

ALAMEDA COUNTY  
HEALTH CARE SERVICES  
AGENCY  
ALEX BRISCOE, Director



ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
FAX (510) 337-9335

April 13, 2015

Mr. Balaji Angle  
B&C Gas Mini Mart  
35584 Conovan Lane  
Fremont, CA 94536  
(Sent via E-mail to: [bsangle1@gmail.com](mailto:bsangle1@gmail.com))

Mr. John Rutherford  
Desert Petroleum  
3781 Telegraph Road  
Ventura, CA 93003-3420

Subject: Case Closure for Fuel Leak Case No. RO0000278 and GeoTracker Global ID T0600100930, Desert Petroleum #795, 2008 First Street, Livermore, CA 94550

Dear Mr. Angle and Mr. Rutherford:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25296.10[g]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Health (ACEH) is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed. This case closure letter and the case closure summary can also be viewed on the State Water Resources Control Board's Geotracker website (<http://geotracker.swrcb.ca.gov>) and the Alameda County Environmental Health website (<http://www.acgov.org/aceh/index.htm>).

If you have any questions, please call Jerry Wickham at (510) 567-6791. Thank you.

Sincerely,

Dilan Roe, P.E.  
LOP and SCP Program Manager

Enclosures:   1.   Remedial Action Completion Certification  
                  2.   Case Closure Summary

Responsible Parties  
RO0000278  
April 13, 2015  
Page 2

Cc w/enc.:

cc: Danielle Stefani, Livermore Pleasanton Fire Department, 3560 Nevada St, Pleasanton, CA 94566  
(Sent via E-mail to: [dstefani@lfire.org](mailto:dstefani@lfire.org))

Colleen Winey (QIC 8021), Zone 7 Water Agency, 100 North Canyons Pkwy, Livermore, CA 94551  
(Sent via E-mail to: [cwiney@zone7water.com](mailto:cwiney@zone7water.com))

Eric Uranga, City of Livermore Economic Development, 1052 S. Livermore Ave., Livermore, CA 94550  
(Sent via E-mail to: [ejuranga@ci.livermore.ca.us](mailto:ejuranga@ci.livermore.ca.us))

Scott Bittinger, Stratus Environmental, 3330 Cameron Park Drive, Ste. 550, Cameron Park, CA 95682  
(Sent via E-mail to: [sbittinger@stratusinc.net](mailto:sbittinger@stratusinc.net))

Gowri Kowtha, Stratus Environmental, 3330 Cameron Park Drive, Ste. 550, Cameron Park, CA 95682  
(Sent via E-mail to: [gkowtha@stratusinc.net](mailto:gkowtha@stratusinc.net))

Jerry Wickham, ACEH (Sent via E-mail to: [jerry.wickham@acgov.org](mailto:jerry.wickham@acgov.org))

GeoTracker, eFile

ALAMEDA COUNTY  
**HEALTH CARE SERVICES  
AGENCY**

ALEX BRISCOE, Agency Director



DEPARTMENT OF ENVIRONMENTAL HEALTH  
OFFICE OF THE DIRECTOR  
1131 HARBOR BAY PARKWAY  
ALAMEDA, CA 94502  
(510) 567-6777  
FAX (510) 337-9135

**REMEDIAL ACTION COMPLETION CERTIFICATION**

April 13, 2015

Mr. Balaji Angle  
B&C Gas Mini Mart  
35584 Conovan Lane  
Fremont, CA 94536  
(Sent via E-mail to: [bsangle1@gmail.com](mailto:bsangle1@gmail.com))

Mr. John Rutherford  
Desert Petroleum  
3781 Telegraph Road  
Ventura, CA 93003-3420

Subject: Case Closure for Fuel Leak Case No. RO0000278 and GeoTracker Global ID T0600100930, Desert Petroleum #795, 2008 First Street, Livermore, CA 94550

Dear Mr. Angle and Mr. Rutherford:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

Please be aware that claims for reimbursement of corrective action costs submitted to the Underground Storage Tank Cleanup Fund more than 365 days after the date of this letter or issuance or activation of the Fund's Letter of Commitment, whichever occurs later, will not be reimbursed unless one of the following exceptions applies:

- Claims are submitted pursuant to Section 25299.57, subdivision (k) (reopened UST case); or
- Submission within the timeframe was beyond the claimant's reasonable control, ongoing work is required for closure that will result in the submission of claims beyond that time period, or that under the circumstances of the case, it would be unreasonable or inequitable to impose the 365-day time period.

This notice is issued pursuant to subdivision (g) of Section 25296.10 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

Ronald Browder  
Director



**CASE CLOSURE SUMMARY**  
**LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM**

**I. AGENCY INFORMATION**

Date: November 12, 2013

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6791
Responsible Staff Person: Jerry Wickham	Title: Senior Hazardous Materials Specialist

**II. CASE INFORMATION**

Site Facility Name: Desert Petroleum #795		
Site Facility Address: 2008 First Street, Livermore, CA 94550		
RB Case No.: 01-1008	STiD No.: 1689	LOP Case No.: RO0000278
URF Filing Date: 04/01/1988	Geotracker ID: T0600100930	APN: 97-1-24-1
Current Land Use: Active Fueling Station		
Responsible Parties	Addresses	Phone Numbers
Balaji Angle B&C Gas Mini Mart	35584 Conovan Lane Fremont, CA 94536	NO Phone Number
John Rutherford Desert Petroleum	3781 Telegraph Road Ventura, CA 93003-3420	No Phone Number

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
T1	10,000 gallons	Gasoline	Removed	7/18/1996
T2	10,000 gallons	Gasoline	Removed	7/18/1996
T3	8,000 gallons	Gasoline	Removed	7/18/1996
UT	1,000 gallons	Unknown	Closed in place	7/26/2996
Piping			Removed	7/18/1996



### III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: Release from underground storage tank (UST) system.		
Site characterization complete? Yes		
Monitoring wells installed? Yes	Number: 20	Proper screened interval? Yes
Highest GW Depth Below Ground Surface: 24.77 feet bgs	Lowest Depth: 52.12 feet bgs	Flow Direction: West Northwest
Most Sensitive Current Groundwater Use: Drinking water source		

Summary of Production Wells in Vicinity: The nearest water supply well is a municipal water supply well (CWS-08) approximately 2,300 feet downgradient from the site and approximately 1,400 feet downgradient from the plume. Based on the extent and decreasing size of the plume, the municipal supply well is not expected to be a receptor for the site. No other water supply wells were identified within 2,000 feet of the site.	
Are drinking water wells affected? No	Aquifer Name: Mocho II Subbasin of Livermore-Amador Groundwater Basin
Is surface water affected? No	Nearest Surface Water Name: Arroyo Mocho is approximately 2,900 feet south (cross gradient) from the site
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Free Product	----	----	----
Soil	700 cubic yards	Transported to Vasco Road Landfill in Livermore, CA for disposal	08/01/1996 to 08/02/1996
Groundwater	----	----	----

**LTCP GROUNDWATER SPECIFIC CRITERIA**

LTCP Groundwater Specific Scenario under which case was closed: *Scenario 4*

Site Data		LTCP Scenario 1 Criteria (ppb)	LTCP Scenario 2 Criteria (ppb)	LTCP Scenario 3 Criteria (ppb)	LTCP Scenario 4 Criteria (ppb)
Plume Length	800 feet	<100 feet	<250 feet	<250 feet	<1,000 feet
Free Product	No free product	No free product	No free product	Removed to maximum extent practicable	No free product
Plume Stable or Decreasing	Decreasing	Stable or decreasing	Stable or decreasing	Stable or decreasing for minimum of 5 Years	Stable or decreasing
Distance to Nearest Water Supply Well	1,500 feet	>250 feet	>1,000 feet	>1,000 feet	>1,000 feet
Distance to Nearest Surface Water and Direction	2,900 feet crossgradient	>250 feet	>1,000 feet	>1,000 feet	>1,000 feet
Property Owner Willing to Accept a Land Use Restriction?	Not applicable	Not applicable	Not applicable	Yes	Not applicable

**GROUNDWATER CONCENTRATIONS**

Constituent	Historic Site Maximum (ppb)	Current Site Maximum (ppb)	LTCP Scenario 1 Criteria (ppb)	LTCP Scenario 2 Criteria (ppb)	LTCP Scenario 3 Criteria (ppb)	LTCP Scenario 4 Criteria (ppb)
Benzene	1,800	57	No criteria	3,000	No criteria	1,000
MTBE	1,700	21	No criteria	1,000	No criteria	1,000

Scenario 5: If the site does not meet scenarios 1 through 4, has a determination been made that under current and reasonably expected future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame?

----



**LTCP VAPOR SPECIFIC CRITERIA**

LTCP Vapor Specific Scenario under which case was closed: Active fueling station exempt from vapor specific criteria

Active Fueling Station      Active as of 10/01/2013

Site Data		LTCP Scenario 1 Criteria	LTCP Scenario 2 Criteria	LTCP Scenario 3A Criteria	LTCP Scenario 3B Criteria	LTCP Scenario 3C Criteria	LTCP Scenario 4 Criteria
Unweathered NAPL	No NAPL	LNAPL in groundwater	LNAPL in soil	No NAPL	No NAPL	No NAPL	No criteria
Thickness of Bioattenuation Zone Beneath Foundation	>10 feet	≥30 feet	≥30 feet	≥5 feet	≥10 feet	≥5 feet	≥5 feet
Total TPH in Bioattenuation Zone	<100 ppm	<100 ppm	<100 ppm	<100 ppm	<100 ppm	<100 ppm	<100 ppm
Maximum Current Benzene Concentration in Groundwater	57 ppb	No criteria	No criteria	<100 ppb	≥100 and <1,000 ppb	<1,000 ppb	No criteria
Oxygen Data within Bioattenuation Zone	No oxygen data	No criteria	No criteria	No oxygen data or <4%	No oxygen data or <4%	≥4% at lower end of zone	≥4% at lower end of zone
Depth of soil vapor measurement beneath foundation	5 feet	No criteria	No criteria	No criteria	No criteria	No criteria	≥5 feet

**SCENARIO 4 DIRECT MEASUREMENT OF SOIL VAPOR CONCENTRATIONS**

Site Soil Vapor Data			No Bioattenuation Zone		Bioattenuation Zone	
Constituent	Historic Maximum (µg/m <sup>3</sup> )	Current Maximum (µg/m <sup>3</sup> )	Residential	Commercial	Residential	Commercial
Benzene	12	----	<85	<280	<85,000	<280,000
Ethylbenzene	49	----	<1,100	<3,600	<1,100,000	<3,600,000
Naphthalene	----	----	<93	<310	<93,000	<310,000

If the site does not meet scenarios 1 through 4, does a site-specific risk assessment for the vapor intrusion pathway demonstrate that human health is protected?

----

If the site does not meet scenarios 1 through 4, has a determination been made that petroleum vapors from soil or groundwater will have no significant risk of adversely affecting human health as a result of controlling exposure through the use of mitigation measures or through the use of institutional controls?

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**LTCP DIRECT CONTACT AND OUTDOOR AIR EXPOSURE CRITERIA**

LTCP Direct Contact and Outdoor Air Exposure Specific Scenario under which case was closed: Maximum concentrations of petroleum hydrocarbons are less than or equal to those in Table 1 below

Are maximum concentrations less than those in Table 1 below?

Yes

Constituent		Residential		Commercial/Industrial		Utility Worker
		0 to 5 feet bgs (ppm)	Volatilization to outdoor air (5 to 10 feet bgs) ppm	0 to 5 feet bgs (ppm)	Volatilization to outdoor air (5 to 10 feet bgs) ppm	0 to 10 feet bgs (ppm)
Site Maximum	Benzene	<0.005	<0.005	<0.005	<0.005	<0.005
LTCP Criteria	Benzene	≤1.9	≤2.8	≤8.2	≤12	≤14
Site Maximum	Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005
LTCP Criteria	Ethylbenzene	≤21	≤32	≤89	≤134	≤314
Site Maximum	Naphthalene	<0.04	<0.04	<0.04	<0.04	<0.04
LTCP Criteria	Naphthalene	≤9.7	≤9.7	≤45	≤45	≤219
Site Maximum	PAHs	----	----	----	----	----
LTCP Criteria	PAHs	≤0.063	NA	≤0.68	NA	≤4.5
If maximum concentrations are greater than those in Table 1, are they less than levels from a site-specific risk assessment?				----		
If maximum concentrations are greater than those in Table 1, has a determination been made that the concentrations of petroleum in soil will have no significant risk of adversely affecting human health as a result of controlling exposure through the use of mitigation measures or through the use of institutional controls?				----		

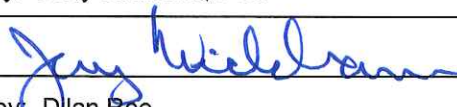

**IV. CLOSURE**

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? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, closure of this site appears to be consistent with the policies established by the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy which became effective on August 17, 2012.		
<b>Site Management Requirements:</b>		
Site Management Requirements: This fuel leak case has been evaluated for closure consistent with the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy (LTCP). Based on this evaluation, no site management requirements appear to be necessary. However, excavation or construction activities in areas of residual contamination require planning and implementation of appropriate health and safety procedures by the responsible party prior to and during excavation and construction activities.		
Should corrective action be reviewed if land use changes? No		
Was a deed restriction or deed notification filed? No		Date Recorded: ----
Monitoring Wells Decommissioned: No	Number Decommissioned: 1	Number Retained: 19

**V. ADDITIONAL COMMENTS AND CONCLUSION**

<b>Additional Comments:</b>
Naphthalene was not an analyte in shallow soil samples. However, since the release at the site consisted primarily of gasoline and benzene and ethylbenzene concentrations in shallow soil do not exceed media-specific criteria for direct contact, naphthalene concentrations in shallow soil are not likely to exceed the LTCP media-specific criteria.
<b>Conclusion:</b>
Alameda County Environmental Health staff believe that the site meets the conditions for case closure under the State Water Resources Control Board Low-Threat Underground Storage Tank Closure Policy. Based upon the information available in our files to date, no further investigation or cleanup for the fuel leak case is necessary at this time.

**VI. LOCAL AGENCY REPRESENTATIVE DATA**

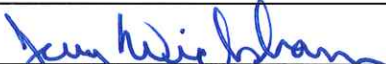
Prepared by: Jerry Wickham, P.G.	Title: Senior Hazardous Materials Specialist
Signature: 	Date: 11/14/13
Approved by: Dillon Roe	Title: LOP and SCP Program Manager
Signature: 	Date: NOVEMBER 14, 2013

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

**VII. REGIONAL BOARD AND PUBLIC NOTIFICATION**

Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
Regional Board Notification Date: 11/15/2013	
Public Notification Date: 11/15/2013	

**VIII. MONITORING WELL DECOMMISSIONING**

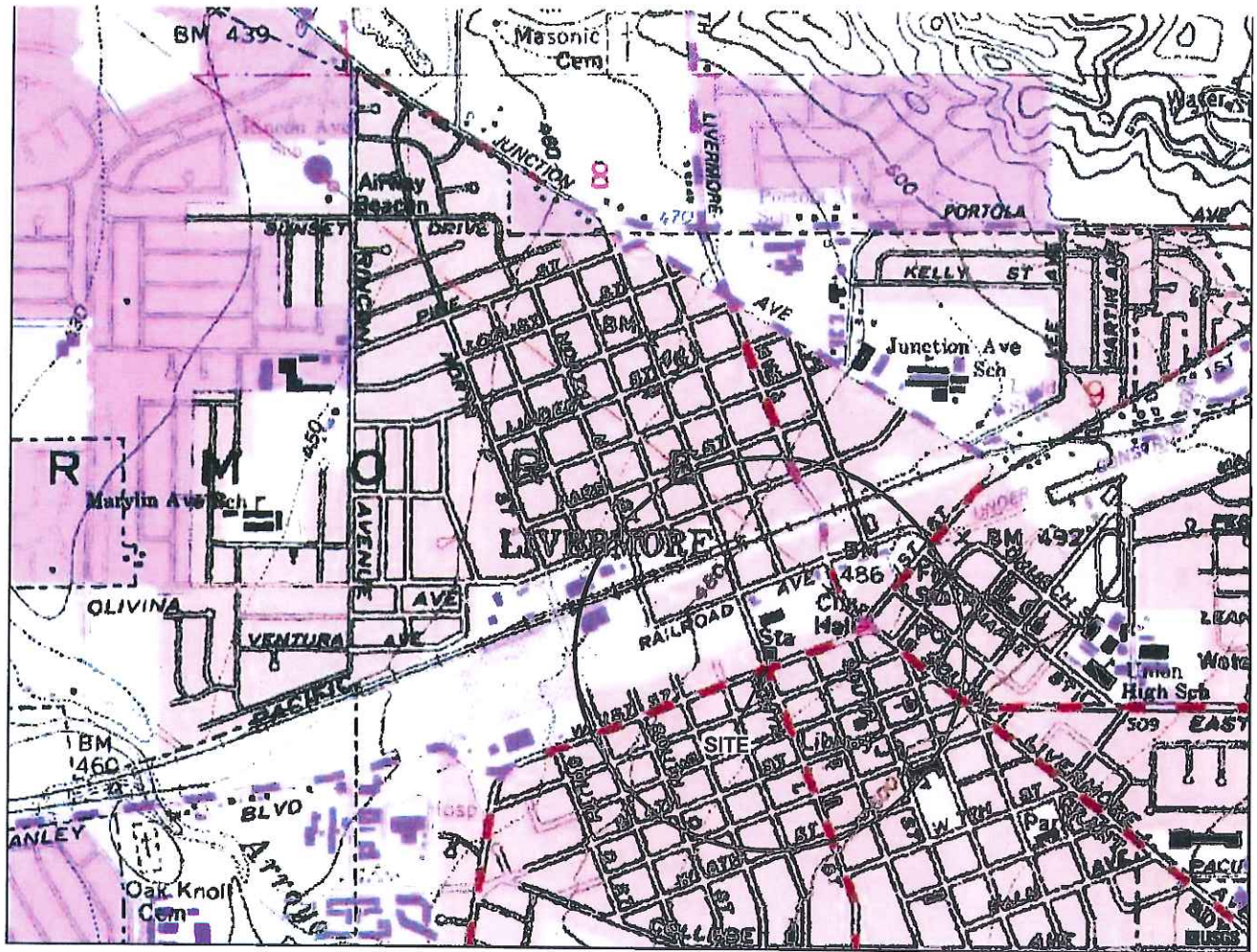
Date Requested by ACEH: 12/04/2014	Date of Well Decommissioning Report: 04/10/2015	
All Monitoring Wells Decommissioned: No	Number Decommissioned: 37	Number Retained: 1
Reason Wells Retained: Well D-1 was transferred to Zone 7 Water Agency.		
Additional requirements for submittal of groundwater data from retained wells: None		
ACEH Concurrence - Signature: 		Date: 04/13/2015

**Attachments:**

1. Site Vicinity Map and Aerial Photo (2 pp)
2. Site Plans (3 p)
3. Groundwater Contour and Chemical Concentration Maps (5 pp)
4. Soil and Soil Vapor Analytical Data (12 pp)
5. Groundwater Analytical Data (21 pp)
6. Cross Sections (3 pp)

This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.





GENERAL NOTES:  
 BASE MAP FROM U.S.G.S.  
 LIVERMORE, CA.  
 7.5 MINUTE TOPOGRAPHIC  
 PHOTOREVISED 1999



QUADRANGLE LOCATION



APPROXIMATE SCALE

**STRATUS**  
 ENVIRONMENTAL, INC.

B & C GAS MINI MART  
 2008 FIRST STREET  
 LIVERMORE, CALIFORNIA

FIGURE

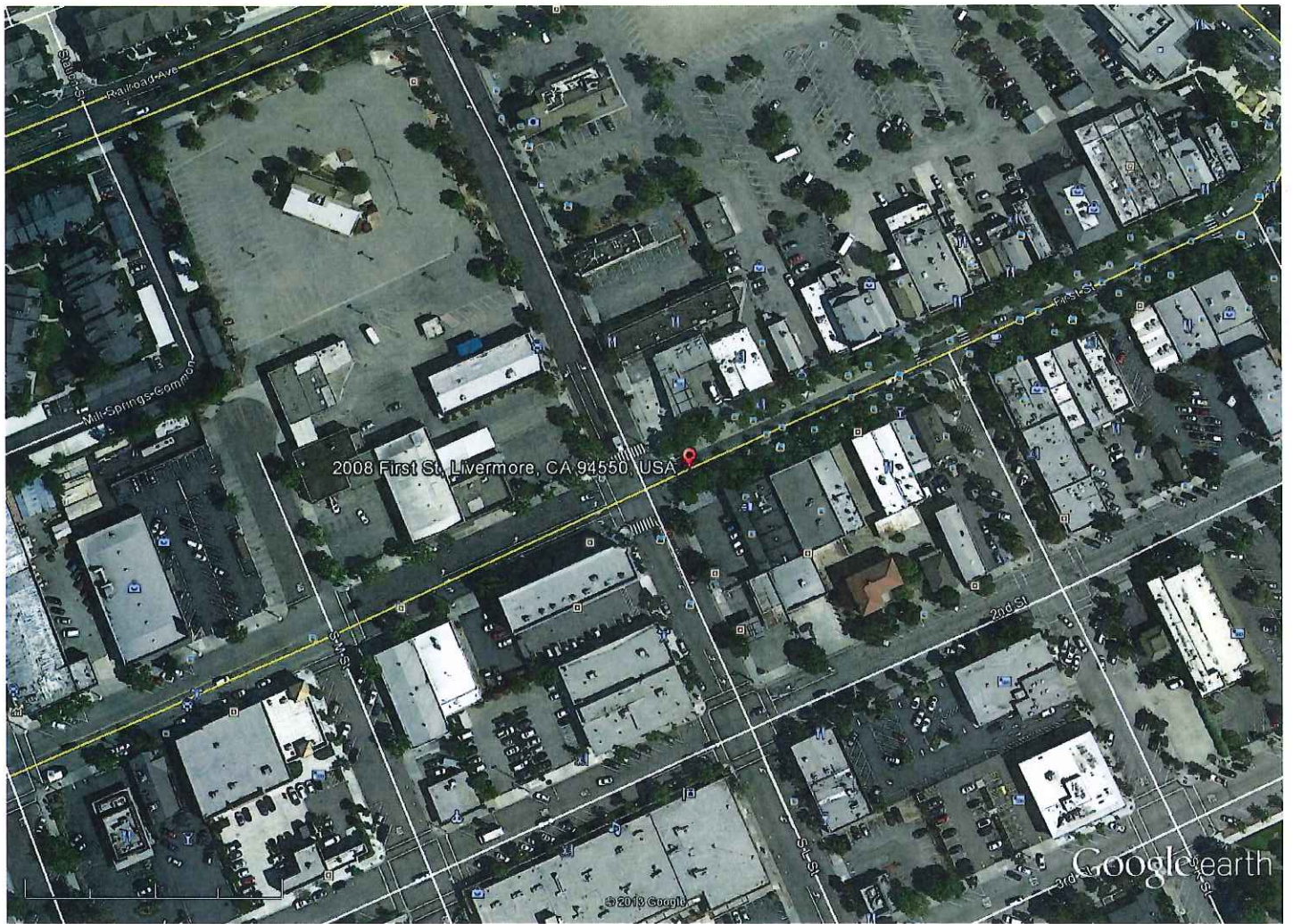
1

PROJECT NO.  
 2146-2008-01

SITE LOCATION MAP

**ATTACHMENT 1**





Google earth

feet  
meters







- LEGEND**
- MW4 GROUNDWATER MONITORING WELL LOCATION (CMT # DESIGNATES MULTILEVEL WELLS)
  - D-1 DEEP GROUNDWATER MONITORING WELL LOCATION
  - SVE-3A/B SOIL VAPOR EXTRACTION WELL LOCATION
  - CWS# MUNICIPAL WATER SUPPLY WELL LOCATION

**STRATUS**  
ENVIRONMENTAL, INC.

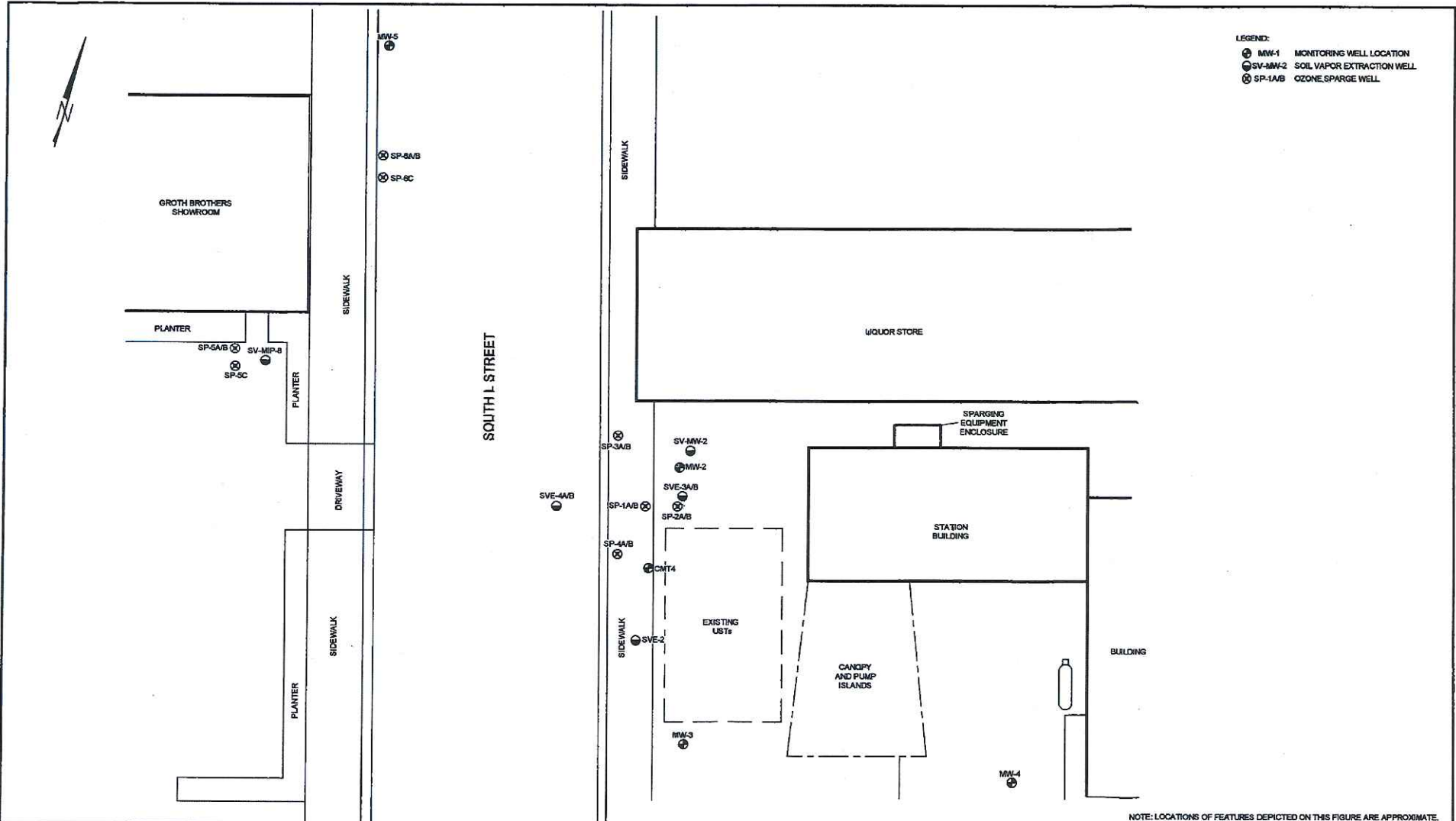


B & C GAS MINI MART  
2008 1st STREET  
LIVERMORE, CALIFORNIA  
SITE VICINITY MAP

FIGURE  
**3**  
PROJECT NO.  
2146-2008-01

**ATTACHMENT 2**





- LEGEND:
- ⊕ MW-1 MONITORING WELL LOCATION
  - ⊖ SV-MW-2 SOIL VAPOR EXTRACTION WELL
  - ⊗ SP-1A/B OZONE SPARGE WELL

NOTE: LOCATIONS OF FEATURES DEPICTED ON THIS FIGURE ARE APPROXIMATE.



B & C GAS MINI MART  
2008 1st STREET  
LIVERMORE, CALIFORNIA

SITE PLAN

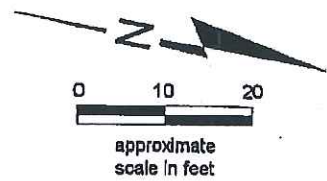
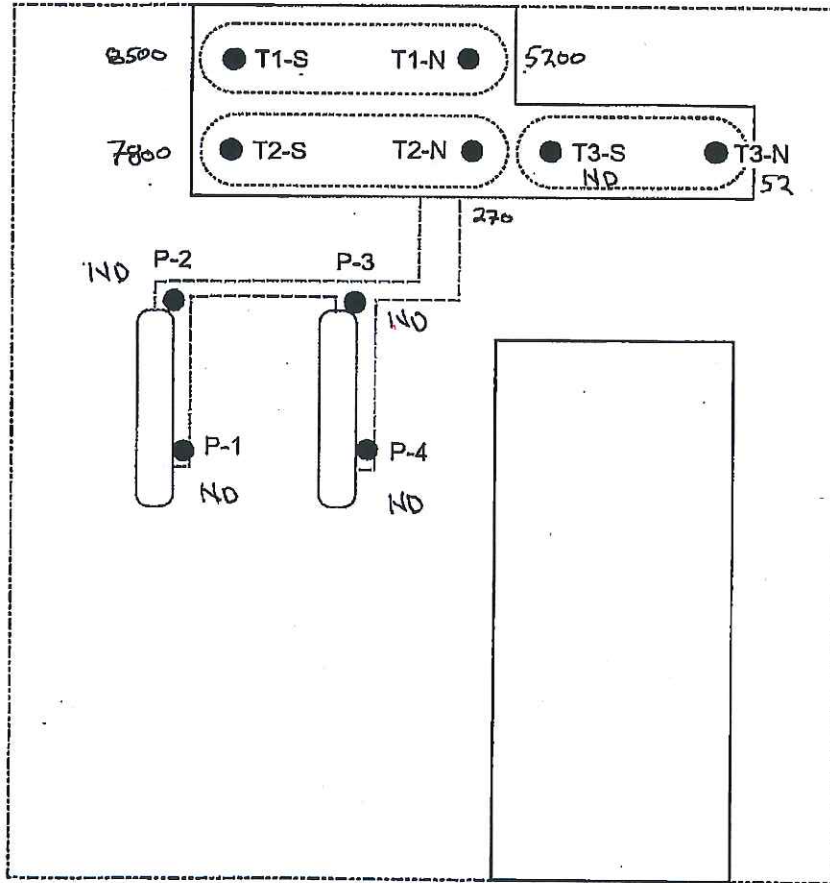
FIGURE  
**2**  
PROJECT NO.  
2146-2008-01

**EXPLANATION**

- UST      Underground Storage Tank
- Product Piping
- Soil sample location and ID

**SOUTH L STREET**

**FIRST STREET**



**SOIL SAMPLE LOCATION MAP**

B&C Gas Mini Mart  
2008 1st Street  
Livermore, California

FIGURE

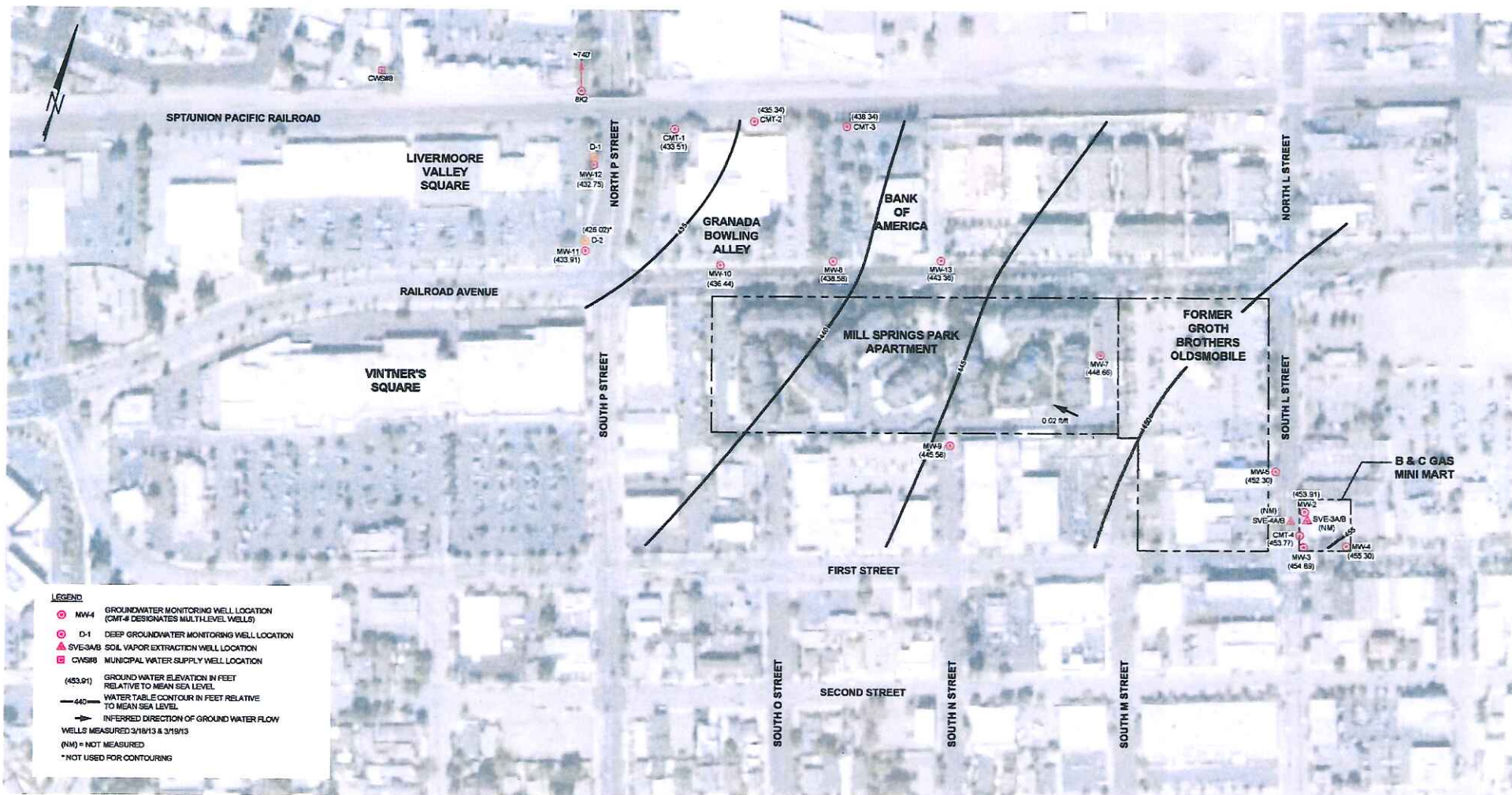
**2**

PROJECT NO.  
B&C Mini

DATE:  
8/98

DRAWN BY:  
WTJ

BASE MAP  
Touchstone Field Measurements



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ENVIRONMENTAL, INC.



B & C GAS MINI MART  
2008 1st STREET  
LIVERMORE, CALIFORNIA

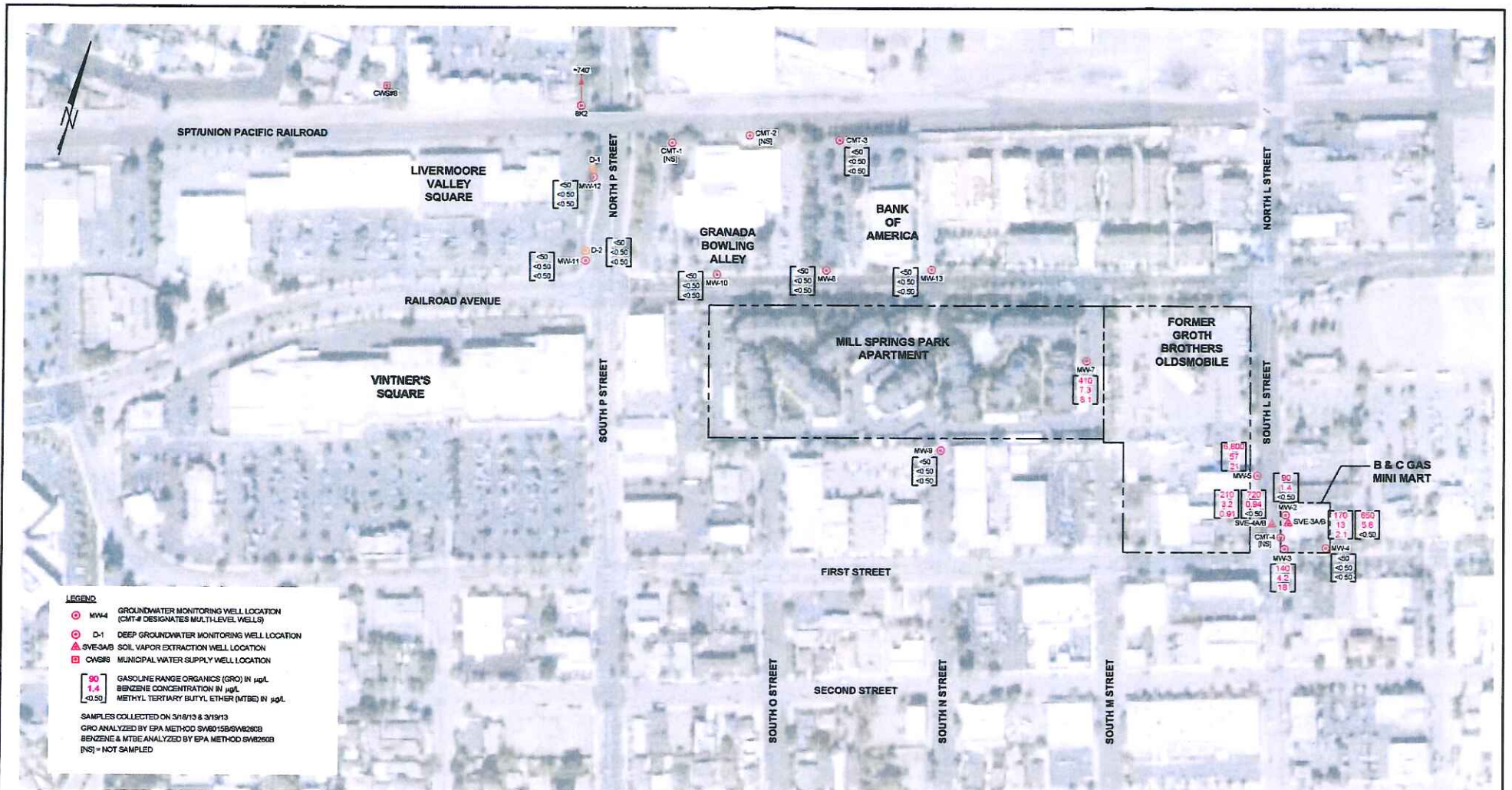
GROUNDWATER ELEVATION CONTOUR MAP  
1st QUARTER 2013

FIGURE  
4

PROJECT NO.  
2146-2008-01

ATTACHMENT 3





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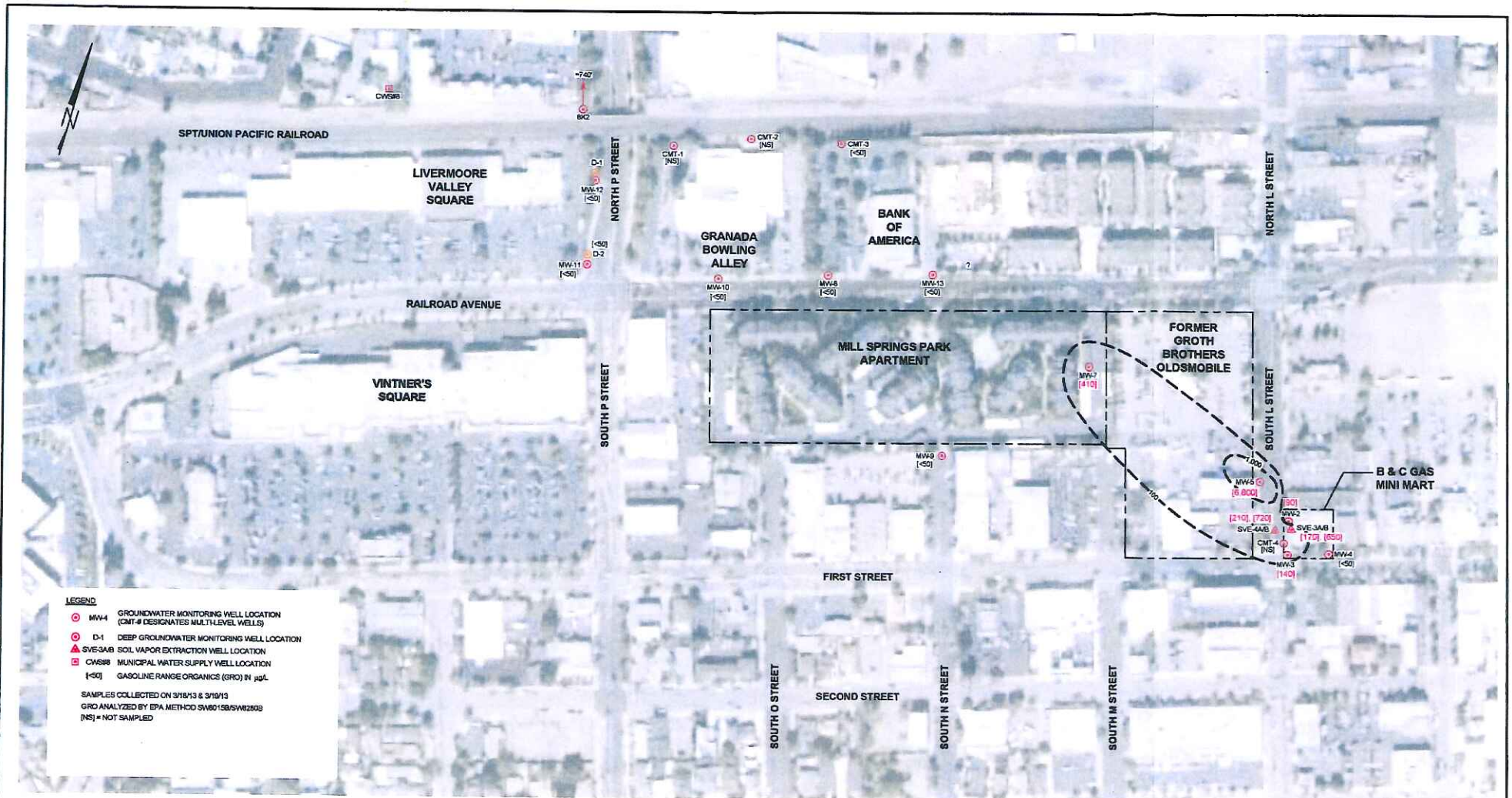
B & C GAS MINI MART  
2008 1st STREET  
LIVERMORE, CALIFORNIA

GROUNDWATER ANALYTICAL SUMMARY  
1st QUARTER 2013

FIGURE  
**5**

PROJECT NO.  
2146-2008-01





- LEGEND**
- MW-# GROUNDWATER MONITORING WELL LOCATION (CMT-# DESIGNATES MULTILEVEL WELLS)
  - D-1 DEEP GROUNDWATER MONITORING WELL LOCATION
  - △ SVE-3A/B SOIL VAPOR EXTRACTION WELL LOCATION
  - CWS-8 MUNICIPAL WATER SUPPLY WELL LOCATION
  - [<50] GASOLINE RANGE ORGANICS (GRO) IN µg/L

SAMPLES COLLECTED ON 3/18/13 & 3/19/13  
 GRO ANALYZED BY EPA METHOD SW8015B/SW8250B  
 (NS) = NOT SAMPLED

**STRATUS**  
 ENVIRONMENTAL, INC.



B & C GAS MINI MART  
 2008 1st STREET  
 LIVERMORE, CALIFORNIA

GRO ISO-CONCENTRATION CONTOUR MAP  
 1st QUARTER 2013

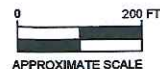
FIGURE  
**4**

PROJECT NO.  
 2146-2008-01





**STRATUS**  
 ENVIRONMENTAL, INC.



B & C GAS MINI MART  
 2008 1st STREET  
 LIVERMORE, CALIFORNIA

BENZENE ISO-CONCENTRATION CONTOUR MAP  
 1st QUARTER 2013

FIGURE  
**5**  
 PROJECT NO.  
 2146-2008-01



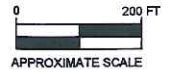


- LEGEND**
- MW-4 GROUNDWATER MONITORING WELL LOCATION (CMT-# DESIGNATES MULTI-LEVEL WELLS)
  - D-1 DEEP GROUNDWATER MONITORING WELL LOCATION
  - ▲ SVE-3A/B SOIL VAPOR EXTRACTION WELL LOCATION
  - CWS#6 MUNICIPAL WATER SUPPLY WELL LOCATION

[<0.50] METHYL TERTIARY BUTYL ETHER (MTBE) IN µg/L

SAMPLES COLLECTED ON 3/18/13 & 3/19/13  
 MTBE ANALYZED BY EPA METHOD 8260B  
 (NS) = NOT SAMPLED

**STRATUS**  
 ENVIRONMENTAL, INC.



B & C GAS MINI MART  
 2008 1st STREET  
 LIVERMORE, CALIFORNIA

MTBE ISO-CONCENTRATION CONTOUR MAP  
 1st QUARTER 2013

FIGURE  
**6**  
 PROJECT NO.  
 2146-2008-01



TABLE 1

## HISTORIC SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS

2008 FIRST STREET  
LIVERMORE, CA

TPH &amp; BTEX Concentrations are in mg/Kg

SAMPLE DATE	SAMPLE ID	SAMPLE LOCATION	TPH	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	TOTAL LEAD
2/24/88	DPL288-1	DPL-1 @ 14.5'	400	7.5	9.5	NA	27	NA
2/24/88	DPL288-3	DPL-3 @ 15'	ND	ND	ND	NA	ND	NA
2/24/88	DPL288-4	DPL-4 @ 16.5'	ND	ND	ND	NA	ND	NA
9/22/88	GX136-1	MW-1 @ 16'	ND	ND	ND	ND	ND	NA
9/22/88	GX136-2A	MW-1 @ 23.5'	ND	ND	ND	ND	ND	NA
9/22/88	GX136-3	MW-1 @ 28.5'	ND	ND	ND	ND	ND	NA
9/22/88	GX136-4	MW-1 @ 33.5'	31	0.14	0.87	0.74	4.7	NA
9/22/88	GX136-5	MW-1 @ 38.5'	72	ND	ND	ND	4	NA
9/22/88	GX136-6	MW-1 @ 43.5'	10	0.14	0.13	0.18	0.72	NA
9/22/88	GX136-7	MW-1 @ 48.5'	0.51	ND	ND	ND	ND	NA
9/22/88	GX136-8	MW-1 @ 53.5'	1.7	0.12	0.11	0.049	0.29	NA
9/22/88	GX136-9	MW-1 @ 58.5'	54	ND	ND	ND	4.4	NA
9/23/88	DPL5-1	DPL-5 @ 16'	ND	ND	ND	ND	ND	NA
9/23/88	DPL5-2	DPL-5 @ 21'	ND	ND	ND	ND	ND	NA
9/23/88	DPL5-3	DPL-5 @ 26'	ND	ND	ND	ND	ND	NA
9/23/88	DPL5-4	DPL-5 @ 31'	33	0.71	1.7	0.77	6.2	NA
9/23/88	DPL5-5	DPL-5 @ 36'	8.5	0.054	1.1	0.23	2	NA
9/23/88	DPL5-6	DPL-5 @ 41'	0.8	0.097	0.1	ND	0.13	NA
9/23/88	DPL5-7	DPL-5 @ 46'	ND	ND	ND	ND	ND	NA
9/23/88	DPL6-1A	DPL-6 @ 17.5'	ND	ND	ND	ND	ND	NA
9/23/88	DPL6-2	DPL-6 @ 21'	ND	ND	ND	ND	ND	NA
9/23/88	DPL6-3	DPL-6 @ 26'	2.5	ND	ND	ND	ND	NA
9/23/88	DPL6-4	DPL-6 @ 31'	12	0.14	0.083	0.31	1.4	NA
9/23/88	DPL6-5	DPL-6 @ 36'	1,600	ND	3.7	5.3	32	NA
9/23/88	DPL6-6	DPL-6 @ 41'	11	0.035	ND	ND	ND	NA
9/23/88	DPL6-7	DPL-6 @ 46'	100	ND	ND	ND	4.8	NA
6/16/94	MW-4 @ 40'	MW-4 @ 40'	ND	0.009	17	0.006	0.02	12
6/17/94	MW-3 @ 10'	MW-3 @ 10'	390	0.4	2.2	2.2	11	150
6/17/94	MW-3 @ 15'	MW-3 @ 15'	390	0.3	1.9	2.2	11	190
6/17/94	MW-3 @ 20'	MW-3 @ 20'	ND	0.17	0.012	0.006	0.081	12
6/17/94	MW-3 @ 30'	MW-3 @ 30'	300	ND	1.6	1.7	8.3	14
6/17/94	MW-3 @ 35'	MW-3 @ 35'	130	1.1	3.6	1.1	4.9	12
6/17/94	MW-3 @ 45'	MW-3 @ 45'	230	0.62	3.8	2.5	10	28
6/17/94	MW-3 @ 50'	MW-3 @ 50'	100	0.35	0.82	0.56	2	7
6/17/94	MW-3 @ 55'	MW-3 @ 55'	270	0.47	3	1.9	6.7	24
6/17/94	MW-2 @ 40'	MW-2 @ 40'	77	0.36	2.5	1.1	7	10
6/18/94	MW-2 @ 45'	MW-2 @ 45'	28	0.3	0.16	0.4	0.97	8
6/18/94	MW-2 @ 50'	MW-2 @ 50'	6	0.04	0.08	0.07	0.3	9
6/18/94	MW-2 @ 60'	MW-2 @ 60'	2	0.045	0.18	0.041	0.23	14

2/88 Sampling results from Geonometrics Inc. report

9/88 Sampling results from On-Site Technologies Inc. report

6/94 Sampling results from RSI report

TPH = Total petroleum hydrocarbons as gasoline

NA = Not analyzed for this constituent


 REMEDIATION SERVICE, INT'L.

ATTACHMENT 4

TABLE 1  
SUMMARY OF ANALYTICAL RESULTS FROM SOIL SAMPLES  
COLLECTED DURING SOIL BORING

2008 FIRST STREET  
LIVERMORE, CA

Results are in mg/Kg

SAMPLE DATE	SAMPLE DESCRIPTION	TPH	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	TOTAL LEAD
6/16/94	MW-4 @ 40'	ND	0.009	17	0.006	0.02	12
6/17/94	MW-3 @ 10'	390	0.4	2.2	2.2	11	150
6/17/94	MW-3 @ 15'	390	0.3	1.9	2.2	11	190
6/17/94	MW-3 @ 20'	ND	0.17	0.012	0.006	0.081	12
6/17/94	MW-3 @ 30'	300	ND	1.6	1.7	8.3	14
6/17/94	MW-3 @ 35'	130	1.1	3.6	1.1	4.9	12
6/17/94	MW-3 @ 45'	230	0.62	3.8	2.5	10	28
6/17/94	MW-3 @ 50'	100	0.35	0.82	0.56	2	7
6/17/94	MW-3 @ 55'	270	0.47	3	1.9	6.7	24
6/17/94	MW-2 @ 40'	77	0.36	2.5	1.1	7	10
6/18/94	MW-2 @ 45'	28	0.3	0.16	0.4	0.97	8
6/18/94	MW-2 @ 50'	6	0.04	0.08	0.07	0.3	9
6/18/94	MW-2 @ 60'	2	0.045	0.18	0.041	0.23	14

TPH = Total petroleum hydrocarbons as gasoline  
 TPH & BTEX analyzed by EPA methods 8015M & 8020, respectively.  
 Total Lead analyzed by EPA method 7420.



TABLE 3

HYDROPUNCH SOIL & GROUNDWATER  
ANALYTICAL RESULTS

2008 FIRST STREET  
LIVERMORE, CA

Soil sample analytical results are in mg/Kg  
Groundwater sample analytical results are in ug/L

SOIL

*ppm*

SAMPLE DATE	SAMPLE DESCRIPTION	TPH	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES
3/8/95	H-1 @ 20'	ND	0.019	0.043	0.014	0.061
3/8/95	H-1 @ 25'	ND	ND	ND	ND	ND
3/8/95	H-1 @ 30'	380	4.8	16	7.4	34
3/8/95	H-2 @ 20'	ND	ND	ND	ND	ND
3/8/95	H-2 @ 25'	ND	0.024	0.008	0.013	0.04
3/8/95	H-2 @ 30'	6,100	35	180	120	540
3/8/95	H-3 @ 20'	ND	ND	ND	ND	ND
3/8/95	H-3 @ 25'	ND	ND	ND	ND	ND
3/8/95	H-3 @ 30'	980	9.1	45	20	98
3/8/95	H-4 @ 20'	ND	ND	ND	ND	ND
3/8/95	H-4 @ 25'	ND	ND	ND	ND	ND
3/8/95	H-4 @ 30'	ND	ND	ND	ND	ND
3/8/95	H-4 @ 20'	ND	ND	ND	ND	ND
3/8/95	H-4 @ 25'	ND	ND	ND	ND	ND
3/8/95	H-4 @ 30'	ND	ND	ND	ND	ND

GROUNDWATER

*ppb*

SAMPLE DATE	SAMPLE DESCRIPTION	TPH	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES
3/8/95	H-4	1,500	57	33	9.4	42
3/8/95	H-5	620	22	24	8	42

TPH = Total petroleum hydrocarbons as gasoline

NA = Not analyzed for this constituent

**TABLE A**  
**Gasoline UST and Product Piping Sampling Summary**  
**B&C Gas Mini Mart**  
**2008 1st Street, Livermore, California**  
 Results in mg/Kg - parts per million (ppm)

**Gasoline UST and Product Piping Sampling Results**

Sample ID	Depth (ft.)	Laboratory	Date	TPH-Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Total Lead
T1-S-14.0	14	Analytical Science	18-Jul-96	8500	61	250	75	380	80	18.4
T1-N-14.0	14	Analytical Science	18-Jul-96	5200	41	92	46	260	46	29.7
T2-S-14.0	14	Analytical Science	18-Jul-96	7800	33	260	100	400	96	9.94
T2-N-14.0	14	Analytical Science	18-Jul-96	270	0.27	0.43	0.39	2.2	6.6	7.3
T3-S-13.5	13.5	Analytical Science	18-Jul-96	ND	ND	ND	ND	ND	0.24	6.49
T3-N-13.5	13.5	Analytical Science	18-Jul-96	52	1.9	1.5	ND	2.8	36	7.24
TOX-1-21.0	21	Analytical Science	18-Jul-96	760	8.1	38	9.9	50	16	NA
P-1-3.0	3	Analytical Science	18-Jul-96	ND	ND	0.013	ND	0.017	0.012	7.6
P-2-3.5	3.5	Analytical Science	18-Jul-96	ND	ND	ND	ND	ND	0.17	9.63
P-3-3.5	3.5	Analytical Science	18-Jul-96	ND	ND	ND	ND	ND	0.015	11.4
P-4-3.0	3	Analytical Science	18-Jul-96	ND	ND	ND	ND	ND	ND	176

TPH-Gasoline = Total Petroleum Hydrocarbons calculated as Gasoline.

MTBE = Methyl t-Butyl Ether.

ND = Not detected at or above laboratory detection limits.

NA = Analysis not requested.



**TABLE B**  
**Unknown UST Sampling Summary**  
**B&C Gas Mini Mart**  
**2008 1st Street, Livermore, California**  
 Results in mg/Kg - parts per million (ppm)

**Unknown UST Sampling Results**

Sample ID	Depth (ft.)	Laboratory	Date	TPH-Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-Diesel	TRPH	8010
UT-W-7.0	7	Analytical Sciences	26-Jul-96	ND	ND	ND	ND	ND	ND	ND	ND

TPH-Gasoline = Total Petroleum Hydrocarbons calculated as Gasoline.

TPH-Diesel = Total Petroleum Hydrocarbons calculated as Diesel.

TRPH = Total Recoverable Petroleum Hydrocarbons (SM 5520 E&F).

8010 = Halogenated Volatile Organics.

ND = Not detected at or above laboratory detection limits.

**Table 1**  
**2006 & 2007 Soil Analytical Results**  
**B & C Gas Station**  
**Livermore, California**

Sample ID	Depth (feet)	Date Sampled	TPH-Gas (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	Tert- Butanol (mg/kg)	Methanol (mg/kg)	Ethanol (mg/kg)
Ceiling Value			5000	870	650	400	420	500						
Residential Direct Exposure Vapor Intrusion			4200	11	650	400	420	2600						
Drinking Water Source			83	0.044	2.9	3.3	2.3	0.023						
Tier 1 Soil ESL			83	0.044	2.9	3.3	2.3	0.023	NE	NE	NE	NE	NE	NE
CB-2 40-40.5	40 - 40.5	3/28/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.02	<0.0050	<0.0050	<0.0050	0.0066	<0.20	<0.010
CB-3 46.5-47	46.5 - 47	3/29/2006	<1.0	<0.0050	<0.0050	0.014	0.0088	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.2	<0.010
CB-8 46.5-47	46.5 - 47	3/29/2006	13	0.0081	<0.0050	0.066	0.11	0.018	<0.0050	<0.0050	<0.0050	<0.015	<0.25	<0.025
CB-10 45-45.5	45 - 45.5	3/29/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	<0.0050	<0.2	<0.010
CB-11 41.5-42	41.5 - 42	3/28/2006	<1.0	<0.0050	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.2	<0.010
CB-12 47.5-48	47.5 - 48	3/28/2006	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
CB-13 42-42.5	42 - 42.5	3/29/2006	<b>460</b>	<b>0.081</b>	0.058	2.1	0.36	<0.025	<0.025	<0.025	<0.025	<0.15	<5.0	<0.50
SP-1	40	8/22/2007	<b>260</b>	<0.050	0.056	<b>4.7</b>	<b>18</b>	NA	NA	NA	NA	NA	NA	NA
SP-2	43	8/20/2007	71	<0.025	<0.025	0.72	2.0	NA	NA	NA	NA	NA	NA	NA
SP-3	35	8/24/2007	4.4	<0.0050	<0.0050	0.019	<0.0050	NA	NA	NA	NA	NA	NA	NA
SP-5	45	8/20/2007	<b>290</b>	<b>0.070</b>	0.059	<b>4.5</b>	<b>3.5</b>	NA	NA	NA	NA	NA	NA	NA
SP-6	35	8/20/2007	2.8	0.058	<0.0050	0.070	0.015	NA	NA	NA	NA	NA	NA	NA
SVE-1	10	8/24/2007	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA	NA	NA	NA	NA	NA	NA
SVE-1	15	8/24/2007	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA	NA	NA	NA	NA	NA	NA
SVE-1	20	8/24/2007	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	NA	NA	NA	NA	NA	NA	NA
SVE-1	25	8/24/2007	6.6	<0.0050	<0.0050	0.16	1.6	NA	NA	NA	NA	NA	NA	NA

Notes:

- mg/kg = milligram per kilogram
- TPH = Total petroleum hydrocarbons
- MTBE = Methyl tert-butyl ether
- DIPE = Di-isopropyl ether
- ETBE = Ethyl tert-butyl ether
- TAME = tert-Amyl methyl ether
- Bold** = exceedance of Tier 1 ESL
- NA = not analyzed
- NE = not established



B N C Gas Station  
2008 1st Street, Livermore, California

**Table 1a**  
**Soil Analytical Results - Hydrocarbons**

Sample ID	Depth (feet)	Date Sampled	TPH-Gas (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylben		MTBE (mg/Kg)	DIPE (mg/Kg)	ETBE (mg/Kg)	TAME (mg/Kg)	Tert- Butanol (mg/Kg)	Methanol (mg/Kg)	Ethanol (mg/Kg)
						zene (mg/Kg)	Xylenes (mg/Kg)							
CB-2	40-40.5	3/28/06	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.02	<0.0050	<0.0050	<0.0050	0.0066	<0.20	<0.010
CB-3	46.5-47	3/29/06	<1.0	<0.0050	<0.0050	0.014	0.0088	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.2	<0.010
CB-8	46.5-47	3/29/06	13	0.0081	<0.0050	0.066	0.11	0.018	<0.0050	<0.0050	<0.0050	<0.015	<0.25	<0.025
CB-10	45-45.5	3/29/06	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0057	<0.0050	<0.0050	<0.0050	<0.0050	<0.2	<0.010
CB-11	41.5-42	3/28/06	<1.0	<0.0050	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.2	<0.010
CB-12	47.5-48	3/28/06	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
CB-13	42-42.5	3/29/06	460	0.081	0.058	2.1	0.36	<0.025	<0.025	<0.025	<0.025	<0.15	<5.0	<0.50

Notes: mg/Kg = milligram per kilogram  
 TPH = Total petroleum hydrocarbons  
 MTBE = Methyl tert-butyl ether  
 DIPE = Di-isopropyl ether  
 ETBE = Ethyl tert-butyl ether  
 TAME = tert-Amyl methyl ether

**Table 1b**  
**Soil Analytical Results - Metals**

Sample ID	Depth (feet)	Date Sampled	Arsenic (mg/Kg)	Barium (mg/Kg)	Cadmium (mg/Kg)	Chromium		Lead (mg/Kg)	Selenium (mg/Kg)	Iron (mg/Kg)	Chromium VI (µg/kg)
						m	Copper (mg/Kg)				
CB-2	40-40.5	3/28/06	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-3	46.5-47	3/29/06	1.43	94.9	<0.50	63.4	22.8	3.83	<0.75	20,600	<10
CB-8	46.5-47	3/29/06	0.97	62.4	<0.50	37.1	18.8	4.84	<0.75	16,100	<10
CB-10	45-45.5	3/29/06	1.31	133	<0.50	61.9	26.3	7.59	<0.75	20,300	<10
CB-11	41.5-42	3/28/06	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-12	47.5-48	3/28/06	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-13	42-42.5	3/29/06	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: mg/Kg = milligram per kilogram  
 µg/kg = microgram per kilogram

Table\_\_  
 Third Quarter 2003 Soil Analytical Results  
 B&C Gas Mini Mart  
 Livermore, California

Sample ID	Headspace Analyses	TPH-G (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Xylenes (total) (µg/kg)	MtBE (µg/kg)	MtBE <sup>1</sup> (µg/kg)
EPA Method 8015B/8021B								EPA Method 8260B
4-23	8	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	
4-28	200	190,000	<250	660	3,100	12,000	<250	
4-34	500	240,000	1,500	13,000	4,800	26,000	1,200	<1000
4-37	45000	290,000	1,100	11,000	6,100	31,000	<1000	
4-40	1000	96,000	80	1,400	2,200	9,300	350	<1000
4-48.5	30	16,000	<50	<50	<50	<50	<50	
4-55	2	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	
4-62	15	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	
4-66	15	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	
4-75	2	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	
4-80	2	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	
4-90	2	<1000	<5.0	<5.0	<5.0	<5.0	<5.0	

*Notes:*

All samples obtained on 8/14/03

µg/kg = micrograms per kilogram

TPH-G = total petroleum hydrocarbons as gasoline

MtBE = Methyl *tertiary*-Butyl Ether

(1) Confirmation sample by mass spectroscopy

NS = not sampled

< = less than the laboratory reporting limit



**TABLE 1**  
**SOIL ANALYTICAL RESULTS**  
 Former B&C Gas Mini Mart  
 2008 First Street, Livermore, California

Sample ID	Sample Depth (feet bgs)	Date Collected	GRO (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl- benzene (mg/Kg)	Total Xylenes (mg/Kg)	MTBE (mg/Kg)
<b>Boring SVE-2</b>								
SVE-2-30	30	12/17/2012	26	0.67	<0.005	0.85	0.42	5.6
SVE-2-35	35	12/17/2012	2.4	0.025	<0.01*	0.018	0.01	0.25
SVE-2-40	40	12/17/2012	4.0	<0.005	<0.005	<0.005	<0.005	0.0053
<b>Boring SVE-4</b>								
SVE-4-30	30	12/27/2012	230	<0.25*	<0.25*	1.6	7.65	<0.25*
SVE-4-55	55	12/27/2012	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005

**Explanation**

GRO = Gasoline range organics / total petroleum hydrocarbons as gasoline

BTEX = Benzene, toluene, ethylbenzene, and xylenes

MTBE = Methyl tertiary butyl ether

bgs = below ground surface

mg/Kg = milligrams per kilogram

\* = Reporting limits increased due to high concentrations of target analytes

**Analytical Laboratory**

Alpha Analytical, Inc. (ELAP #2019)

**Analytical Methods**

GRO analyzed using EPA Method SW8015B

BTEX and MTBE analyzed using EPA Method SW8260B

**TABLE 1**  
**SOIL ANALYTICAL RESULTS**  
 B&C Gas Mini Mart  
 2008 First Street, Livermore, California

Sample ID	Borehole Length (feet)	Sample Depth (feet bgs)	Date Collected	GRO (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	MTBE (mg/Kg)	TBA (mg/Kg)	Naphthalene (mg/Kg)	PAH's (mg/Kg)
<b><u>Boring AB-1</u></b>												
AB-1-5	5	4.8	08/15/13	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.04	ND
AB-1-10	10	9.6	08/15/13	<1.0	<0.005	<0.005	<0.005	<0.005	0.031	<0.5	<0.04	ND
AB-1-25	25	24.1	08/15/13	2,300	<2.5*	3.8	31	276	<2.5*	<250*	21	NA
AB-1-30	30	29	08/15/13	2,000	1.3	71	48	283	<1.3*	<130*	13	NA
AB-1-35	35	33.8	08/15/13	1,400	12	29	30	164	2.0	<50*	30	NA
AB-1-40	40	38.6	08/15/13	2,600	16	3.2	53	270	1.4	<80*	35	NA
AB-1-44	44	42.5	08/15/13	8.3	0.009	<0.005	0.056	0.087	0.0054	<0.5	<0.04	NA
<b><u>Boring AB-2</u></b>												
AB-2-5	5	4.8	08/15/13	<1.0	<0.005	<0.005	<0.005	0.0089	<0.005	<0.5	<0.04	ND
AB-2-10	10	9.6	08/15/13	<1.0	<0.005	0.0092	<0.005	0.0076	<0.005	<0.5	<0.04	ND
AB-2-25	25	24.1	08/15/13	1.2	0.0092	0.079	0.014	0.102	0.0059	<0.5	<0.04	NA
AB-2-30	30	29	08/15/13	270	0.13	<0.1*	4.0	27.1	0.14	<10*	5.7	NA
AB-2-35	35	33.8	08/15/13	560	1.2	<0.2*	13	51.53	0.3	<20*	7.8	NA
AB-2-40	40	38.6	08/15/13	200	1.6	1.2	4.0	23.4	0.43	<10*	3.2	NA
AB-2-44	44	42.5	08/15/13	54	<0.01*	<0.01*	0.066	0.172	<0.01*	<1.0*	0.36	NA



**TABLE 1**  
**SOIL ANALYTICAL RESULTS**  
 B&C Gas Mini Mart  
 2008 First Street, Livermore, California

Sample ID	Borehole Length (feet)	Sample Depth (feet bgs)	Date Collected	GRO (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	MTBE (mg/Kg)	TBA (mg/Kg)	Naphthalene (mg/Kg)	PAH's (mg/Kg)
<b><u>Explanation</u></b>												
Note: Borehole advanced at an angle of approximately 15 degrees from vertical												
GRO = Gasoline range organics / total petroleum hydrocarbons as gasoline												
BTEX = Benzene, toluene, ethylbenzene, and xylenes												
MTBE = Methyl tertiary butyl ether												
TBA = Tertiary butyl alcohol												
PAH's = Polynuclear aromatic hydrocarbons												
bgs = below ground surface												
mg/Kg = milligrams per kilogram												
* = Reporting limits increased due to high concentrations of target analytes												
ND = No PAH's were detected in samples												
NA = No chemical analyses for PAH's were performed												
<b><u>Analytical Laboratory</u></b>												
Alpha Analytical, Inc. (ELAP #2019)												
<b><u>Analytical Methods</u></b>												
GRO analyzed using EPA Method SW8015B/SW8260B												
BTEX, MTBE, TBA, and naphthalene analyzed using EPA Method SW8260B												
PAH's analyzed using EPA Method SW8270C												

**Table 2**  
**Soil Vapor Results**  
**Corrective Action Plan**  
**B&C Gas Station**  
**Livermore, CA**

Sample ID	Depth (feet)	Date Sampled	Oxygen <sup>1</sup> (%)	Methane <sup>1</sup> (%)	Carbon		2-Propanol <sup>2</sup> (µg/m <sup>3</sup> )	MTBE <sup>2</sup> (µg/m <sup>3</sup> )	Benzene <sup>2</sup> (µg/m <sup>3</sup> )	Toluene <sup>2</sup> (µg/m <sup>3</sup> )	Ethyl benzene <sup>2</sup> (µg/m <sup>3</sup> )	m,p- Xylene <sup>2</sup> (µg/m <sup>3</sup> )	o-Xylene <sup>2</sup> (µg/m <sup>3</sup> )	TPH ref. to Gasoline <sup>2</sup> (µg/m <sup>3</sup> )
					Dioxide <sup>1</sup> (%)	Dioxide <sup>1</sup> (%)								
MW-2	5	4/25/06	18	0.0011	2.4	< 11	< 4.1	5.1	11	< 5.0	9.6	< 5.0	930	
MW-2	5	10/16/08	18	< 0.0010	2.4	< 33	< 3.6	< 3.2	5.7	< 4.3	< 4.1	< 5.4	1130	
MW-4	5	4/25/06	20	0.0026	1	52	< 4.0	12	580	16	62	17	3,700	
MIP-2	5	4/25/06	18	0.001	2.6	36	< 4.2	< 3.7	1,000	32	120	38	3,400	
MIP-2 Dup	5	4/25/06	18	0.001	2.6	NA	NA	NA	NA	NA	NA	NA	NA	
MIP-8-5'	5	4/25/06	17	0.004	3	26	< 4.4	8.6	210	9.1	30	11	2,200	
MIP-8-5'	5	11/19/07	NM	NM	NM	NM	< 3.8	< 3.4	12	7.0	12	< 4.6	1,800	
MIP-8-5'	5	10/16/08	17	< 0.0010	3.2	76	< 3.6	< 3.2	< 3.8	< 4.3	< 4.1	< 5.4	990	
MIP-8-10'	10	4/25/06	17	0.0045	3.2	< 12	< 4.4	7.3	4.9	< 5.2	< 5.2	< 5.2	1,300	
MIP-8-15'	15	4/25/06	20	0.01	0.26	44	< 11	61	1,600	30	97	25	18,000	
MIP-8-15' Dup	15	4/25/06	NA	NA	NA	57	< 4.0	55	1,800 (A)	34	110	30	16,000	
MIP-10	5	4/25/06	19	0.0022	2.5	16	< 4.3	11	660	33	130	39	3,500	
MIP-13	5	4/25/06	21	0.0021	0.58	34	< 8.2	12	2,600	49	180	50	9,400	
ESL (Residential)*							9,400	84	63,000	210,000	21,000	21,000	10,000	

Notes:

(µg/m<sup>3</sup>) microgram per cubic meter

NM = not measured

TPH = Total petroleum hydrocarbons

MTBE = Methyl tert-butyl ether

Dup = Duplicate Sample

1 = Samples analyzed by ASTM D-1946

2 = Samples analyzed by TO-15

(A) = Value exceeds instrument calibration range

\* = Table E-2. Shallow Soil Gas Screening Levels (less than 5') for Evaluation of Potential Vapor Intrusion Concerns

California Regional Water Quality Control Board, *Screening for Environmental Concerns at*

*Sites with Contaminated Soil and Groundwater*, Interim-Final November 2007,



**Table 3a**  
**Single-Screen Monitoring Well Construction Details**  
**Corrective Action Plan**  
**B&C Gas Station**  
**Livermore, California**

Well No.	Drilling Method	Date Installed	T.D. Boring (ft.-bgs)	T.D. Well (ft.-bgs)	Borehole Diameter (inches)	Casing Material (PVC)	Casing Diameter (inches)	Screen Size (inches)	Sand Pack Material	Screened Interval (ft.-bgs)	Sand Pack Interval (ft.-bgs)
		Destroyed									
MW-1	HSA	Nov-07	77	77	8	PVC	2	0.020	#3 sand	27 - 77	25 - 77
MW-2	HSA	Jun-94	60	60	10	PVC	4	0.020	#2/20 sand	30 - 60	27 - 60
MW-3	HSA	Jun-94	60	60	10	PVC	4	0.020	#2/20 sand	30 - 60	27 - 60
MW-4	HSA	Jun-94	60	60	10	PVC	4	0.020	#2/20 sand	30 - 60	27 - 60
MW-5	HSA	Oct-95	42	40	10	PVC	4	0.020	#2 sand	15 - 40	12 - 40
MW-6	HSA	Oct-95	42	40	10	PVC	4	0.020	#2 sand	15 - 40	12 - 40
MW-7	HSA	Jun-99	62	49	8	PVC	2	0.020	#3 sand	29-49	27-51
MW-8	HSA	Jun-99	62	54	8	PVC	2	0.020	#3 sand	34-54	32-54
MW-9	HSA	Jun-99	45	45	8	PVC	2	0.020	#3 sand	25-45	23-45
MW-10	HSA	Jun-99	55	53.5	8	PVC	2	0.020	#3 sand	33.5-53.5	23-55
MW-11	HSA	Jun-99	50	49	8	PVC	2	0.020	#3 sand	29-49	27-49
MW-12	HSA	Jun-99	45	43.5	8	PVC	2	0.020	#3 sand	23.5-43.5	21-45
MW-13	HSA	Jul-99	55	55	8	PVC	2	0.020	#3 sand	35-55	32-55
D-1	HSA	Jun-99	125	125	8	PVC	2	0.020	#3 sand	110-125	104-125
D-2	HSA	Jun-99	115	114	8	PVC	2	0.020	#3 sand	99-114	94-114
(MS)MW-1	HSA	Apr-89	62	60	NA	PVC	2	NA	NA	30-60	NA

*Notes:*

HAS = Hollow-Stem Auger

T.D. = total depth

ft.-bgs = feet below ground surface

NA = not available

Well construction information for wells MW-2 through MW-6 collected from Remediation Service Int'l boring logs.

**ATTACHMENT 5**

**Table 3b**  
**Multi-Level Monitoring Well Construction Details**  
**Corrective Action Plan**  
**B&C Gas Station**  
**Livermore, California**

Well No.	Zone No.	Drilling Method	Date Installed	T.D. Boring (ft.-bgs)	T.D. CMT (ft.-bgs)	Borehole Diameter (inches)	Casing Material	Casing Diameter (inches)	Sand Pack Material	Port Depth (ft.-bgs)	Sand Pack Interval (ft.-bgs)
CMT-1	Z1	Sonic	7-Aug-03	147	146	6.0	CMT	1.7	#2/12	46	43 - 48.8
	Z2									61	59 - 62
	Z3									69	66.8 - 70.7
	Z4									91	89 - 93.3
	Z5									106	104 - 108.4
	Z6									123	120.5 - 125.5
	Z7									145	142 - 147
CMT-2	Z1	Sonic	11-Aug-03	147	144	6.0	CMT	1.7	#2/12	49	46 - 50.5
	Z2									59	57.1 - 60.5
	Z3									68	66 - 70
	Z4									88	86 - 89.9
	Z5									106	104 - 107.5
	Z6									125	123 - 126.5
	Z7									144	142 - 147
CMT-3	Z1	Sonic	13-Aug-03	187	155	6.0	CMT	1.7	#2/16	44	41 - 46
	Z2									55	53 - 58
	Z3									65	61.5 - 67.5
	Z4									88	86 - 90
	Z5									108	104.5 - 110
	Z6									132	128.5 - 134
	Z7									155	152.5 - 157
CMT-4	Z1	Sonic	14-Aug-03	137	136	6.0	CMT	1.7	#2/16	26	24 - 28.5
	Z2									38	35.5 - 40
	Z3									52	48.6 - 55
	Z4									62	60 - 65
	Z5									72	69.6 - 73.5
	Z6									107	104 - 110
	Z7									136	132.5 - 137

*Notes:*

T.D. = total depth

ft.-bgs = feet below ground surface

CMT = continuous multi-channel tubing (7 discrete internal channels in a "honeycomb" pattern within the larger tubing)

faint line indicates approximate location of aquiclude in each well



**Table 5**  
**Sparge Well Construction Details**  
**Corrective Action Plan**  
**B&C Gas Station**  
**Livermore, California**

Well No.	Drilling Method	Date Completed	T.D. Boring (ft.-bgs)	T.D. Well (ft.-bgs)	Borehole Diameter (inches)	Casing Material (PVC)	Casing Diameter (inches)	Screen Size and Type	Sand Pack Material	Seal Material	Seal Interval (ft.-bgs)	Screened Interval (ft.-bgs)	Sand Pack Interval (ft.-bgs)
SP-1A	HSA	8/22/2007	48.5	42.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	36.5-39.5	40.5-42.0	39.5-42.0
SP-1B	HSA	8/22/2007	48.5	48.5	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	42.0-45.5	47-48.5	45.5-48.5
SP-2A	HSA	8/21/2007	48.5	42.5	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	37.0-40.0	41.0 - 42.5	40.0-42.5
SP-2B	HSA	8/21/2007	48.5	48.5	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	42.5-46.0	47.0-48.5	46.0-48.5
SP-3A	HSA	8/24/2007	49.0	42.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	36.5 - 39.5	40.5-42.0	39.5-42.0
SP-3B	HSA	8/24/2007	49.0	48.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	42.0-45.5	46.5-48.0	45.5-48.0
SP-4A	HSA	8/22/2007	49.0	42.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	36.5-39.5	40.5-42.0	39.5-42.0
SP-4B	HSA	8/22/2007	49.0	49.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	42.0-45.5	47.5-49.0	45.5-49.0
SP-5A	HSA	8/21/2007	51.0	41.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	35.5-38.5	39.5-41.0	38.5-41.0
SP-5B	HSA	8/21/2007	51.0	48.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	41.0-45.5	46.5-48.0	45.5-48.0
SP-5C	HSA	8/21/2007	54.0	54.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	48.5-51.5	52.5-54.0	51.5-54.0
SP-6A	HSA	8/23/2007	54.0	42.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	36.5-39.5	40.5-42.0	39.5-42.0
SP-6B	HSA	8/23/2007	54.0	49.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	42.0-44.0	47.5-49.0	44.0-49.0
SP-6C	HSA	8/24/2007	56.0	54.0	8.25	SCH 80	1	1.5 in.x 18 in., 25 micron porous PVDF	#0/30	Bentonite Chips	48.5-51.5	52.5-54.0	51.5-54.0

**Notes:**

HAS = Hollow-Stem Auger

T.D. = total depth

ft.-bgs = feet below ground surface

PVDF = polyvinylidene fluoride (Kynar)

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Summary							
					GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MS (MW-1)	03/21/07	32.57	477.79	445.22	--	--	--	--	--	--	--	--
	03/23/07	--	--	--	770	1.0	<0.50	<0.50	<0.50	<0.50	--	<5.0
	06/21/07	40.40		437.39	--	--	--	--	--	--	--	--
	09/24/07	48.16		429.63	--	--	--	--	--	--	--	--
	12/17/07	48.35		429.44	--	--	--	--	--	--	--	--
	03/03/08	36.20		441.59	--	--	--	--	--	--	--	--
	06/09/08	41.50		436.29	--	--	--	--	--	--	--	--
	08/26/08	50.58		427.21	--	--	--	--	--	--	--	--
	12/08/08	52.12		425.67	--	--	--	--	--	--	--	--
	12/31/08	--	--	--	--	560	16	0.68	4.6	1.4	11	<0.050

Well Destroyed



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Data (µg/L)								
					GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TAME	TBA	
MW-2	03/21/07	28.77	486.25	457.48	--	--	--	--	--	--	--	--	--
	03/27/07	--		--	7,800	330	91	810	870	34	--	--	<7.0
	06/21/07	36.10		450.15	--	--	--	--	--	--	--	--	--
	06/22/07	--		--	2,400	150	12	130	23	23	--	--	<40
	09/25/07	44.99		441.26	10,000	270	17	230	31	15	--	--	43
	12/17/07	44.89		441.36	--	--	--	--	--	--	--	--	--
	12/18/07	--		--	4,500	51	4.7	58	32	10	<0.50	--	<10
	03/03/08	32.42		453.83	--	--	--	--	--	--	--	--	--
	03/04/08	--		--	3,600	70	7.2	70	120	6.3	--	--	<50
	06/09/08	37.39		448.86	--	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	59	6.5	19	65	12	--	--	<10
	08/26/08	46.79		439.46	--	--	--	--	--	--	--	--	--
	08/27/08	--		--	360	5.9	<0.50	0.56	<1.0	0.74	--	--	<10
	12/08/08	49.12		437.13	--	--	--	--	--	--	--	--	--
	12/10/08	--		--	4,800	37	11	26	310	14	--	--	<100
	03/26/09	38.90		447.35	2,000	3.6	<0.50	<0.50	3.8	0.84	--	--	<10
	02/18/11	33.40		452.85	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--	--
	09/27/11	33.83		452.42	100	1.0	<0.50	0.66	<1.0	<0.50	--	--	<10
	01/25/12	39.57		446.68	210	5.5	<0.50	<0.50	<0.50	<0.50	--	--	<10
	09/20/12	41.40		444.85	55	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<10
	03/18/13	32.34		453.91	90	1.4	<0.50	1.3	<0.50	<0.50	--	--	<10

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Data (µg/L)								
					GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TAME	TBA	
MW-3	03/21/07	28.09	486.39	458.30	--	--	--	--	--	--	--	--	--
	03/22/07	--		--	130	2.5	<0.50	0.98	<0.50	16	--	--	<5.0
	06/21/07	35.30		451.09	--	--	--	--	--	--	--	--	--
	06/22/07	--		--	180	6.4	<0.50	<0.50	<0.50	46	--	--	<20
	09/24/07	43.72		442.67	--	--	--	--	--	--	--	--	--
	09/25/07	--		--	6,500	29	2.0	76	42	8.6	--	--	33
	12/17/07	43.87		442.52	--	--	--	--	--	--	--	--	--
	12/18/07	--		--	7,200	93	6.8	70	73	24	<0.50	--	<10
	03/03/08	31.59		454.80	--	--	--	--	--	--	--	--	--
	03/04/08	--		--	1,400	1.1	<0.50	6.6	6.2	6.2	--	--	<10
	06/09/08	36.62		449.77	--	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	1.4	<0.50	0.60	<1.0	2.2	--	--	<10
	08/26/08	45.72		440.67	--	--	--	--	--	--	--	--	--
	08/27/08	--		--	2,600	160	9.8	56	30	100	--	--	<10
	12/08/08	48.22		438.17	--	--	--	--	--	--	--	--	--
	12/10/08	--		--	3,200	440	20	79	30	380	--	--	<100
	03/26/09	37.92		448.47	830	34	1.6	<0.50	3.5	42	--	--	<10
	02/18/11	32.26		454.13	120	1.2	<0.50	<0.50	<1.0	4.1	--	--	--
	09/27/11	32.79		453.60	490	2.0	<0.50	1.4	<1.0	19.0	--	--	<10
	01/25/12	38.66		447.73	600	19	<0.50	2.3	0.82	8.7	--	--	<10
	09/20/12	40.35		446.04	720	28	0.61	2.9	0.65	41	--	--	<10
	03/18/13	31.50		454.89	140	4.2	<0.50	0.75	<0.50	18	--	--	<10



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-4	03/21/07	28.67	487.43	458.76	--	--	--	--	--	--	--	--
	03/27/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<5.0
	06/21/07	32.20		455.23	--	--	--	--	--	--	--	--
	06/22/07	--		--	<50	<0.50	<0.50	<0.50	<0.50	1.1	--	<20
	09/24/07	44.57		442.86	--	--	--	--	--	--	--	--
	09/25/07	--		--	140	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	12/17/07	44.67		442.76	--	--	--	--	--	--	--	--
	12/18/07	--		--	350	0.53	<0.50	0.72	<1.0	<0.50	<0.50	<10
	03/03/08	32.20		455.23	--	--	--	--	--	--	--	--
	03/04/08	--		--	93	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	06/09/08	37.28		450.15	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	08/26/08	46.63		440.80	--	--	--	--	--	--	--	--
	08/27/08	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	12/08/08	49.23		438.20	--	--	--	--	--	--	--	--
	12/09/08	--		--	340	3.30	1.2	<0.50	2.8	<0.50	--	<10
	03/26/09	38.83		448.60	290	0.94	<0.50	<0.50	<1.0	<0.50	--	<10
	02/18/11	29.98		457.45	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	33.61		453.82	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	01/25/12	39.42		448.01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	41.16		446.27	63	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	03/18/13	32.13		455.30	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Data (µg/L)								
					GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TAME	TBA	
MW-5	03/21/07	28.47	484.33	455.86	--	--	--	--	--	--	--	--	--
	03/27/07	--	--	--	4,000	140	4.2	300	64	23	--	--	<5.0
	06/21/07	35.30	--	449.03	--	--	--	--	--	--	--	--	--
	06/22/07	--	--	--	4,200	180	5.5	200	18	29	--	--	<20
	09/24/07	38.72	--	445.61	--	--	--	--	--	--	--	--	--
	09/25/07	--	--	--	6,000	420	27	560	110	56	--	--	98
	12/17/07	38.71	--	445.62	--	--	--	--	--	--	--	--	--
	03/03/08	32.10	--	452.23	--	--	--	--	--	--	--	--	--
	03/04/08	--	--	--	12,000	550	48	1,000	260	78	--	--	<100
	06/09/08	37.02	--	447.31	--	--	--	--	--	--	--	--	--
	06/11/08	--	--	--	<50	720	33	1,200	97	77	--	--	<10
	08/26/08	--	--	--	--	--	--	--	--	--	--	--	--
	12/08/08	--	--	--	--	--	--	--	--	--	--	--	--
	03/26/09	--	--	--	--	--	--	--	--	--	--	--	--
	02/18/11	32.79	--	--	451.54	4,500	230	<10	140	<20	21	--	--
	09/27/11	33.62	--	--	450.71	1,800	34	1.9	8.5	2.2	<0.50	--	<10
	01/25/12	38.62	--	--	445.71	--	--	--	--	--	--	--	--
09/20/12	39.00	--	--	445.33	--	--	--	--	--	--	--	--	
03/19/13	32.03	--	--	452.30	6,800	57	4.6	47	8.1	21	--	<50[1]	
MW-6	09/27/11	--	486.29	--	--	--	--	--	--	--	--	--	--
	01/25/12	--	--	--	--	--	--	--	--	--	--	--	--
	12/26/12	--	--	--	--	--	--	Well Damaged		--	--	--	--



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
MW-7	03/21/07	28.86	480.54	451.68	--	--	--	--	--	--	--	--
	03/23/07	--		--	560	4.3	<0.50	0.83	<0.50	22	--	<5.0
	06/21/07	35.70		444.84	--	--	--	--	--	--	--	--
	06/22/07	--		--	4,200	9.1	<0.50	18	4.1	9.9	--	<20
	09/24/07	44.07		436.47	--	--	--	--	--	--	--	--
	09/25/07	--		--	590	0.56	<0.50	0.52	<0.50	14	--	<10
	12/17/07	44.13		436.41	--	--	--	--	--	--	--	--
	12/18/07	--		--	1,800	2.2	<0.50	1.9	0.58	16	<0.50	<10
	03/03/08	31.89		448.65	--	--	--	--	--	--	--	--
	03/04/08	--		--	3,700	85	6.7	180	25	49	--	<10
	06/09/08	37.21		443.33	--	--	--	--	--	--	--	--
	06/10/08	--		--	<50	76	6.5	95	13	53	--	<10
	08/26/08	46.11		434.43	--	--	--	--	--	--	--	--
	08/27/08	--		--	650	11	0.56	4.0	<1.0	15	--	<10
	12/08/08	48.02		432.52	--	--	--	--	--	--	--	--
	12/09/08	--		--	1,600	7.2	<0.50	<0.50	<1.0	9.6	--	<10
	03/26/09	37.77		442.77	850	49	2.0	22	2.1	37	--	<10
	02/18/11	32.51		448.03	<50	<0.50	<0.50	<0.50	<1.0	0.98	--	--
	09/27/11	33.59		446.95	690	13	<0.50	<0.50	<1.0	23	--	<10
	01/26/12	39.07		441.47	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	41.04		439.50	53	<0.50	<0.50	<0.50	<0.50	1.1	--	<10
	03/18/13	31.88		448.66	410	7.3	<0.50	0.56	<0.50	8.1	--	<10

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Data (µg/L)								
					GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TAME	TBA	
MW-8	03/21/07	33.76	475.62	441.86	--	--	--	--	--	--	--	--	--
	06/21/07	42.10		433.52	--	--	--	--	--	--	--	--	--
	09/24/07	51.04		424.58	--	--	--	--	--	--	--	--	--
	12/17/07	50.18		425.44	--	--	--	--	--	--	--	--	--
	12/18/07	--		--	54	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10	--
	03/03/08	37.84		437.78	--	--	--	--	--	--	--	--	--
	06/09/08	43.50		432.12	--	--	--	--	--	--	--	--	--
	08/26/08	44.53		431.09	--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--	--
	02/18/11	37.59		438.03	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--	--
	09/27/11	39.76		435.86	--	--	--	--	--	--	--	--	--
	01/26/12	44.27		431.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10	--
	09/20/12	46.94		428.68	--	--	--	--	--	--	--	--	--
	03/18/13	37.04		438.58	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10	--



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)			Ethyl- benzene (µg/L)		Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
				GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	benzene (µg/L)	Xylenes (µg/L)				
MW-9	03/21/07	30.76	479.48	448.72	--	--	--	--	--	--	--	--
	06/21/07	38.10		441.38	--	--	--	--	--	--	--	--
	09/24/07	43.30		436.18	--	--	--	--	--	--	--	--
	12/17/07	43.34		436.14	--	--	--	--	--	--	--	--
	03/03/08	34.35		445.13	--	--	--	--	--	--	--	--
	06/09/08	39.64		439.84	--	--	--	--	--	--	--	--
	08/26/08	43.33		436.15	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	01/25/12	41.12		438.36	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	43.23		436.25	--	--	--	--	--	--	--	--
	03/18/13	33.90		445.58	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater				Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
				Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)					
MW-10	03/21/07	34.01	473.84	439.83	--	--	--	--	--	--	--	--
	06/21/07	42.30		431.54	--	--	--	--	--	--	--	--
	09/24/07	51.43		422.41	--	--	--	--	--	--	--	--
	12/17/07	50.37		423.47	--	--	--	--	--	--	--	--
	12/18/07	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	38.22		435.62	--	--	--	--	--	--	--	--
	06/09/08	44.28		429.56	--	--	--	--	--	--	--	--
	08/26/08	44.88		428.96	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	37.88		435.96	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	40.12		433.72	--	--	--	--	--	--	--	--
	01/26/12	44.65		429.19	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	47.27		426.57	--	--	--	--	--	--	--	--
	03/18/13	37.40		436.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Summary								
					GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	
MW-11	03/21/07	30.49	467.32	436.83	--	--	--	--	--	--	--	--	
	06/21/07	38.30		429.02	--	--	--	--	--	--	--	--	
	09/24/07	43.22		424.10	--	--	--	--	--	--	--	--	
	12/17/07	43.18		424.14	--	--	--	--	--	--	--	--	
	03/03/08	34.72		432.60	--	--	--	--	--	--	--	--	
	06/09/08	40.42		426.90	--	--	--	--	--	--	--	--	
	08/26/08	43.57		423.75	--	--	--	--	--	--	--	--	
	12/08/08	50.18		417.14	--	--	--	--	--	--	--	--	
	09/27/11	36.35		430.97	--	--	--	--	--	--	--	--	
	01/26/12	40.72		426.60	<50	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	43.08		424.24	--	--	--	--	--	--	--	--	--
	03/18/13	33.41		433.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	
				Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)						Toluene (µg/L)
MW-12	03/21/07	24.77	460.73	435.96	--	--	--	--	--	--	--	
	06/21/07	32.90		427.83	--	--	--	--	--	--	--	
	09/24/07	42.20		418.53	--	--	--	--	--	--	--	
	12/17/07	40.93		419.80	--	--	--	--	--	--	--	
	12/18/07	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	28.99		431.74	--	--	--	--	--	--	--	
	06/09/08	35.10		425.63	--	--	--	--	--	--	--	
	08/26/08	42.55		418.18	--	--	--	--	--	--	--	
	12/08/08	--		--	--	--	--	--	--	--	--	
	09/27/11	30.80		429.93	--	--	--	--	--	--	--	
	01/26/12	35.25		425.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	38.06		422.67	--	--	--	--	--	--	--	
	03/18/13	27.98		432.75	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Data (µg/L)							
					GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TAME	TBA
MW-13	03/21/07	30.37	477.18	446.81	--	--	--	--	--	--	--	--
	03/27/07	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	4.6	--	<5.0
	06/21/07	37.60	--	439.58	--	--	--	--	--	--	--	--
	06/22/07	--	--	--	180	0.52	<0.50	<0.50	<0.50	23	--	<200
	09/24/07	45.60	--	431.58	--	--	--	--	--	--	--	--
	09/25/07	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	6.9	--	<10
	12/17/07	45.13	--	432.05	--	--	--	--	--	--	--	--
	12/18/07	--	--	--	73	<0.50	<0.50	<0.50	<1.0	2.8	<0.50	<10
	03/03/08	33.82	--	443.36	--	--	--	--	--	--	--	--
	03/04/08	--	--	--	740	20	0.76	5.8	2.0	35	--	<10
	06/09/08	39.02	--	438.16	--	--	--	--	--	--	--	--
	06/10/08	--	--	--	<50	27	0.5	1.9	<1.0	39	--	<10
	08/26/08	47.52	--	429.66	--	--	--	--	--	--	--	--
	08/27/08	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	2.9	--	<10
	12/08/08	49.02	--	428.16	--	--	--	--	--	--	--	--
	12/10/08	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	03/26/09	39.59	--	437.59	350	15	0.52	<0.50	<1.0	19	--	<10
	02/18/11	34.27	--	442.91	<50	1.1	<0.50	<0.50	<1.0	8.4	--	--
	09/27/11	35.86	--	441.32	74	<0.50	<0.50	<0.50	<1.0	7.2	--	<10
	01/25/12	40.65	--	436.53	170	<0.50	<0.50	<0.50	<0.50	13	--	<10
09/20/12	42.76	--	434.42	<50	<0.50	<0.50	<0.50	<0.50	8.6	--	<10	
03/18/13	33.82	--	443.36	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10	

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	
				GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)						
CMT-1 Z1	03/21/07	35.26	471.96	436.70	--	--	--	--	--	--	--	
	03/22/07	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	--	<5.0	
	06/21/07	43.40	--	428.56	--	--	--	--	--	--	--	
	09/24/07	--	--	--	--	--	--	--	--	--	--	
	12/17/07	--	--	--	--	--	--	--	--	--	--	
	03/03/08	39.80	--	432.16	--	--	--	--	--	--	--	
	03/05/08	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	06/09/08	--	--	--	--	--	--	--	--	--	--	
	08/26/08	--	--	--	--	--	--	--	--	--	--	
	12/08/08	--	--	--	--	--	--	--	--	--	--	
	02/18/11	38.38	--	433.58	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	--
	09/27/11	41.31	--	430.65	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	01/25/12	45.30	--	426.66	--	--	--	--	--	--	--	
	09/20/12	45.30	--	426.66	--	--	--	--	--	--	--	
	03/18/13	38.45	--	433.51	--	--	--	--	--	--	--	



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater				Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
				Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)					
CMT-2 Z1	03/21/07	34.15	472.53	438.38	--	--	--	--	--	--	--	--
	06/21/07	42.90		429.63	--	--	--	--	--	--	--	--
	09/24/07	--		--	--	--	--	--	--	--	--	--
	12/17/07	--		--	--	--	--	--	--	--	--	--
	03/03/08	38.63		433.90	--	--	--	--	--	--	--	--
	06/09/08	44.58		427.95	--	--	--	--	--	--	--	--
	08/26/08	--		--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--
	02/18/11	37.62		434.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--
	09/27/11	40.59		431.94	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	01/25/12	45.14		427.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10
	09/20/12	48.47		424.06	--	--	--	--	--	--	--	--
	03/18/13	37.19		435.34	--	--	--	--	--	--	--	--

**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Summary								
					GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	
CMT-3 Z1	03/21/07	34.40	476.28	441.88	--	--	--	--	--	--	--	--	--
	06/21/07	42.60		433.68	--	--	--	--	--	--	--	--	--
	09/24/07	--		--	--	--	--	--	--	--	--	--	--
	12/17/07	--		--	--	--	--	--	--	--	--	--	--
	03/03/08	38.45		437.83	--	--	--	--	--	--	--	--	--
	06/09/08	--		--	--	--	--	--	--	--	--	--	--
	08/26/08	--		--	--	--	--	--	--	--	--	--	--
	12/08/08	--		--	--	--	--	--	--	--	--	--	--
	02/18/11	38.48		437.80	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--
	09/27/11	40.64		435.64	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	25.00	--
	01/25/12	43.20		433.08	--	--	--	--	--	--	--	--	--
	09/20/12	43.20		433.08	--	--	--	--	--	--	--	--	--
	03/18/13	37.94		438.34	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	<10



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Analytical Summary (µg/L)								
					GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	TAME	TBA	
CMT-4 Z2	03/21/07	28.22	485.82	457.60	--	--	--	--	--	--	--	--	--
	03/22/07	--	--	--	5,800	1,800	130	190	180	1,700	--	140	--
	06/21/07	35.20	--	450.62	--	--	--	--	--	--	--	--	--
	09/24/07	--	--	--	--	--	--	--	--	--	--	--	--
	12/17/07	--	--	--	--	--	--	--	--	--	--	--	--
	03/03/08	32.12	--	453.70	--	--	--	--	--	--	--	--	--
	03/05/08	--	--	--	8,200	1,600	160	290	690	900	<12	<250	--
	06/09/08	36.71	--	449.11	--	--	--	--	--	--	--	--	--
	08/26/08	--	--	--	--	--	--	--	--	--	--	--	--
	12/08/08	--	--	--	--	--	--	--	--	--	--	--	--
	03/27/09	--	--	--	--	--	--	--	--	--	--	--	--
	02/18/11	37.70	--	448.12	--	--	--	--	--	--	--	--	--
	09/27/11	33.22	--	452.60	1,400	210	10	66	140	150	<2.5	<50	--
	01/25/12	37.40	--	448.42	--	--	--	--	--	--	--	--	--
	09/20/12	37.40	--	448.42	--	--	--	--	--	--	--	--	--
	03/18/13	32.05	--	453.77	--	--	--	--	--	--	--	--	--

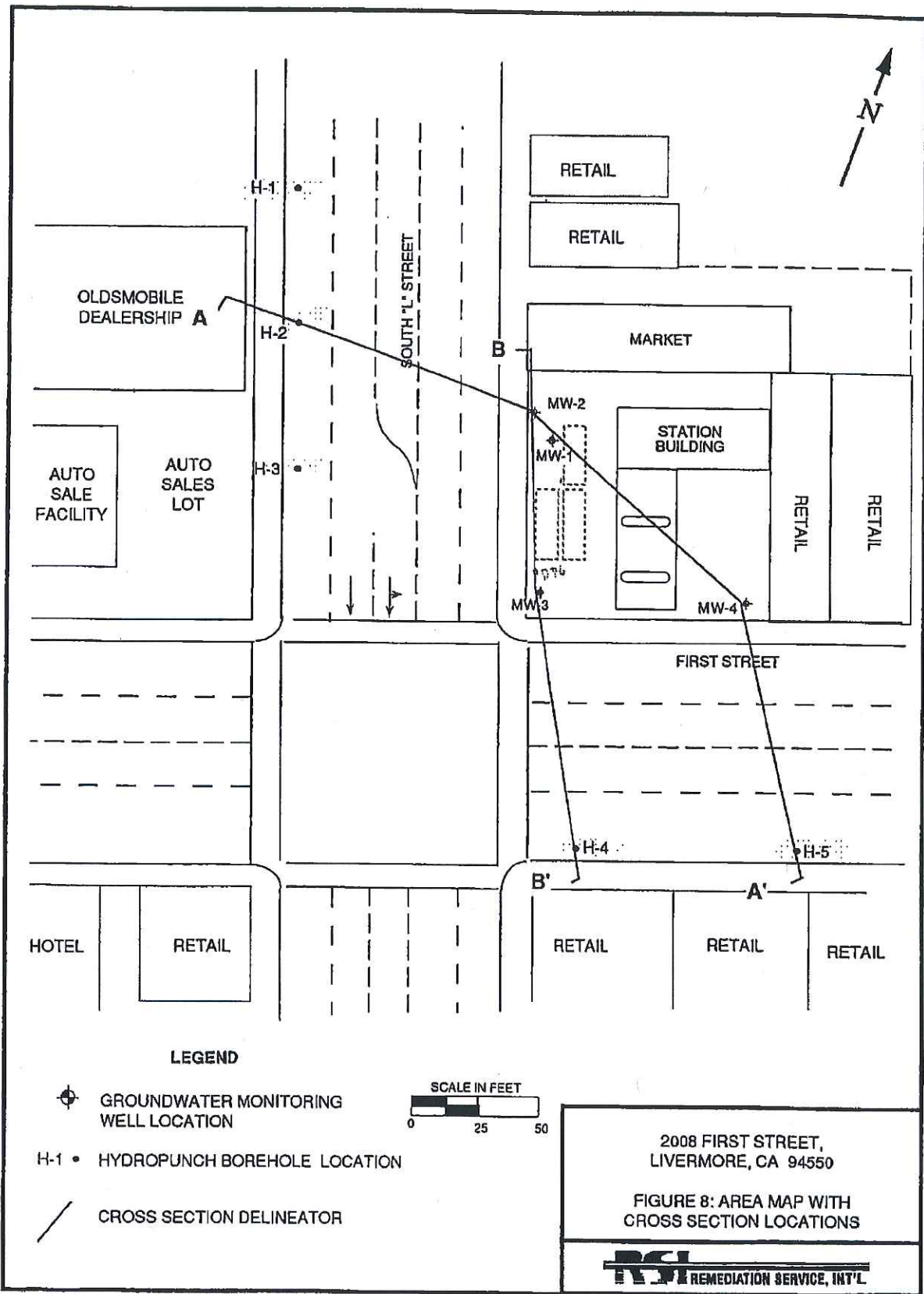
**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	
				Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)						Toluene (µg/L)
D-2	03/21/07	26.50	460.01	433.51	--	--	--	--	--	--	--	
	03/22/07	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	--	<5.0	
	06/21/07	34.40	--	425.61	--	--	--	--	--	--	--	
	06/22/07	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	--	<20	
	09/24/07	43.61	--	416.40	--	--	--	--	--	--	--	
	09/25/07	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	--	<10	
	12/17/07	39.07	--	420.94	--	--	--	--	--	--	--	
	12/18/07	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<10
	03/03/08	28.07	--	431.94	--	--	--	--	--	--	--	
	03/04/08	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	06/09/08	36.42	--	423.59	--	--	--	--	--	--	--	
	06/10/08	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	08/26/08	45.39	--	414.62	--	--	--	--	--	--	--	
	08/28/08	--	--	--	230	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	12/08/08	43.07	--	416.94	--	--	--	--	--	--	--	
	12/09/08	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	03/26/09	34.33	--	425.68	<50	<0.50	<0.50	<0.50	<1.0	<0.50	--	<10
	09/27/11	31.46	--	428.55	--	--	--	--	--	--	--	
01/26/12	41.38	--	418.63	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10	
09/20/12	43.51	--	416.50	--	--	--	--	--	--	--		
03/18/13	33.99	--	426.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<10	
SVE-3A	03/18/13	32.26	--	--	170	13	<0.50	<0.50	<0.50	2.1	--	<10
SVE-3B	03/18/13	32.32	--	--	650	5.8	<0.50	18	<0.50	<0.50	--	<10
SVE-4A	03/19/13	31.72	--	--	210	3.2	<0.50	<0.50	0.66	0.91	--	<10
SVE-4B	03/19/13	31.39	--	--	720	0.94	<0.50	<0.50	<0.50	<0.50	--	<10



**TABLE 1**  
**HISTORICAL GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**B&C Gas Mini Mart**  
**2008 First Street, Livermore**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)
<u>Notes:</u>					<u>Analysis:</u>							
GRO = Gasoline Range Organics C4-C13					GRO analyzed using EPA Method SW8015B/ SW8260B,							
MTBE = Methyl tert-butyl ether					all remaining analytes analyzed using EPA Method SW8260B.							
TAME=Tert amyl-methyl ether												
TBA=Tert-butyl alcohol												
msl = Mean sea level												
µg/L = Micrograms per liter												
-- = Not analyzed/Not measured												
1 = Reporting limits were increased due to high concentrations of target analytes.					All data taken from Golder Associates, 2011 Second Semi-Annual Groundwater Monitoring Report, dated November 2, 2011							



2008 FIRST STREET,  
LIVERMORE, CA 94550

FIGURE 8: AREA MAP WITH  
CROSS SECTION LOCATIONS



