Delta
Environmental
Consultants, Inc.

Solving environment-related business problems worldwide

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

408.224.4724 800.477.7411
Fax 408.225.8506

RO 2525

www.deltaenv.com

Letter of Transmittal

To: Alameda County Environmental Health Services
1131 Harbor Bay Pkwy
Alameda CA 94502

Date: 2/13/2004

Job No: SJ31-8LI-P.2004

Attn: Mr. Scott Seery

We are sending the following items:

Date	Copies	Description
16-Jan-04	1	**UST Removal Report**
		Former Shell Service Station
		318 Livermore Avenue
		Livermore, CA

These are transmitted:

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

Remarks

Scott,

Paul Smith asked our office to send you a hard copy of this UST Removal Report. If you have any questions, please feel free to call at (408) 224-4724. Thank you.

By: Debbie Arnold
Title: Project Geologist

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 16, 2004
Project No. SJ31-8LI-P

Mr. Paul M. Smith
Hazardous Materials Inspector
Livermore – Pleasanton Fire Department
3560 Nevada Street
Pleasanton, CA 94566

Re: **Underground Storage Tank, Product Piping, and Dispenser Removals Report**
Former Shell Service Station
318 Livermore Ave.
Livermore, California

Dear Mr. Smith,

Delta Environmental Consultants, Inc. (Delta), on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell), has prepared this report documenting soil sampling performed in association with the removal of three fuel underground storage tanks (USTs), one waste oil UST, one oil and water separator, five fuel dispensers, and the associated product piping at the above-referenced site (Figure 1).

Soil sampling in the fuel UST tank pit, waste oil UST pit, beneath the former product piping lines, beneath the former dispensers, and beneath the former oil and water separator was performed under the direction of Mr. Paul Smith, Hazardous Materials Inspector, Liver-Pleasanton Fire Department (LFD).

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 USTs, and one 550-gallon waste oil UST. The former station plan is presented on Figure 2.

PREVIOUS INVESTIGATIONS

In March 1989, a sample of backfill material from around the fill pipe of the regular unleaded UST was collected. The sample was found to contain total petroleum hydrocarbons as gasoline (TPH-G) at 37,000 parts per million (ppm). Subsequently, the Alameda County Environmental Health Department (ACEHD) 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. 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 ACEHD and the wells destroyed.

In September 2001, Shell installed four groundwater monitoring wells (MW-5 through MW-8) at the site as part of its *GRoundwater ASsessment Program* (GRASP). GRASP is a voluntary initiative by Shell to install groundwater monitoring wells at numerous retail service stations nationwide that do not have any active release cases but have been identified to be in close proximity to one or more public water supply wells. The purpose of this program is to proactively monitor the groundwater beneath these sites and, in the event of a subsurface release, to respond quickly to protect public wells from this impact.

Site Wells MW-5 through MW-8 are currently monitored on a quarterly basis. Analytical results have revealed detectable concentrations of TPH-G, BTEX compounds, and methyl tert-butyl ether (MTBE) in groundwater beneath the site. The historic maximum concentrations are as follows: TPH-G at 260 micrograms per liter (ug/l); total xylenes at 16 ug/l; and methyl-tert butyl ether (MTBE) at 6.9 ug/l.

FUEL UST REMOVALS, SAMPLING, AND ANALYSES

The three USTs were removed by Gettler-Ryan, Inc. (GR) on December 10, 2003. The USTs were cleaned, rinsed, and inerted, by Ecology Control Industries (ECI) prior to their removal. Each UST was loaded onto a separate truck provided by ECI, and transported to Richmond, California for disposal. Mr. Smith and Mr. Mark Ward of Delta examined each UST as they were originally hoisted out of the tank pit excavation. No visible holes were observed in the USTs. Prior to loading the USTs onto flat bed trucks for transportation, Mr. Smith required that the USTs be punctured and any residual rinseate be drained into the tank pit excavation.

On December 10, 2003, Delta collected six soil samples (1A, 2A, 1B, 2B, 3A, and 3B) from beneath the former fuel USTs, each at a depth of approximately 16 feet below grade (locations shown on Figure 2). Soil samples were collected utilizing the bucket of the excavator. Samples were collected by pushing a brass tube into soil within the excavator bucket. The brass tube was then removed, sealed with Teflon sheeting and a tight fitting plastic cap, and clearly labeled. Samples were placed on ice for transportation to Severn Trent Laboratories (STL) in Pleasanton, California.

Soil samples were analyzed for TPH-G, BTEX compounds, fuel oxygenates, MTBE, diisopropyl ether (DIPE), ethyl-tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), and tert-butanol (TBA), and for the full suite of volatile organic compounds (VOCs) by EPA Method 8260B. Soil samples were also analyzed for the full suite of semi-volatile organic compounds (SVOCs) by EPA Method 8270C, and for metals (cadmium, chromium, lead, nickel, and zinc) by EPA Method 6010B. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

TBA was detected in Sample 2A at 0.016 milligram per kilogram (mg/kg). Acetone was detected in Sample 1A at 0.110 mg/kg. Lead was detected in all six soil samples, at concentrations ranging from 3.7 to 6.3 mg/kg. No other VOCs, fuel oxygenates, TPH-G, BTEX compounds, or metals were detected in the soil samples collected from beneath the three former fuel USTs.

Native soil encountered at the base of the UST excavation consisted of medium to coarse grained sand with cobbles. Groundwater was not encountered within the UST pit during excavation activities to a depth of approximately 16 feet below grade.

WASTE OIL UST REMOVAL, SAMPLING, AND ANALYSIS

On December 10, 2003, Delta collected one soil sample (4A) from beneath the former waste oil UST, at a depth of approximately 10 feet below grade (location shown on Figure 2). The soil sample was collected utilizing the bucket of the excavator. The soil sample was collected by pushing a brass tube into soil within the excavator bucket. The brass tube was then removed, sealed with Teflon sheeting and a tight fitting plastic cap, and clearly labeled. The sample was placed on ice for transportation to STL.

The soil sample was analyzed for TPH-G, BTEX compounds, the five fuel oxygenates, and the full suite of VOCs by EPA Method 8260. The soil sample was also analyzed for TPH as diesel (TPH-D) by EPA Method 8015M; for the full suite of SVOCs by EPA Method 8270C; for metals by EPA Method 6135; and for oil and grease by EPA Method 1664A. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

Toluene and total xylenes were detected in Sample 4A at 0.0070 mg/kg and 0.0078 mg/kg, respectively. Chromium, lead, nickel and zinc were detected at concentrations of 0.046 mg/kg, 0.0039 mg/kg, 0.170 mg/kg, and 0.064 mg/kg, respectively. No other VOCs, SVOCs, TPH-D, metals, or oil and grease were detected in the soil sample collected from beneath the waste oil UST.

OIL AND WATER SEPARATOR SAMPLING AND ANALYSES

The oil and water separator, located within the station building, was uncovered by GR exposing the concrete structure. GR jack-hammered through the concrete bottom of the structure in two locations, exposing the native soil beneath through approximately 8-inch diameter openings. On January 12, 2004, a Delta geologist hand-augered soil at the openings beneath each side of the oil and water separator in order to collect soil samples, SUMP EAST and SUMP WEST. Grab soil samples were collected from the hand-auger pushed into brass tubes which were then sealed with Teflon sheeting and tight fitting plastic caps, and clearly labeled. Samples were placed on ice for the transportation to STL.

The soil samples were analyzed for TPH-G, BTEX compounds, and fuel oxygenates by EPA Method 8260B. The soil samples were also analyzed for TPH as diesel (TPH-D) by EPA Method 8015M; for the full suite of SVOCs by EPA Method 8270C; for the full suite of HVOCs by EPA Method 8021B/8260B; for metals (cadmium, chromium, lead, nickel, and zinc) by EPA Method 6010B; and for oil and grease by EPA Method 1664A. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

TPH-D was detected in both samples, SUMP EAST and SUMP WEST, at concentrations of 45 mg/kg and 23 mg/kg, respectively. Total Xylenes were detected in Sample SUMP EAST at a concentration of 0.038 mg/kg. Total lead was detected in the Samples SUMP EAST and SUMP WEST at concentrations of 54

mg/kg and 9.6 mg/kg respectively. Total oil and Grease was detected in the Sample SUMP EAST at a concentration of 56 mg/kg.

On January 14, 2004, GR backfilled the concrete structure of the oil and water separator with clean pea gravel. Concrete was then placed above the pea gravel, flush to the ground surface.

DISPENSER SOIL SAMPLING AND ANALYSES

Five fuel dispensers and their associated concrete pads were removed by GR, exposing underlying soil. On December 11, 2003, Delta collected a soil sample from beneath each dispenser island (P-1, P-4, and P-5). Sample locations are shown on Figure 2. Locations were selected by Mr. Smith. The upper 2 to 2 ½ feet of soil was excavated below the former dispenser locations and soil samples were collected by pushing a brass tube into the underlying soil. The brass tube was then removed, sealed with Teflon sheeting and a tight fitting plastic cap, and clearly labeled. Samples were placed on ice for transportation to STL. The soil samples were analyzed for TPH-G, BTEX compounds, fuel oxygenates, and the full suite of VOCs by EPA Method 8260B. The samples were also analyzed for total lead by EPA Method 7420. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

No VOCs, TPH-G, BTEX compounds, or fuel oxygenates were detected in any of the soil samples collected from beneath the three former fuel dispenser islands. Lead was detected in Sample P1 at 380 mg/kg.

PIPING TRENCH SOIL SAMPLING AND ANALYSES

The product piping connecting the USTs to the fuel dispensers was removed by GR exposing the underlying soil. On December 11, 2003, Delta collected three soil samples (P2, P3, and P3@100") from the base of the piping trench at the locations shown on Figure 2. The sample locations were selected by Mr. Smith. Prior to sampling, the exposed soil was monitored by Delta for the presence of petroleum hydrocarbons with a photoionization detector (PID), as warranted by field observations of color and odor per Mr. Smith. PID readings are shown on Table 1.

Soil samples were collected by pushing a brass tube into the underlying soil. The brass tube was then removed, sealed with Teflon sheeting and a tight fitting plastic cap, and clearly labeled. Samples were placed on ice for transportation to STL. The three soil samples were analyzed for TPH-G, BTEX compounds, fuel oxygenates, and the full suite of VOCs by EPA Method 8260B. The samples were also analyzed for total lead by EPA Method 7420. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

TPH-G was detected in Sample P2 at 4.9 mg/kg. Toluene, ethylbenzene, and total xylenes were also detected in Sample P2 at concentrations of 0.200 mg/kg, 0.110 mg/kg, and 0.840 mg/kg, respectively. Four additional VOCs were detected in Sample P2, including 0.054 mg/kg (n-Propylbenzene) and 0.530 mg/kg (1,2,4-Trimethylbenzene). Total xylenes were detected in Sample P3 at 0.007 mg/kg. Naphthalene and 1,2,4-Trimethylbenzene were also detected in Sample P3 at 0.021 mg/kg and 0.010 mg/kg, respectively. No other VOCs or lead were detected in the samples collected from the product piping trenches.

SOIL STOCKPILE SAMPLING AND ANALYSES

SOIL STOCKPILES – FUEL SYSTEM EXCAVATIONS

On December 10, 2003, under the direction of Mr. Smith, Delta collected three soil samples from the soil stockpiles generated from the fuel UST excavation, piping trench excavation, and dispenser excavations (designated Stockpile 1 through Stockpile 3). Stockpile locations are shown on Figure 2. Each stockpile soil sample consisted of four, randomly collected, 6-inch brass tubes of soil. Soil samples were collected by removing the upper one-foot of soil on the surface of the stockpile and then pushing a brass tube into the underlying soil. The brass tube was then removed, sealed with Teflon sheeting and a tight fitting plastic cap, and clearly labeled. Samples were placed on ice for transportation to STL.

Each four part sample was composited and analyzed for TPH-G, BTEX compounds, fuel oxygenates, and the full suite of VOCs by EPA Method 8260B; and for total lead by EPA Method 7420. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

No TPH-G, BTEX compounds, or fuel oxygenates were detected in any of the soil samples collected from the stockpiles. Acetone was detected in Stockpile 2 at 29 mg/kg. Lead was detected in all three stockpile samples, ranging from 6 mg/kg to 29 mg/kg.

All soil excavated from the fuel UST pit, product piping trenches, and former dispenser islands was placed back into their respective excavations. Excavations were closed during December 2003, and capped and completed with imported soil materials on January 9, 2004.

SOIL STOCKPILE – WASTE OIL UST EXCAVATION

On December 10, 2003, Delta collected one soil sample, designated Waste Oil Stockpile, from the soil stockpile generated from the waste oil UST excavation. The Waste Oil Stockpile soil sample consisted of four, randomly collected, 6-inch brass tubes of soil. The soil sample was collected by removing the upper one-foot of soil on the surface of the stockpile and then pushing a brass tube into the underlying soil. The brass tube was then removed, sealed with Teflon sheeting and a tight fitting plastic cap, and clearly labeled. The sample was placed on ice for transportation to STL.

The four part Waste Oil Stockpile sample was composited and analyzed for the full suite of VOCs, TPH-G, BTEX compounds, and fuel oxygenates by EPA Method 8260; TPH-D by EPA Method 8015M; for the full suite of SVOCs by EPA Method 8270C; for metals by EPA Method 6010B; and for oil and grease by EPA Method 1664A. Chain of custody documentation and certified laboratory analytical reports are included as Attachment A. Analytical results are summarized on Table 1.

No TPH-G, BTEX compounds, fuel oxygenates, VOCs, or SVOCs were detected in the Waste Oil Stockpile soil sample. TPH-D was detected at 5.1 mg/kg, and chromium, nickel and zinc were detected at 38 mg/kg, 95 mg/kg, and 42 mg/kg, respectively. Oil and grease was also detected, at 54 mg/kg.

All soil excavated from the waste oil UST pit was placed back into the waste oil UST excavation during December 2003, and capped with imported soil materials on January 9, 2004.

SUMMARY

Petroleum hydrocarbon and fuel oxygenate impacts to site soil appear to be limited.

- MTBE was not detected in any soil samples.
- TBA was detected beneath one of the former USTs at a concentration just above the laboratory detection limit.
- Low concentrations of TPH-G and BTEX compounds were detected beneath the former product piping lines.
- Low concentrations of BTEX compounds were detected beneath the former waste oil UST, and the former oil and water separator.
- Low concentrations of total oil and grease were detected beneath the former oil and water separator.
- Lead was consistently detected in site soil samples, but is not considered to be a threat to the groundwater. Depth to groundwater at the site is approximately 30 feet below grade.

Based upon the detections of TPH-G, BTEX compounds, and TBA, Shell will submit an *Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report* to the Livermore-Pleasanton Fire Department.

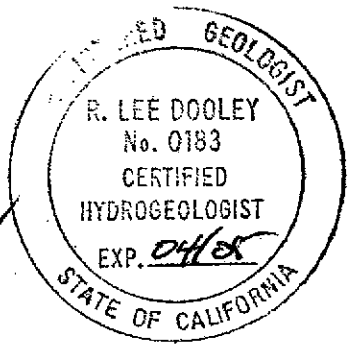
If you have any questions regarding this site, please contact Debbie Arnold (Delta) at (408) 224-4724.

Sincerely,

Delta Environmental Consultants, Inc.

Debbie Arnold
Project Geologist

R. Lee Dooley, CHG 183
Senior Hydrogeologist



ATTACHMENTS:

Table 1 – Summary of Soil Analytical Data
Figure 1 – Site Location Map
Figure 2 – Soil Sample Location Map

Attachment A – Laboratory Certified Analytical Results and Chain-of-Custody Documentation

Cc: Karen Petryna, Shell Oil Products US, Carson, CA (pdf by email)
Perry Pineda, Shell Oil Products US, Pleasant Hill, CA
Dennis Johnson, Shell Oil Products US, Poulsbo, WA (2 copies)

Attachment A

LABORATORY CERTIFIED ANALYTICAL RESULTS

AND

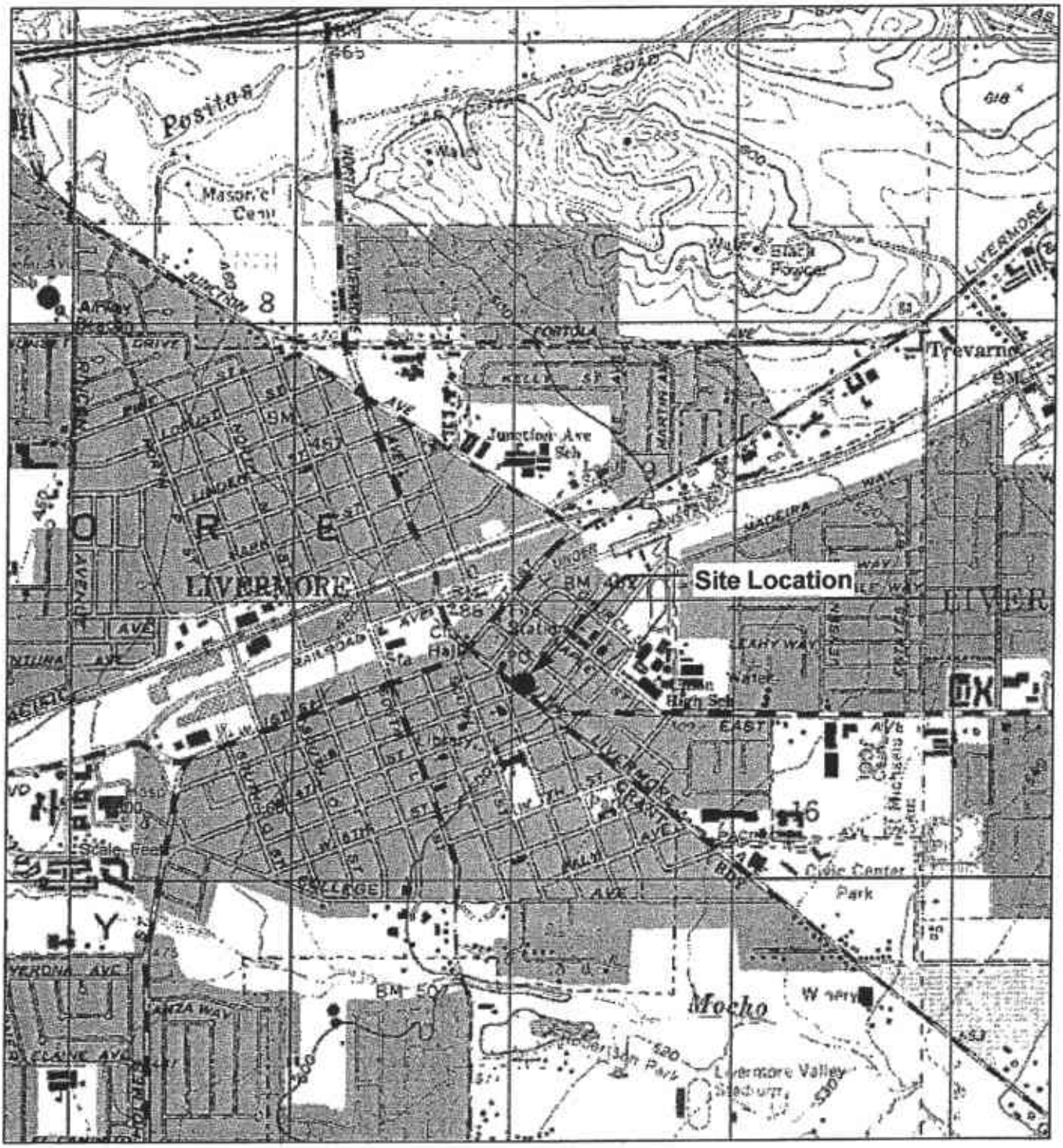
CHAIN-OF-CUSTODY DOCUMENTATION

(CD ENCLOSED)

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**

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 see Certified Analytical Results in Attachment A.



North

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

0 1,800 3,600
Scale, Feet

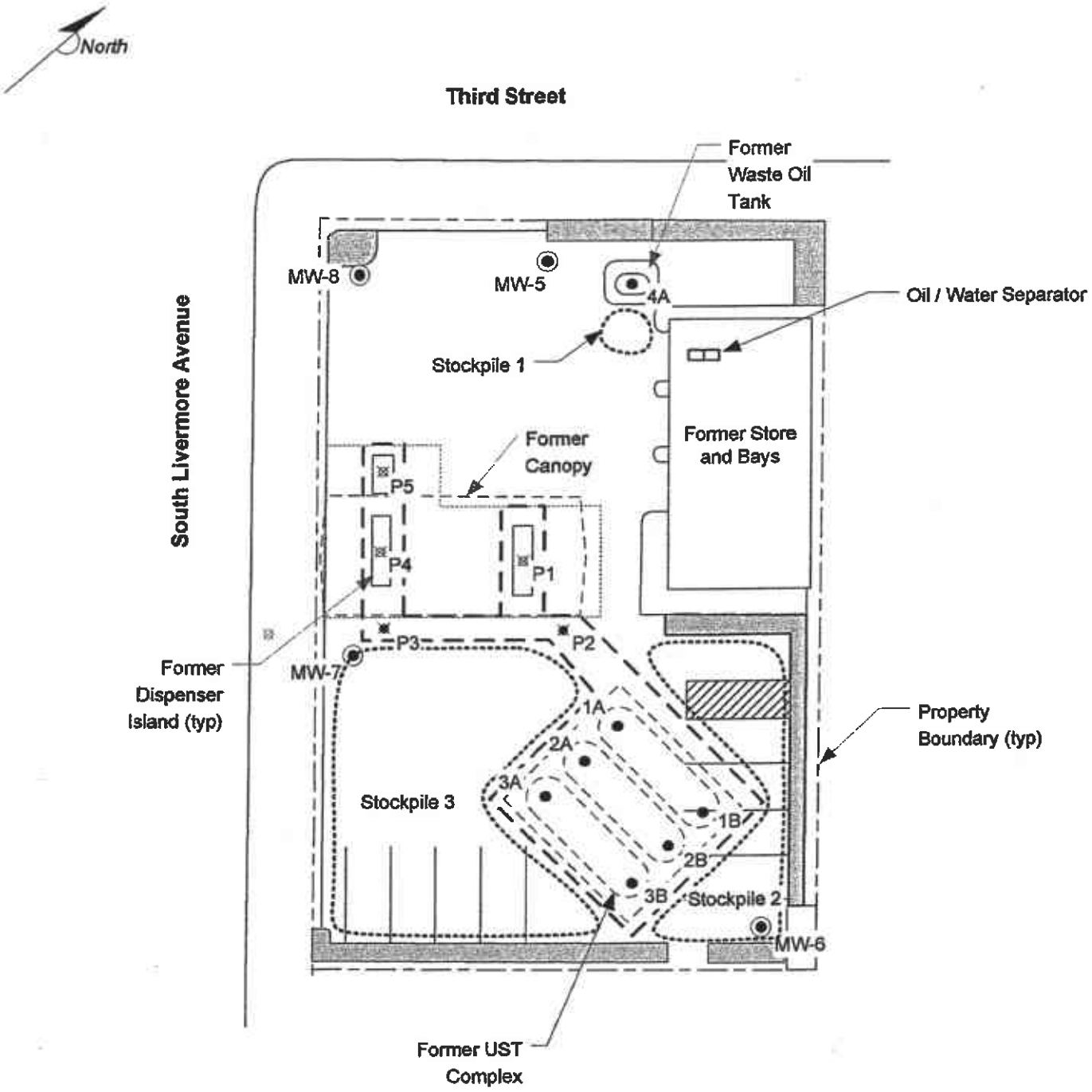
FIGURE 1

SITE LOCATION MAP

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

PROJECT NO. SJ31-8IJ-1.000G	DRAWN BY VF 9/25/03
FILE NO. SJ31-8IJ-1.000G	PREPARED BY VF
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND

- MW-6 ◉ EXISTING GROUNDWATER MONITORING WELL
- PLANTER
- 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 SAMPLE LOCATION 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.