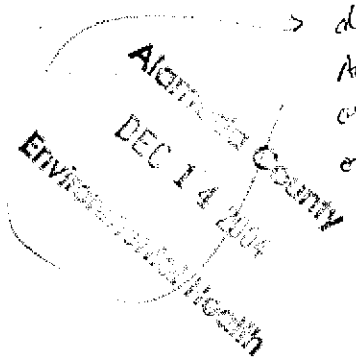
TO-2525

Shell Oil Products US

November 3, 2004



duplicate per ACEH request original recv'd on 11/8/04 RCS

Re: **Former Shell-branded Service Station**
318 S. Livermore Avenue
Livermore, California

Dear Mr. Bob Schultz:

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

Karen Pettyna

Karen E. Pettyna
Sr. Environmental Engineer

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

RO-2525

Shell Oil Products US

November 3, 2004

Re: **Former Shell-branded Service Station**
318 S. Livermore Avenue
Livermore, California

Dear Mr. Bob Schultz:

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

Karen Petryna

Karen E. Petryna
Sr. Environmental Engineer

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

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

November 3, 2004
Project No. SJ31-8LI-1.2004

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

Re: **Revised Investigation and Excavation Work Plan**
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. A site location map is included as Figure 1. The work plan was requested in a letter from the Alameda County Health Care Services Agency (ACHCSA) to Ms. Karen Petryna of Shell dated September 27, 2004.

BACKGROUND

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.

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. 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.

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. Ten quarterly groundwater sampling events have been performed. A summary of historic groundwater analytical data is provided as Attachment A. Low-level (< 260 ug/l) concentrations of TPH-G and BTEX compounds have only been detected once in samples collected on November 13, 2003. 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 1.8 micrograms per liter (ug/l) – Well MW-7, July 21, 2004. DIPE has been detected once, in the October 25, 2002 sample from Well MW-8 at 3.3 ug/l.

In December 2003, site USTs, fuel dispensers, and associated product piping were removed. Delta collected soil samples during fuel system 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. A summary of soil analytical data is presented on the attached Table 1. Certified Laboratory Reports are provided as Attachment B.

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 background concentrations was detected in two soil samples. Total lead was detected at 380 mg/kg in the soil sample collected at a depth of 2.5 feet beneath fuel dispenser designated P1 on Figure 3. Total lead was detected at 54 mg/kg in the soil sample collected approximately 1.5 feet beneath the base of the site oil/water separator. Delta submitted an *Excavation Work Plan* to the ACHCSA dated August 26, 2004. The work plan proposed to excavate lead impacted soil in the area of dispenser site P1 to a depth of approximately 10 feet bg.

WORK PLAN

In a letter dated September 27, 2004, ACHCSA issued a letter containing comments regarding the detection of petroleum hydrocarbons and fuel oxygenates in groundwater. The letter also contained comments regarding Delta's *Excavation Work Plan*. ACHCSA requested submittal of a revised work plan addressing comments related to both groundwater and soil issues. The following sections respond to technical comments contained in the ACHCSA letter.

1. Groundwater Investigation

ACHCSA expressed concern that no groundwater investigation has been performed downgradient of the fuel dispensers, toward South Livermore Avenue. In December 2003, Delta collected soil samples from beneath each of the fuel dispensers. TPH-G, BTEX compounds, and fuel oxygenates were below the method detection limit in all samples collect from beneath fuel dispensers. Based on the soil analytical data, a groundwater investigation did not appear warranted. In order to respond to ACHCSA's concerns, Delta proposes to drill a Geoprobe™ boring (B-1) west of the fuel dispensers at the location shown on Figure 2. A historic groundwater flow direction diagram is shown on Figure 2. The primary groundwater flow direction has been to the west. The boring will be advanced to the depth of first encountered groundwater anticipated at approximately 32 feet bg. A groundwater sample will be collected from the borehole for analysis. The ACHCSA's recommendation that a transect of borings be drilled along South Livermore Avenue is premature at this time given the existing site soil and groundwater data.

In the September 27, 2004 letter, ACHCSA states "We are concerned that potentially contaminated water-bearing zones at the site have not been investigated" and "Deducing site groundwater levels from the regional groundwater elevation data, we find that site groundwater levels were likely 10 to 20 ft higher in the mid to late 1990's than in 2001 when wells MW-5 through MW-8 were installed." Specifically, the ACHCSA letter refers to a potential shallow aquifer unit, a gravel layer at approximately 28 feet bg. Soil samples collected at depths of 10, 15, 25, and 28 feet bg from Boring B-1 will be analyzed for petroleum hydrocarbons and fuel oxygenates. Analysis of these soil samples will identify any residual petroleum hydrocarbons and fuel oxygenates remaining in soil from periods of high groundwater levels.

2. Source of Lead in Soil

The ACHCSA requested that all potential sources of lead be identified. Four potential sources of lead have been identified; former fuel USTs, waste oil USTs, oil-water separators, and fuel dispensers. The fuel dispensers appear to have been the only significant source of lead to soil based on the analytical data from December 2003.

Fuel USTs ACHCSA indicates that pre-1989, fuel USTs were located "near the southern corner of the property." In February 1989, four soil borings (S-A through S-D) were drilled at the approximate locations adjacent to the former USTs as shown on Figure 2. The 1995 case closure document states that "Soil collected from each boring [S-A through S-D] did not detect TPH-G or BTEX" (see letter in Attachment C). ACHCSA points out that in March 1989, 550 mg/kg lead, 37,000 mg/kg TPH-G and 320 mg/kg of benzene were detected in backfill near the fill pipe of the former regular leaded gasoline UST. Although the extent of soil contamination appears to have been very limited as TPH-G was not detected in any of the soil samples collected from the borings for nearby Wells MW-2 and MW-3 installed in 1990, Delta proposes to drill a Geoprobe™ boring (B-2) in the southern corner of the property as shown on Figure 2. Delta has requested historic site plans and reports from Shell archives. The exact location of the boring may be modified based on review of historic site maps. The boring will be drilled to a depth of approximately 25 feet bg to determine if any residual petroleum hydrocarbons are present in soil beneath the location of the former USTs. Samples collected at depths of 10, 15, 20, 25 feet bg will be analyzed for petroleum hydrocarbons and total lead. Fuel oxygenates were not widely used prior to 1989.

TPH-G and BTEX compounds were not detected in any of the soil samples collected from beneath the post-1989 USTs upon their removal in December 2003. Lead was detected in samples at concentrations

ranging from 3.7 to 6.3 mg/kg, which is considered background levels. No additional soil or groundwater investigation is warranted in the area of the former fuel USTs located in the eastern corner of the site.

Waste Oil USTs A 550-gallon steel waste oil UST was removed in August 1987 and replaced by a 550-gallon fiberglass tank. Two soil samples collected in native soil beneath the steel UST contained up to 87 mg/kg of Total Oil and Grease (TOG). Soluble lead was detected in the soil stockpile at a background level of 6.1 mg/kg. In December 2003, a soil sample was collected beneath the removed waste oil UST. Total lead was detected at 3.9 mg/kg, well within background levels. No additional soil or groundwater investigation is warranted in the area of the former waste oil USTs.

Oil-Water Separator In December 2003, two soil samples were collected beneath the oil and water separator, located within the station building. Total lead was detected in the two samples at concentrations of 54 mg/kg and 9.6 mg/kg. The California Regional Water Quality Control Board, San Francisco Bay Region (RWCB) has developed Environmental Screening Levels (ESLs) for use in evaluating the presence of contaminants detected in soil and groundwater. The ESLs for lead in soil to a depth of 10 feet bg (3 meters) are 200 mg/kg for residential land use and 750 mg/kg for commercial land use. The California Department of Toxic Substance Control (DTSC) has established a Preliminary Remediation Goal (PRG) of 150 mg/kg for residential sites. Based on the above screening levels, no additional soil or groundwater investigation or remedial activity is warranted in the area of the former oil-water separator.

Fuel Dispensers Total lead was detected in the soil sample collected beneath one fuel dispenser at 380 mg/kg (Sample location P-1, Figure 3). The lead concentration exceeds the RWQCB and DTSC screening levels.

3. Soil Excavation Depth and Confirmation Sampling

Delta, in its *Excavation Work Plan*, proposed to excavate lead impacted soil in the area former dispenser site P1 to a depth of 10 feet bg. The area of excavation is indicated on Figure 3. In December 2003, one sample was collected beneath the dispenser at a depth of 2.5 feet. ACHCSA questioned why Delta proposed to excavate to 10 feet bg. In order to assure removal of all potentially impacted soil, Delta proposed to excavate the area to a depth of approximately 10 feet, the normal maximum depth reached by a conventional backhoe. Delta will collect four confirmation soil samples, two from the base of the excavation and two from the sides of the excavation, at the locations shown on Figure 3.

4. Sample Analysis

The soil and groundwater samples from Boring B-1 will be analyzed for TPH-G, BTEX compounds, fuel oxygenates, 1,2-dichloroethane (1,2-DCA), ethylene dibromide (EDB), and total lead per ACHCSA recommendations. Soil samples from Boring B-2 will be analyzed for TPH-G and BTEX compounds, and total lead. Fuel oxygenates were not in wide use prior to 1989 when the USTs were in place. The confirmation soil samples from the P1 excavation will be analyzed for TPH-G, BTEX compounds, MTBE, 1,2-DCA, EDB, and total lead as required by ACHCSA. Soil and groundwater analyses for petroleum hydrocarbons, fuel oxygenates, and lead scavengers will be performed by EPA Method 8260B. Analysis for total lead will be performed by EPA Method 6010B.

5. Data Tabulation and Environmental Screening

A summary table of groundwater analytical data collected after 1995 is included as Attachment A. A summary table of soil analytical data collected after 1995 is provided as Table 1. RWQCB ESLs are provided for each compound of concern.

6. Cleanup Goals

Delta proposes to use the RWQCB ESLs as soil cleanup goals. ESLs 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

The RWQCB groundwater ESLs, and proposed cleanup goals are as follow: TPH-G (100 ug/l), benzene (1.0 ug/l), toluene (40 ug/l), ethylbenzene (30 ug/l), xylene (13 ug/l), MTBE (5.0 ug/l), total lead (2.5 ug/l), and 1,2-DCA (0.5 ug/l). No ESL is available for EDB. Delta proposes a cleanup level of 0.5 ug/l for EDB. TPH-G, BTEX compounds, and MTBE concentrations have been below cleanup goals in samples for the four site wells for the past three quarters. Lead, 1,2-DCA, and EDB have not been considered contaminants of concern in groundwater and no analyses have been required by regulatory agencies.

7. Groundwater Monitoring

During the next monitoring event, groundwater samples from Wells MW-5 through MW-8 will be analyzed for TPH-G, BTEX compounds, five fuel oxygenates, 1,2-DCA, and EDB. Delta understands that if results are consistent with historic data and lead scavengers are below the appropriate maximum contaminant levels, no further monitoring will be necessary.

Soil and Groundwater Investigation Report

Delta will prepare a Soil and Groundwater Investigation Report presenting data from proposed Borings B-1 and B-2. The report will include a written description of the work performed, boring 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

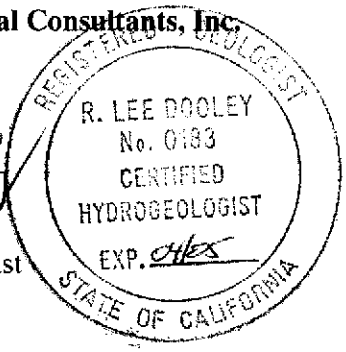
Delta is prepared to perform field work within 45 days of approval of this work plan by ACHCSA. A report will be submitted within 45 days of completion of the field work.

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.



R. Lee Dooley
Senior Hydrogeologist
CHG 0183

Attachments: Table 1 – Summary of Soil Analytical Data

Figure 1 – Site Location Map
Figure 2 – Groundwater Elevation Contour Map, July 21, 2004
Figure 3 – Soil Excavation and Sampling Map

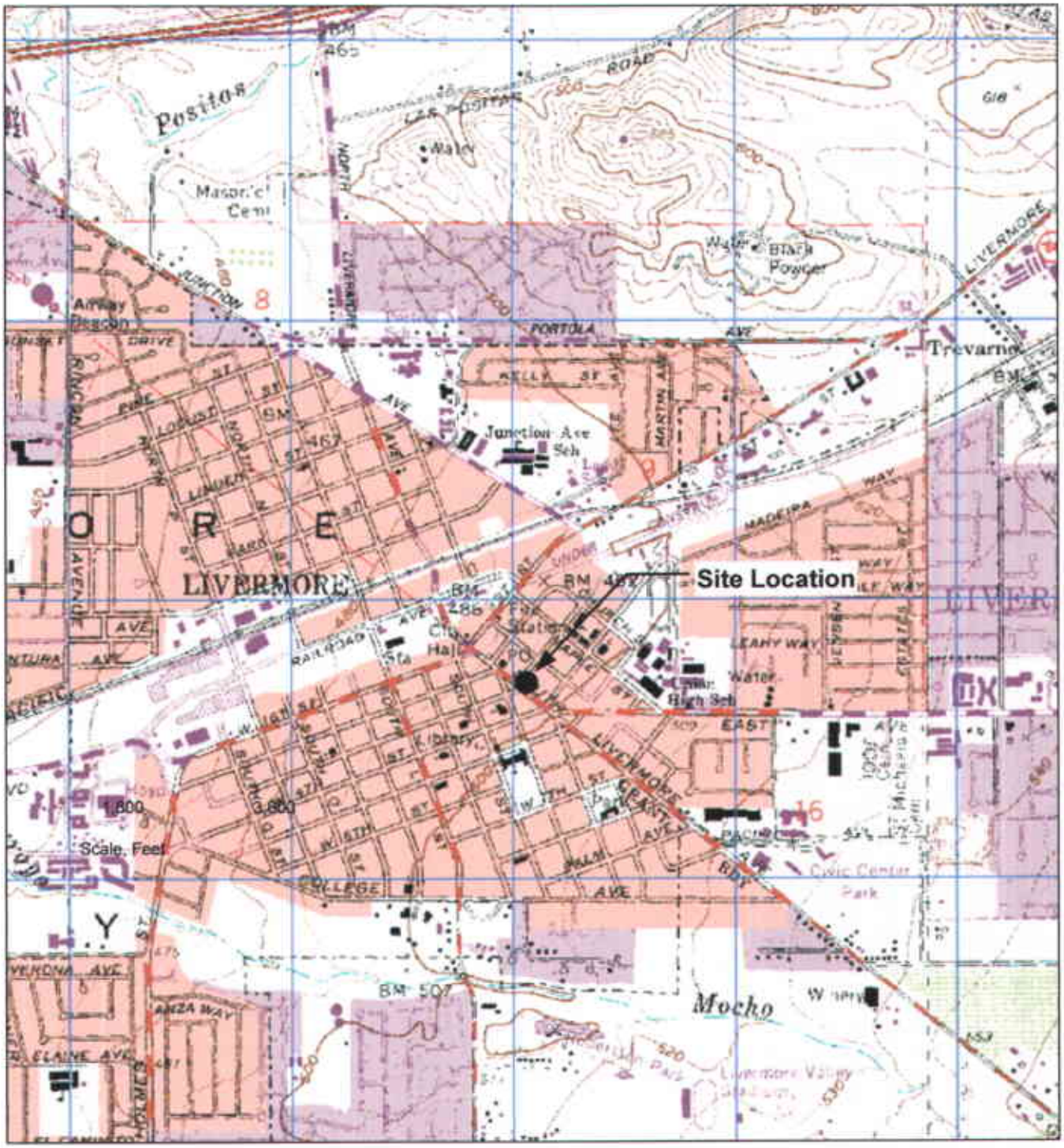
Attachment A – Groundwater Monitoring Data, Wells MW-5 through MW-8
Attachment B – Soil Certified Laboratory Reports, December 2003
Attachment C – ACHCSA Case Closure Letter, August 1995

cc: Karen Petryna, Shell Oil Products US, Carson
Betty Graham, RWQCB, Oakland
Dennis Johnson, Shell Oil Products US, Poulsbo

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-D (mg/kg)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylene (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	Total Lead (mg/kg)	Total Oil and Grease (mg/kg)
Tank Pit Samples													
1A	12/10/03	16	NM	NA	<1.0	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	**6.3**	NA
1B	12/10/03	16	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**5.3**	NA
2A	12/10/03	16	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	**0.016**	**6.3**	NA
2B	12/10/03	16	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**3.7**	NA
3A	12/10/03	16	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**6.0**	NA
3B	12/10/03	16	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**3.9**	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	**3.9**	<50
Dispenser Samples													
P1	12/11/03	2.5	NM	NA	<1.0	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	**380 ***	NA
P4	12/11/03	2.5	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<5.0 *	NA
P5	12/11/03	2.2	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<5.0 *	NA
Piping Trench Samples													
P2	12/11/03	3.75	NM	NA	**4.9**	<0.025	**0.200**	**0.110**	**0.840**	<0.025	<0.041	<5.0 *	NA
P3	12/11/03	3.6	86.1	NA	<1.0	<0.005	<0.005	<0.005	**0.007**	<0.005	<0.01	<5.0 *	NA
P3 @ 100"	12/11/03	8.3	0.9	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<5.0 *	NA
Oil and Water Separator Samples													
SUMP EAST	1/12/04	3.75	1.5	**45****	<0.01	<0.005	<0.005	<0.005	**0.038**	NA	NA	**54**	**56**
SUMP WEST	1/12/04	3.75	0.4	**23****	<0.01	<0.005	<0.005	<0.005	<0.005	NA	NA	**9.6**	<50
Stockpile Samples													
Stockpile 1	12/10/03	-	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**6.4**	NA
Stockpile 2	12/10/03	-	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**29.0**	NA
Stockpile 3	12/10/03	-	NM	NA	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**6.0**	NA
Waste Oil Stockpile	12/10/03	-	NM	**5.1*****	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	**17.0**	**54.0**
Cleanup Goals/ESLs		**<10**		**100**	**100**	**0.044**	**2.9**	**3.3**	**1.5**	**0.023**	**NA**	**200.0**	**500.0**
		>10		**100**	**100**	**0.044**	**2.9**	**3.3**	**1.5**	**0.023**	**NA**	**750.0**	**500.0**

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
* 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
For complete results of analysis done by methods 8260B, 1664A, 8015M, 8270C, 6010B, 8021B and 7420 please attached Certified Analytical Reports.
Cleanup levels based on environmental screening levels developed by the CaliforniaRegional Water Quality Control, San Francisco Bay Region



North

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

0 1,800 3,600
Scale, Feet

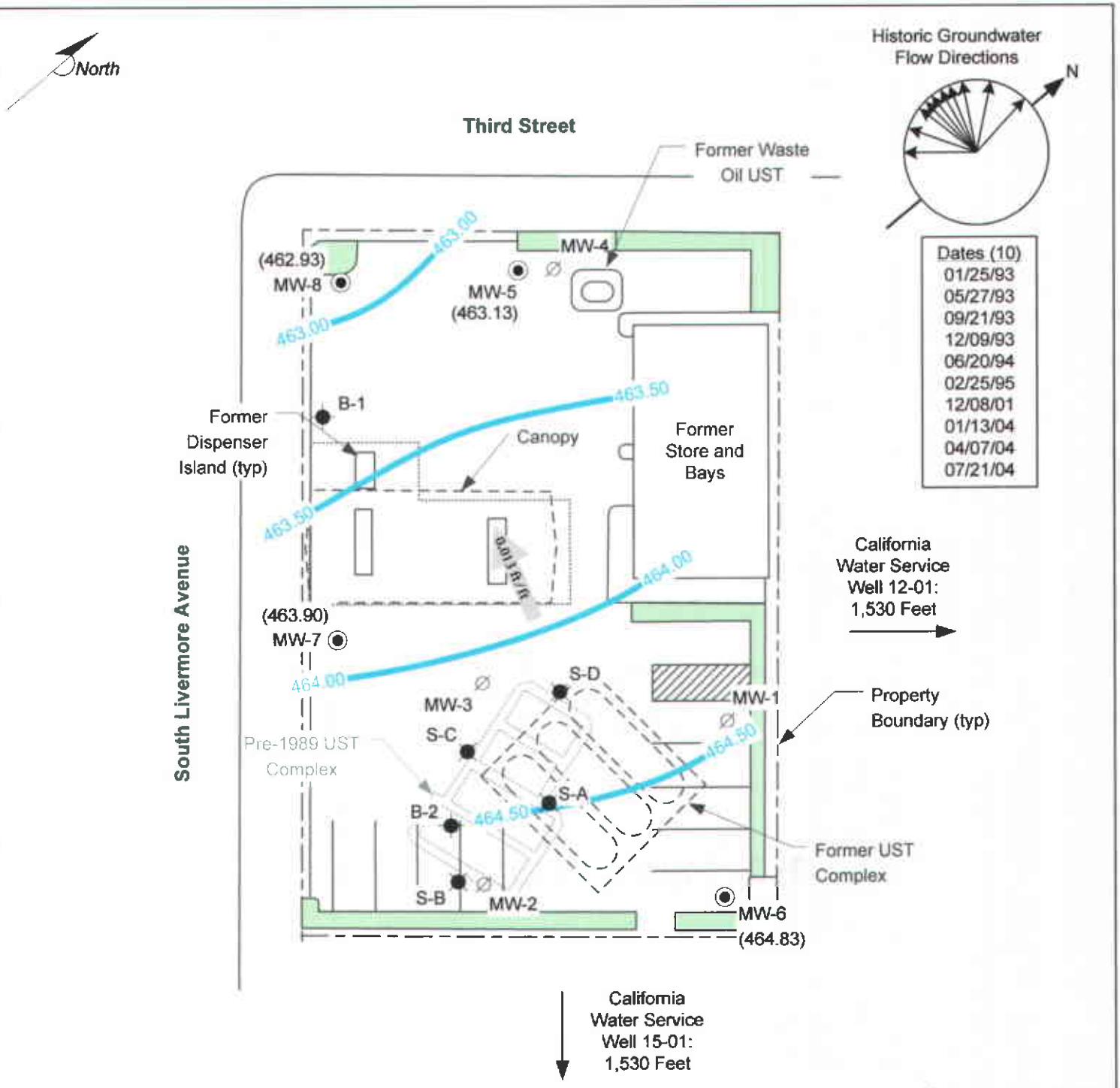
FIGURE 1

SITE LOCATION MAP

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

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

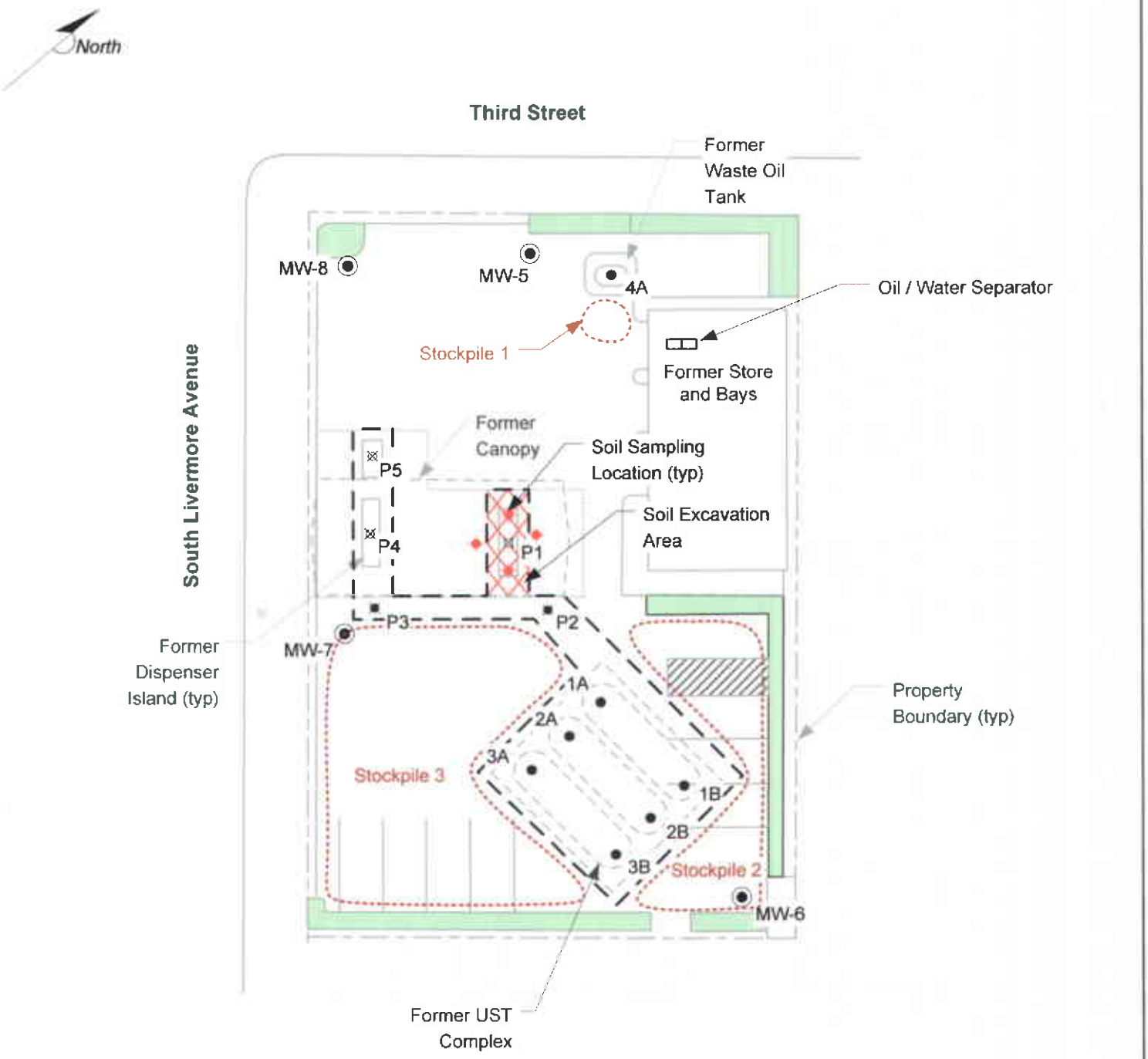
MW-6 ◉	**GROUNDWATER MONITORING WELL**
B-2 ✦	**PROPOSED SOIL BORING**
S-C ✱	**SOIL BORINGS, 1989**
MW-1 ∅	**FORMER GROUNDWATER MONITORING WELL**
(462.29)	**GROUNDWATER ELEVATION (MSL), 7/21/04**
467.00	**GROUNDWATER ELEVATION CONTOUR**
0.012 ft/ft	**APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT**

FIGURE 2
GROUNDWATER ELEVATION CONTOUR MAP,
JULY 21, 2004

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 3

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

GROUNDWATER MONITORING DATA, 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-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-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

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	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-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)

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

SOIL CERTIFIED LABORATORY REPORTS – DECEMBER 2003

(CD enclosed)

Attachment C

ACHCSA Case Closure Letter – August 1995

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION Date: August 10, 1995

Agency name: Alameda County-HazMat Address: 1131 Harbor Bay Pkwy
City/State/Zip: Alameda, CA 94502 Phone: (510) 567-6700
Responsible staff person: Eva Chu Title: Hazardous Materials Spec.

II. CASE INFORMATION

Site facility name: Livermore Ave. Shell
Site facility address: 318 S. Livermore Ave, Livermore 94550
RB LUSTIS Case No: N/A Local Case No./LOP Case No.: 1976
URF filing date: 12/15/89 SWEEPS No: N/A

Responsible Parties:	Addresses:	Phone Numbers:
Shell Oil Co. Attn. Dan Kirk	P.O. Box 5278 Concord, CA 94520	510/675-6168

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	500	Waste Oil	Removed	August 1987
2	5,000	Gasoline	Removed	12/5/89
3	5,000	Gasoline	Removed	12/5/89
4	8,000	Gasoline	Removed	12/5/89
5	8,000	Gasoline	Removed	12/5/89

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: Possible piping leak.
Site characterization complete? YES
Date approved by oversight agency: 5/25/95
Monitoring Wells installed? Yes Number: 4
Proper screened interval? Yes, at the time of installation (36.0 to 51' bgs)
Highest GW depth below ground surface: 28.10' Lowest depth: below screen
Flow direction: SW to NW
Most sensitive current use: Residential
Are drinking water wells affected? No Aquifer name: Mocho Subbasin
Is surface water affected? No Nearest affected SW name: NA
Off-site beneficial use impacts (addresses/locations): None

Report(s) on file? YES Where is report(s) filed? Alameda County
1131 Harbor Bay Pkwy
Alameda, CA 94502

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment or Disposal w/destination)	Date
Tank	5 USTs	Erickson, in Richmond	8/89, 12/5/98
Piping			
Free Product			
Soil	404 cy	W. Contra Costa L.F. in Richmond	12/89 to 1/90
	40 cy	Aerated and left onsite	

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant		Soil (ppm) Before	Soil (ppm) After[1]	Water (ppb) Before	Water (ppb) After
TPH (Gas)		870	13	ND	90
TPH (Diesel)					
Benzene		ND	.11	ND	7.4
Toluene		1.3[2]	ND	ND	ND
Ethylbenzene		.87	ND	ND	.6
Xylenes		16	.41	ND	1.2
Oil & Grease		87			
Heavy metals	Total Pb	69[3]		3.3	ND
	Soluble Pb	6.1[3]			
Other	1,1,1 TCA	.140		NA	

NOTE:
1 from sample A, taken Dec 15, 1989
2 from piping sample
3 from stockpile soil

Comments (Depth of Remediation, etc.):

See Section VII, Additional Comments, etc...

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? **YES**
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? **YES**
Does corrective action protect public health for current land use? **YES**
Site management requirements: **None**
Should corrective action be reviewed if land use changes? **YES**
Monitoring wells Decommissioned: **0, pending site closure**
Number Decommissioned: 0 Number Retained: **4**
List enforcement actions taken: **None**
List enforcement actions rescinded: **NA**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Eva Chu Title: Haz Mat Specialist

Signature: [signature] Date: 8/11/95

Reviewed by

Name: Jennifer Eberle Title: Haz Mat Specialist

Signature: [signature] Date: 8-11-95

Name: Juliet Shin Title: Sr. Haz Mat Specialist

Signature: [signature] Date: 8/11/95

VI. RWQCB NOTIFICATION

Date Submitted to RB: 8/14/95 RB Response: Approved

RWQCB Staff Name: Kevin Graves Title: AWRCE

Signature: [signature] Date: 8/21/95

VII. ADDITIONAL COMMENTS, DATA, ETC.

This site is currently an active service station with three 12,000 gallon gasoline USTs, and one 550-gallon waste oil UST.

A 550-gallon steel waste oil UST was removed in August 1987 and replaced with a 550-gallon fiberglass tank. See Fig 1. The steel UST was rusted and pitted, but no obvious holes were noted. Two soil samples collected in native soil at 8 and 11' depths detected up to 87 ppm TOG and 140 ppb 1,1,1-TCA. (1,1,1-TCA detected in soil is below EPA's PRG level, and should pose no human health risk). See Table 1. TPH-D, BTEX, and other chlorinated hydrocarbons were not detected. Analysis for semi-volatile compounds were not conducted. The stockpiled soil was only analyzed for total and soluble lead, detecting 69 ppm and 6.1 ppm, respectively. However, there is no documentation available as to the disposition of the stockpiled soil, or whether the pit was overexcavated.

On February 27, 1989 four soil borings, S-A thru S-D, were advanced around the tank gasoline complex. See Fig 2. Soil collected from each boring did not detect TPH-G or BTEX. See Table 2. In March 1989 soil was collected from the backfill material around the fill pipe of the regular leaded gasoline tank, detecting 37,000 ppm TPH-G, 320, 2,300, 700, and 5,400 ppm BTEX, respectively, 550 ppm total lead and 42 ppm soluble lead.