delta previously proposed to collect soil samples for analysis from Boring B-1 at depths of 10, 15, 25, and 28 feet bg in order to identify potential residual petroleum hydrocarbons and fuel oxygenates remaining in shallow soil from periods of high groundwater levels. If a groundwater sample is able to be collected from the 28-foot gravel mentioned above, a 28-foot soil sample will not be collected for analysis.

3. UST Area Sampling

Although the extent of petroleum hydrocarbon and lead contaminated soil associated with a fill pipe leak (pre-1989) appears to have been very limited, Delta proposed to drill a Geoprobe™ boring (B-2) in the southern corner of the station property where the pre-1989 fuel USTs were located. The location of B-2 is shown on Figure 1. Delta proposed to advance Boring B-2 to a depth of approximately 25 feet bg to determine if residual petroleum hydrocarbons are present in soil beneath the former UST complex. Delta proposed to collect soil samples for analysis from Boring B-2 at depths of 10, 15, 20, and 25 feet bg.

The ACHCSA has requested that Delta also collect a soil sample from within the upper two feet of native soil beneath the former USTs. Given that Boring B-2 is located within a former UST cavity, it is likely that undisturbed, native soil will not be encountered until a depth of a least 10 feet bg. In this case, proposed samples at 10 and 15 feet bg would be located within the upper two feet of native soil. However, Delta now proposes to continuously sample the soil between 10 and 20 feet bg in order to identify the depth at which native soil is encountered. A sample will be collected and retained for laboratory analysis from within the upper two feet of native soil.

The ACHCSA has also requested that Boring B-2 be drilled to a depth sufficient to fully define the vertical extent of residual fuel (based on field screening techniques). With regard to avoiding potential aquifer cross contamination, Delta plans to advance Boring B-2 to a maximum depth of 5 feet below first encountered groundwater. Groundwater is anticipated at approximately 25 feet bg. As requested by the ACHCSA, Delta will collect one depth-discrete groundwater sample from Boring B-2.

4. Soil Excavation and Confirmation Sampling

Delta plans to oversee the excavation of lead impacted soil in the area of former dispenser site P1 to a depth of approximately 10 feet bg. The proposed area of excavation is shown on Figure 2. Exposed soil materials will be examined for petroleum hydrocarbon impacts, and all potentially impacted soil will be removed from the site. The excavation will be backfilled with imported clean fill and compacted.

All excavation work and field screening of soil samples will be supervised by a Delta qualified geologist. Delta will collect confirmation soil samples from the base of the excavation, and from the sidewalls of the excavation. Per the ACHCSA's request, Delta will collect at least one soil sample per 20 feet of exposed sidewall. A minimum of four soil samples will be collected from the excavation for laboratory analysis.

5. Cleanup Levels and Goals

Previously, Delta proposed to use California Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) as soil and groundwater cleanup goals. The ACHCSA concurs with these goals, but has requested that Delta add a groundwater cleanup goal for 1,2-Dibromoethane (EDB) of 0.05ug/l. This EDB cleanup goal is also derived from the RWQCB ESL.

Cleanup goals for compounds of concern for shallow and deep soil for residential land use and underlying drinking water aquifer are summarized below:

Depth (feet)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	Total Lead (mg/kg)
< 10	100	0.044	2.9	3.3	1.5	0.023	200
> 10	100	0.044	2.9	3.3	1.5	0.023	750

Groundwater cleanup goals for compounds of concern are as follow: total petroleum hydrocarbons as gasoline (TPH-G) (100 ug/l), BTEX compounds – benzene (1.0 ug/l), toluene (40 ug/l), ethylbenzene (30 ug/l), xylene (13 ug/l), methyl tert-butyl ether (MTBE) (5.0 ug/l), total lead (2.5 ug/l), 1,2-Dichloroethane (1,2-DCA) (0.5 ug/l), and EDB (0.05 ug/l).

6. Data Tabulation and Environmental Screening

The ACHCSA has requested that Delta prepare comprehensive data tables for site soil and groundwater, including all data collected since 1995. Delta has prepared a *Summary of Soil Analytical Data*, presented as the attached Table 1. A *Summary of Groundwater Analytical Data* is presented as Table 2. Both data tables list all compounds that have been detected at the site and the corresponding RWQCB ESLs.

7. Description of Methods

Prior to conducting any field work at the site, Delta will prepare a site specific Health and Safety Plan (HASP). The Delta field geologist on-site will review the HASP with site subcontractors at the start of each work day.

Soil Sampling: Borings B-1 through B-3

Delta previously proposed to use Geoprobe™ drilling equipment to advance site borings. Based on further review of the boring logs for site Wells MW-5 through MW-8, Delta now proposes to use hollow-stem auger drilling equipment for site borings. Delta is concerned that the Geoprobe™ rig may meet refusal in the surficial sandy gravel (with cobbles) unit in the upper 10- to 15-feet bg.

Site Borings B-1 through B-3 will be advanced using a hollow stem auger drill rig equipped with 8-inch diameter augers. Prior to drilling, each borehole location will be surveyed by a geophysical locator and marked for underground utilities. Underground Services Alert (USA) will be notified of the proposed borings a minimum of 48-hours before Delta begins work at the site. Lastly, approximately the upper 7 feet of each borehole will be excavated by air vacuum equipment in order to minimize the risk of damaging any unidentified underground utilities.

Soil samples will be collected at 5-foot intervals from the ground surface to the total depth of each boring. Hand-augered samples will be collected at 5 feet bg. During drilling, soil samples will be collected with a split-spoon sampler fitted with three, 6-inch long stainless steel or brass liners. As mentioned above, the10- to 20-foot depth interval of Boring B-2 will be continuously sampled in order to identify the contact between backfill and native soil. Additionally, a soil sample may be collected from the 28-foot gravel unit in Borings B-1 and B-3 for analysis pending unsuccessful groundwater sampling at this depth. Samples will be analyzed in the field with a photo-ionization detector (PID), and petroleum hydrocarbon concentrations in the soil will be recorded on the field logs. Discrete soil samples retained for laboratory analysis (from sampling depths mentioned in the previous sections) will be preserved for analysis by capping the steel liners with Teflon sheets and tight fitting plastic end caps. Samples will then be placed on ice for transport to Severn Trent Laboratories, Inc. (STL) in Pleasanton, California. Additional soil samples may also be selected from site borings for laboratory analysis based on PID readings, field observations, and lithology.

Groundwater Sampling

Groundwater samples will be collected from Borings B-1 through B-3 using Hydropunch® sampling equipment. Hydropunch® sampling rods will be lowered through the hollow-stem augers to the initial sampling depth of approximately 25 feet bg. The rods will then be pushed to a depth of approximately 30 feet bg. The sampling rod will then be retracted exposing a PVC filter screen which allows for groundwater infiltration. A maximum of 5 feet of screen will be exposed for sampling purposes. A stainless steel bailer, lowered through the rods, will then be used to collect a groundwater sample from within the screened interval. Groundwater will be decanted in 40-milliliter glass vials, labeled, and placed on ice for transport to STL. In Borings B-1 and B-3, a second groundwater sample will be collected from approximately the 35- to 40-foot depth interval by repeating the steps above. Upon completion of soil and groundwater sampling, each borehole will be tremmie filled with cement grout through the augers.

Soil Excavation and Confirmation Sampling

Lead impacted soil will be removed from the area of former dispenser site P1 by excavation with a backhoe. Excavated soils will be stockpiled on visquene on-site, pending proper disposal.

Soil samples will be collected from the sidewalls and base of the excavation, as described above, by using either a slide hammer or a sledge hammer to drive 6-inch long stainless steel or brass liners into the soil. Soil samples will be preserved for analysis by capping the steel liners with Teflon sheets and tight fitting plastic end caps, and placing on ice for transport to STL.

Upon sample completion, the excavation will be backfilled with clean fill and compacted to specifications.

Sample Analyses

All soil samples submitted for laboratory testing will be analyzed for TPH-G, BTEX compounds, the five fuel oxygenates, 1,2-DCA, EDB, and total lead per ACHCSA recommendations.

All groundwater samples from Borings B-1, B-2, and B-3 will be analyzed for TPH-G, BTEX compounds, the five fuel oxygenates, 1,2-DCA, and EDB, per ACHCSA recommendations. Analyses for petroleum hydrocarbons, fuel oxygenates, and 1,2-DCA will be performed by EPA Method 8260B. Analysis for EDB will be performed by EPA Method 504. Analysis for total lead will be performed by EPA Method 6010B.

SOIL AND GROUNDWATER INVESTIGATION REPORT

Delta will prepare a *Soil and Groundwater Investigation Report* presenting data from proposed Borings B-1, B-2, and B-3, as well as the excavation confirmation sample results. The report will include a written description of the work performed, boring and sample location map, boring logs, summary table of soil and groundwater analytical data, and certified analytical reports and chain of custody documentation. All work will be performed under the direction of a California Certified Hydrogeologist.

SCHEDULE

Delta is prepared to perform field work within 45 days of approval of this work plan by ACHCSA. A report will be submitted within 45 days of completion of the field work.

REMARKS

The information 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 work plan.

Sincerely,
Delta Environmental Consultants, Inc.

Debbie Arnold
Project Geologist
RG 7745

Attachments: Table 1 – Summary of Soil Analytical Data
Table 2 – Summary of Groundwater Analytical Data

Figure 1 – Site Map
Figure 2 – Soil Excavation and Sampling Map

Attachment A – Well Concentrations Table, Wells MW-5 through MW-8

cc: Karen Petryna, Shell Oil Products US, Carson
Betty Graham, RWQCB, Oakland
Kermit Smith, Shell Oil Products US

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

Sample Designation	Date Sampled	Depth (feet)	PID reading (ppmv)	TPH-G (mg/kg)	TPH-D (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	Acetone (ug/kg)	n-butylbenzene (ug/kg)	Naphthalene (ug/kg)	n-propyl benzene (ug/kg)	1,2,4-Tri-methylbenzene (ug/kg)	1,3,5-Tri-methylbenzene (ug/kg)	Total Lead (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	Total Oil and Grease (mg/kg)
RWQCB ESLs		<10		100	100	0.044	2.9	3.3	1.5	0.023	0.073	0.24	NE	4,200	NE	NE	NE	200	58	150	600	500
		>10		100	100	0.044	2.9	3.3	1.5	0.023	0.073	0.24	NE	4,200	NE	NE	NE	750	58	1,000	2,500	500
Tank Pit Samples																						
1A	12/10/03	16	NM	<1.0	NA	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	**110**	<5.0	<10	<5.0	<5.0	<5.0	**6.3**	NA	NA	NA	NA
1B	12/10/03	16	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**5.3**	NA	NA	NA	NA
2A	12/10/03	16	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	**0.016**	<50	<5.0	<10	<5.0	<5.0	<5.0	**6.3**	NA	NA	NA	NA
2B	12/10/03	16	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**3.7**	NA	NA	NA	NA
3A	12/10/03	16	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**6.0**	NA	NA	NA	NA
3B	12/10/03	16	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**3.9**	NA	NA	NA	NA
Waste Oil Tank Sample																						
4A	12/10/03	10	NM	<1.0	<1.0	<0.005	**0.0070**	<0.005	**0.0078**	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**3.9**	**46**	**170**	**64**	<50
Dispenser Samples																						
P1	12/11/03	2.5	NM	<1.0	NA	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**380 ***	NA	NA	NA	NA
P4	12/11/03	2.5	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	<5.0 *	NA	NA	NA	NA
P5	12/11/03	2.2	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	<5.0 *	NA	NA	NA	NA
Piping Trench Samples																						
P2	12/11/03	3.75	NM	**4.9**	NA	<0.025	**0.200**	**0.110**	**0.840**	<0.025	<0.041	<250	**56**	**160**	**54**	**530**	**160**	<5.0 *	NA	NA	NA	NA
P3	12/11/03	3.6	86.1	<1.0	NA	<0.005	<0.005	<0.005	**0.007**	<0.005	<0.01	<50	<5.0	**21**	<5.0	**10**	<5.0	<5.0 *	NA	NA	NA	NA
P3 @ 100"	12/11/03	8.3	0.9	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	<5.0 *	NA	NA	NA	NA
Oil and Water Separator Samples																						
SUMP EAST	1/12/04	3.75	1.5	<0.01	**45****	<0.005	<0.005	<0.005	**0.038**	NA	NA	NA	NA	NA	NA	NA	NA	**54**	**29**	**71**	**44**	**56**
SUMP WEST	1/12/04	3.75	0.4	<0.01	**23****	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	**9.6**	**41.0**	**110**	**36**	<50
Stockpile Samples																						
Stockpile 1	12/10/03	-	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**6.4**	NA	NA	NA	NA
Stockpile 2	12/10/03	-	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**51**	<5.0	<10	<5.0	<5.0	<5.0	**29.0**	NA	NA	NA	NA
Stockpile 3	12/10/03	-	NM	<1.0	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**6.0**	NA	NA	NA	NA
Waste Oil Stockpile	12/10/03	-	NM	<1.0	**5.1*****	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<50	<5.0	<10	<5.0	<5.0	<5.0	**17**	**38**	**95**	**42**	**54.0**
Soil and Well Boring Samples																						
MW-7	9/17/01	35-35.5	0	<1.0	NA	<0.0050	<0.0050	<0.0050	<0.010	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
mg/kg = milligrams per kilogram
TPH-G = Total petroleum hydrocarbons as gasoline
TPH-D = Total petroleum hydrocarbons as diesel
MTBE = Methyl tert-butyl ether
TBA = tert-Butyl alchohol
NA = not analyzed
NM = not measured
NE = not established
ESL = Environmental Screening Level
* Indicates higher reporting limits due to lead analyisis performed by method 7420
** Hydrocarbon reported is in the late Diesel range, and does not match the laboratory Diesel standard
*** Hydrocarbon reported does not match the pattern of the laboratory Diesel standard
RWQCB-ESLs from the RWQCB - San Franciso Bay Region, *Screening For Environmental Concerns at Sites With Contaminated Soil,* Volume 1 ESL Tables (Interim Final - July 2003, updated February 2004)

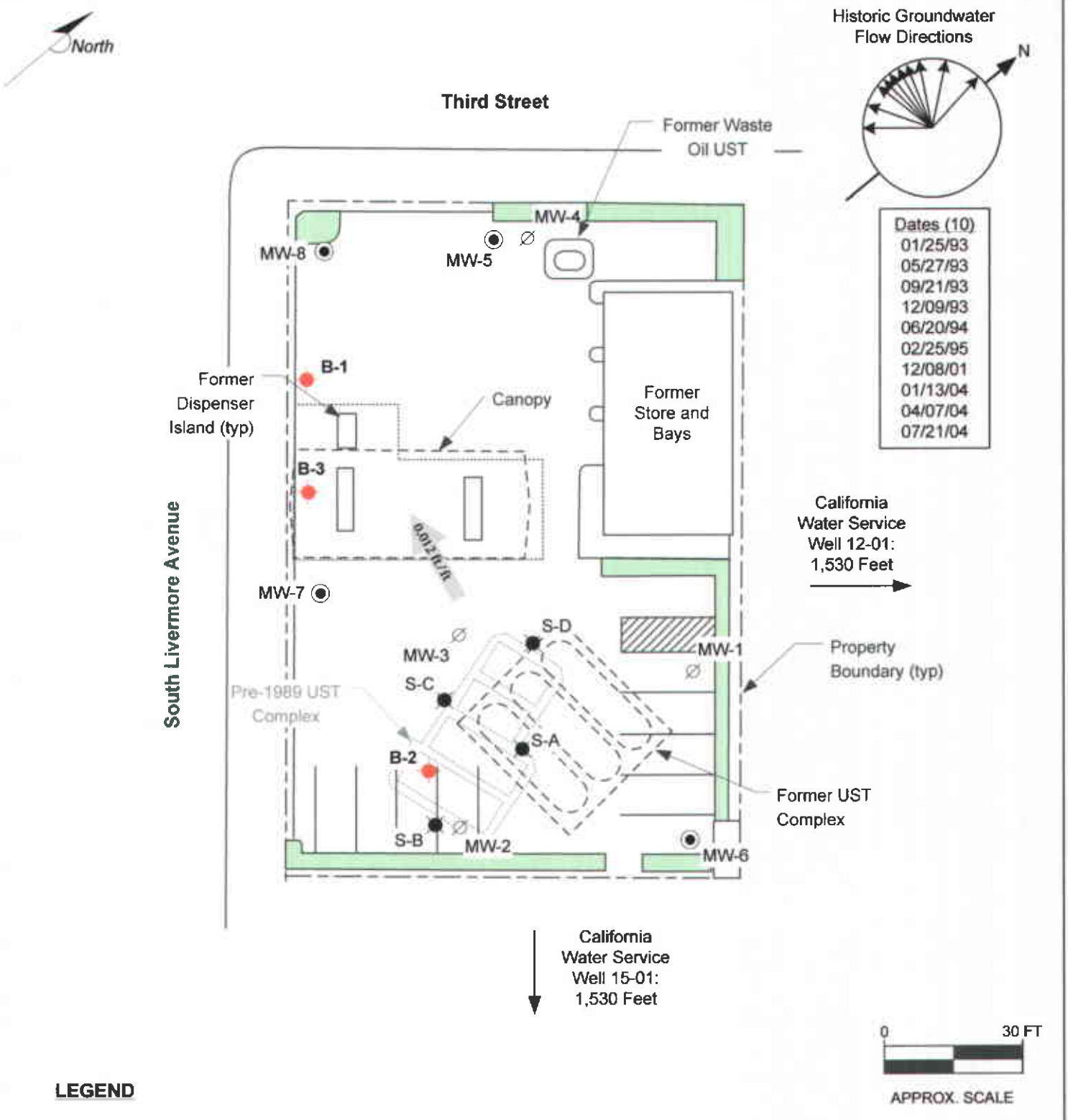
Table 2
Summary of Groundwater Analytical Data
Former Shell Service Station
318 South Livermore Avenue
Livermore, California

Well Designation	Date Sampled	TPH-G (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl benzene (ug/l)	Xylene (ug/l)	MTBE (ug/l)	DIPE (ug/l)	ETBE (ug/l)	TAME (ug/l)	TBA (ug/l)	1,2-DCA (ug/l)	EDB (ug/l)
RWQCB ESLs		100	1.0	40	30	13	5.0	NE	NE	NE	12.0	0.5	0.05
MW-5	9/18/2001	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	7/9/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	10/25/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	1/24/03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	4/17/03	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	7/17/03	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	11/13/03	**60**	<0.50	**1.5**	**1.7**	**9.6**	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-5	1/13/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-5	4/7/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-5	7/21/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-5	11/11/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	<0.50	<0.50
MW-6	9/18/2001	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-6	7/9/02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-6	10/25/02	<50	<0.50	<0.50	<0.50	<0.50	**2.5**	<2.0	<2.0	<2.0	<50	NA	NA
MW-6	1/24/03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-6	4/17/03	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-6	7/17/03	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-6	11/13/03	**90**	<0.50	**2.6**	**2.4**	**12**	<0.50	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-6	1/13/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-6	4/7/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-6	7/21/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-6	11/11/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<2.0	<2.0	<2.0	<5.0	<0.50	<0.50
MW-7	9/18/2001	NA	<0.50	<0.50	<0.50	<0.50	**1.2**	<2.0	<2.0	<2.0	<50	NA	NA
MW-7	7/9/02	<50	<0.50	<0.50	<0.50	<0.50	**2.0**	<2.0	<2.0	<2.0	<50	NA	NA
MW-7	10/25/02	<50	<0.50	<0.50	<0.50	<0.50	**1.9**	<2.0	<2.0	<2.0	<50	NA	NA
MW-7	1/24/03	<50	<0.50	<0.50	<0.50	<0.50	**0.9**	<2.0	<2.0	<2.0	<50	NA	NA
MW-7	4/17/03	<50	<0.50	<0.50	<0.50	<1.0	**4.0**	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-7	7/17/03	<50	<0.50	<0.50	<0.50	<1.0	**3.2**	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-7	11/13/03	**72**	<0.50	**0.62**	**0.57**	**3.2**	**1.4**	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-7	1/13/04	<50	<0.50	<0.50	<0.50	<1.0	**0.9**	NA	NA	NA	NA	NA	NA
MW-7	4/7/04	<50	<0.50	<0.50	<0.50	<1.0	**0.7**	NA	NA	NA	NA	NA	NA
MW-7	7/21/04	<50	<0.50	<0.50	<0.50	<1.0	**1.8**	NA	NA	NA	NA	NA	NA
MW-7	11/11/04	**75**	<0.50	<0.50	<0.50	<1.0	**2.2**	<2.0	<2.0	<2.0	<5.0	**2.3**	<0.50
MW-8	9/18/2001	NA	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA
MW-8	7/9/02	<50	<0.50	<0.50	<0.50	<0.50	**6.9**	<2.0	<2.0	<2.0	<50	NA	NA
MW-8	10/25/02	**140**	<0.50	<0.50	<0.50	<0.50	**2.2**	<2.0	<2.0	<2.0	<50	NA	NA
MW-8	1/24/03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<50	NA	NA

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

Well Designation	Date Sampled	TPH-G (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl benzene (ug/l)	Xylene (ug/l)	MTBE (ug/l)	DIPE (ug/l)	ETBE (ug/l)	TAME (ug/l)	TBA (ug/l)	1,2-DCA (ug/l)	EDB (ug/l)
RWQCB ESLs		100	1.0	40	30	13	5.0	NE	NE	NE	12.0	0.5	0.05
MW-8	4/17/03	<50	<0.50	<0.50	<0.50	<1.0	**0.67**	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-8	7/17/03	<50	<0.50	<0.50	<0.50	<1.0	**0.50**	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-8	11/13/03	**260**	**1.5**	**2.3**	**2.9**	**16**	**1.4**	<2.0	<2.0	<2.0	<5.0	NA	NA
MW-8	1/13/04	<50	<0.50	<0.50	<0.50	<1.0	**0.92**	NA	NA	NA	NA	NA	NA
MW-8	4/7/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-8	7/21/04	<50	<0.50	<0.50	<0.50	<1.0	<0.50	NA	NA	NA	NA	NA	NA
MW-8	11/11/04	<50	<0.50	<0.50	<0.50	<1.0	**0.82**	<2.0	<2.0	<2.0	<5.0	**3.2**	<0.50

Notes:
ug/l = micrograms per liter
TPH-G = Total petroleum hydrocarbons as gasoline
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert butyl ether
TAME = tert amyl methyl ether
TBA = tert-Butyl alchohol
1,2-DCA = 1,2-Dichloroethane
EDB = ethylene dibromide
NA = not analyzed
NE = not established
ESL = Environmental Screening Level
RWQCB-ESLs from the RWQCB - San Francisco Bay Region, *Screening For Environmental Concerns at Sites With Contaminated Soil*, Appendix 1 ESL Tables (Interim Final - July 2003, updated September 2003)



LEGEND

- MW-6 ◉ **GROUNDWATER MONITORING WELL**
- B-2 ● **PROPOSED SOIL BORING**
- S-C ✱ **SOIL BORINGS, 1989**
- MW-1 ∅ **FORMER GROUNDWATER MONITORING WELL**
- 0.012 ft/ft **APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT (11/11/04)**

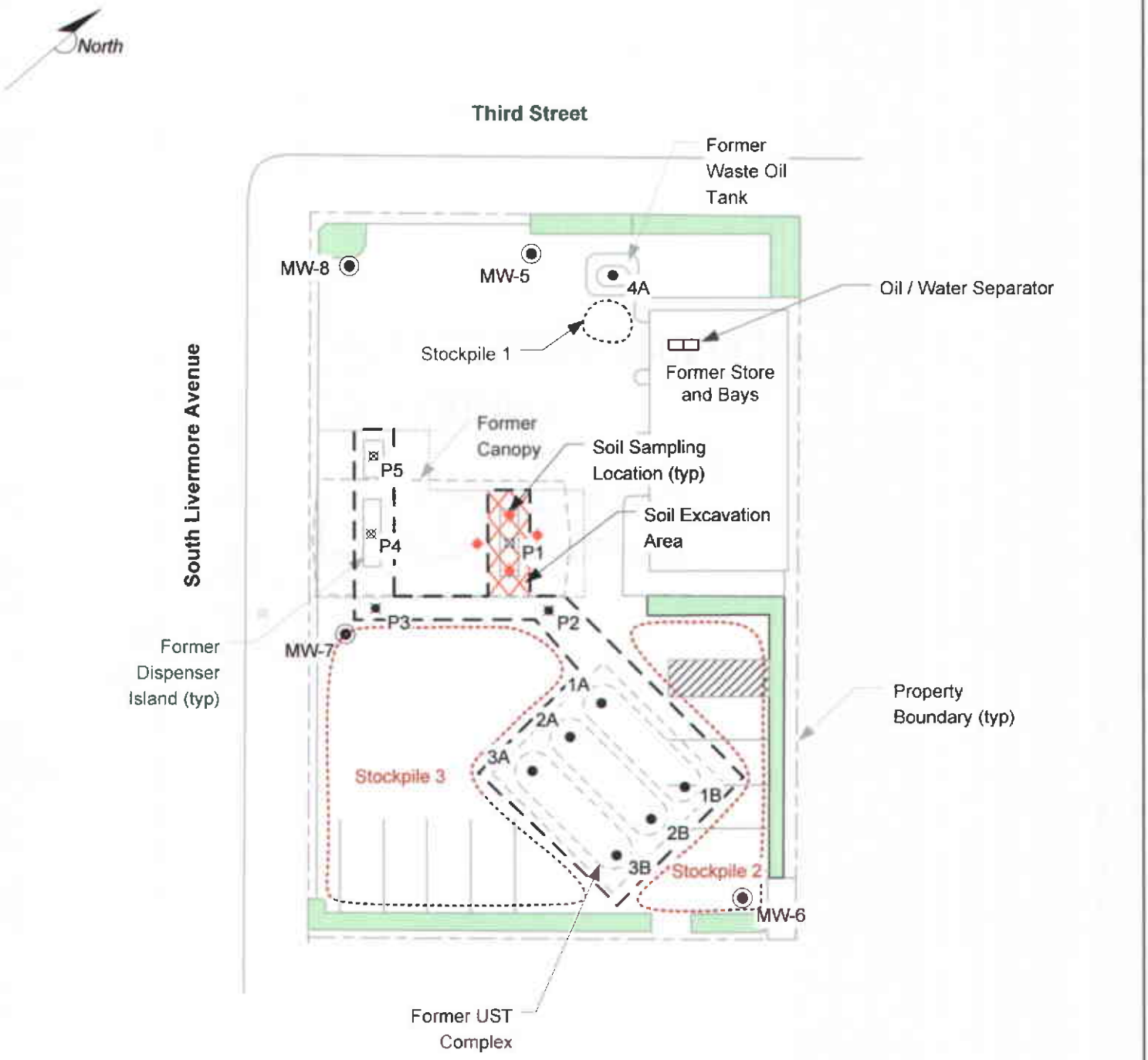
FIGURE 1

SITE MAP

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

PROJECT NO. SJ31-8LI-1.2004	DRAWN BY VF 9/25/03
FILE NO. SJ31-8LI-1.2004	PREPARED BY VF
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc



LEGEND

- PROPOSED CONFIRMATION SAMPLES
- PROPOSED EXCAVATION AREA
- MW-6 EXISTING GROUNDWATER MONITORING WELL
- 2A TANK PIT SOIL SAMPLE LOCATION AND ID
- P3 PIPING TRENCH SOIL SAMPLE LOCATION AND ID
- P4 DISPENSER SOIL SAMPLE LOCATION AND ID
- EXTENT OF STOCKPILE
- EXTENT OF EXCAVATION

0 30 FT

APPROX. SCALE

FIGURE 2

SOIL EXCAVATION AND SAMPLING MAP

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

PROJECT NO. SJ31-8LI-1.2004	DRAWN BY VF 1/13/04
FILE NO. SJ31-8LI-2004	PREPARED BY VF
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.

Attachment A

WELL CONCENTRATIONS TABLE

WELLS MW-5 THOURGH MW-8

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-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-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-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

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-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-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
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**

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)

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.