RO324

2006 SEP 26 PM 1:31

Alameda County
SEP 28 2006
Environmental Health

Allterra Environmental, Inc.
849 Almar Avenue, Suite C
No. 281
Santa Cruz, California 95060

Client: Mr. Manwel Shuwayhat
Project Location: 160 Holmes Street, Livermore, California
Subject: Work Plan for Source Area Investigation for Fuel Leak Case No. RO0000324
Report Date: September 12, 2006

To Whom It May Concern:

I have reviewed the report referenced above and approve its distribution to the necessary regulatory agencies. Should any of the regulatory agencies require it, I am prepared to declare, under penalty of perjury that, "to the best of my knowledge the information contained in the subject report is true and correct."

Sincerely,

Manwel M Shuwayhat

Mr. Manwel Shuwayhat

ALLTERRA

September 12, 2006

Mr. Jerry Wickham
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: Work Plan for Source Area Investigation for Fuel Leak Case No. RO0000324, Livermore Gas and Mini-Mart, 160 Holmes Street, Livermore, California

Dear Mr. Wickham:

On behalf of Mr. Manwel Shuwayhat, Allterra Environmental, Inc. (Allterra) has prepared the enclosed Work Plan for Source Area Investigation. Should you have any questions or comments please contact Allterra at (831) 425-2608.

Sincerely,
Allterra Environmental, Inc.

James Allen, R.E.A.
Project Manager

enclosures: Work Plan for Source Area Investigation

Work Plan for Source Area Investigation
Fuel Leak Case No. RO0000324, Livermore Gas and Mini-Mart, 160 Holmes Street, Livermore, California

Date:
September 12, 2006

Project No.:
015-01-018

Prepared For:
Manwel and Samira Shuwayhat
54 Wolfe Canyon Road
Kentfield, California 94904

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September 12, 2006
Project No.: 015-01-018

Manwel and Samira Shuwayhat
54 Wolfe Canyon Road
Kentfield, California 94904

Subject: Work Plan for Source Area Investigation for Fuel Leak Case No. RO0000324, Livermore Gas and Mini-Mart, 160 Holmes Street, Livermore, California

Dear Mr. and Mrs. Shuwayhat:

On your behalf, Allterra Environmental, Inc. (Allterra) has prepared this Work Plan for Source Area Investigation to propose investigative drilling activities to be completed at 160 Holmes Street in Livermore, California (Site). The purpose of the proposed scope of work is to further investigate hydrocarbon contamination in soil and groundwater beneath and adjacent to the former fuel dispenser area and UST pit. This work plan was prepared pursuant to a letter directive from Alameda County Environmental Health (ACEH) dated August 15, 2006.

Site Location and Description
The subject property is located at the northeast intersection of Holmes Street and Second Street, in Livermore, California (Figure 1). A Vallero fuel station currently occupies the Site and the surrounding area is primarily residential with some retail businesses along 1st and 2nd Streets. The approximate surface elevation of the site is 465 feet above mean sea level (MSL) and slopes to the northwest. Pertinent site features, including the locations of the former underground storage tanks (USTs), existing monitoring and extraction wells, and previous soil borings are presented in Figure 2.

Previous Work
Impacted groundwater was discovered near the northern border of the Site when a soil boring was advanced on February 26, 1999. A grab groundwater sample from the boring had 100,000 micrograms per liter (µg/L) of total petroleum hydrocarbons as gasoline (TPHg), 6,100 µg/L of benzene, and 60,000 µg/L of methyl tertiary butyl ether (MTBE). Historical groundwater elevation data and groundwater analytical results are attached are attached as Tables 1 and 2, respectively.

On April 5, 1999, three gasoline and one diesel USTs and associated structures were removed. Following over-excavation of soil in the tank pit, soil samples were collected from native material. Analytical results of a sample collected from the soil stockpile generated during over-excavation activities indicted total petroleum hydrocarbons as diesel (TPHd) at a concentration of 61 milligrams per kilogram (mg/kg), TPHg at 80 mg/kg, and MTBE up to 110 mg/kg.

On May 20, 1999, soil samples were collected from below the dispenser islands. TPHg was detected beneath the east dispenser at a maximum concentration of 6,500 mg/kg. TPHd was detected beneath the diesel dispenser at a maximum concentration of 1,300 mg/kg. No MTBE was detected at or above laboratory detection limits in samples collected from beneath the dispenser islands.

On July 26, 2000, ETIC completed an investigation that included the installation of three, 2-inch diameter groundwater monitoring wells designated MW-1, MW-2, and MW-3. The wells were installed to a total depth of 30 feet below ground surface (bgs) with a slotted interval from 15 to 30 feet bgs. Analytical results of water samples from these wells indicated significant impact from petroleum hydrocarbons, particularly in well MW-1, located directly down-gradient from the suspected contaminant source. Results from water samples from MW-1 showed TPHg and MTBE at concentrations of 170,000 µg/L and 320,000 µg/l, respectively (ETIC, 2000).

On February 2, 2001, Geo Environmental Technologies (GET) completed an investigation that included five Geoprobe® borings designated B-1 to B-5. High levels of petroleum hydrocarbon contamination were detected in groundwater, including TPHg concentrations up to 650,000 µg/L, benzene concentrations up to 6,300 µg/L, and MTBE concentrations up to 290,000 µg/L (GET 2001).

On October 30, 2001, GET oversaw the installation of monitoring wells MW-4, MW-5, MW-6, and extraction well EX-1 (GET, 2001). The new wells were added to the quarterly groundwater monitoring program.

On December 30, 2002, GET performed a pump test at former well EX-1. Test results indicated that a sustainable groundwater extraction flow rate of 1 gallon per minute (gpm) could be achieved from well EX-1 (GET, 2002).

On April 24, 2003, GET performed a soil vapor extraction pilot test at MW-1. Vapor samples collected during the test indicated TPHg levels as high as 5,100 milligrams per cubic meter (mg/m^3), benzene up to 39 mg/m^3, and MTBE up to 440 mg/m^3. The soil vapor extraction flow rate and radius of influence were estimated to be 1.42 standard cubic feet per minute (scfm) and 40 feet, respectively (GET, 2003).

Between November 2005 and February 2006, Allterra conducted a soil and groundwater investigation that included the installation of ten Geoprobe® borings (MB-1, MB-2, MB-3, DB-1, DB-2, DB-5, B-1, B-2, B-3, and HP-1) and nine monitoring and extraction wells (MW-1B, MW-4A, MW-5A, MW-5B, MW-7A, MW-7B, MW-7C, EW-1, and EW-2) (see Figure 2). Soil analytical results indicated TPHg concentrations as high as 1,400 mg/kg, TPHd as high as 100 mg/kg, benzene as high as 0.27 mg/kg, and MTBE as high as 14 mg/kg. Groundwater analytical results indicated TPHg concentrations as high as 42,000 µg/L, TPHd as high as 41,000 µg/L, benzene as high as 970 µg/L, and MTBE as high as 6,900 µg/L (Allterra 2005-2006).

On April 11 and 12, 2006, Allterra personnel performed dual-phase remedial pilot tests at wells EW-1 and EW-2. Soil vapor samples from EW-1 indicated that TPHg was not detected at or above laboratory detection limits and MTBE was detected at a maximum concentration of 7.0 mg/m^3. Soil vapor samples from EW-2 revealed TPHg was detected at a maximum concentration of 41 mg/kg and MTBE was detected at a maximum concentration of 96 mg/m^3. Groundwater extraction flow rates from the wells stabilized at approximately 5 gpm and flow stream samples from EW-1 indicated levels of TPHg up to 13,000 µg/L and MTBE up to 44,000 µg/L and flow stream samples from EW-2 indicated levels of TPHg up to 1,000 µg/L and MTBE up to 2,700 µg/L. The remedial DPE test indicated that groundwater extraction from wells EW-1 and EW-2 was a feasible remedial alternative; however, soil vapor extraction sample data was much lower than expected (Allterra, 2006).

Proposed Scope of Work

Previous investigations primarily focused on defining the vertical and lateral extent of dissolved hydrocarbons and fuel oxygenates (primarily MTBE) beneath and down-gradient of the Site. This proposed investigation is intended to locate and characterize the source of contamination on-site by establishing the extent of petroleum hydrocarbon contamination in soil. The results of this investigation will be used to examine the feasibility of soil vapor extraction as a remedial action. Additionally, groundwater data will be used to further characterize dissolved contaminants beneath the Site. The tasks described herein are subject to regulatory agency review and approval.

Permitting and Utility Checks

Zone 7 Soil Boring Permits

Prior to boring activities, soil boring permits will be acquired from Zone 7 Water Agency. Underground Service Alert (USA) will be notified to identify the public service utilities in the area prior to commencing boring activities.

Geoprobe® Soil Borings

Allterra proposes to investigate subsurface contaminants by drilling nineteen (19) Geoprobe® borings (GP-1 through GP-19) in the locations presented in Figure 3. The boring locations are intended to provide additional on-site lithology characterization, soil and groundwater analytical data for use in evaluating conditions beneath and adjacent to the dispenser areas and USTs, as well as to establish possible points for future soil vapor and/or groundwater extraction. The rationale for the boring locations is as follows:

- Borings GP-1 to GP-4 will fill data gaps between MW-1A and MW-2A and provide characterization of soil and groundwater contamination along the edge of the property down-gradient of former and existing fuel dispensers.
- Borings GP-5 to GP-10 will provide characterization of soil and groundwater contamination immediately down-gradient of the western dispensers. These borings are expected to transect the suspected contaminant source area, with GP-5 and GP-10 providing lateral definition to the south and north, respectively.

- Borings GP-11 to GP-14 will provide characterization of soil and groundwater contamination through the middle of the fuel dispenser area, with GP-11 providing lateral definition to the south.
- Borings GP-15 and GP-16 will provide characterization of soil and groundwater contamination around former and existing USTs.
- Borings GP-17 to GP-19 will provide contaminant characterization on the up-gradient side of the eastern dispensers. Borings GP-17 and GP-18 are intended to provide lateral definition of contamination to the south and southeast. Boring GP-19 is intended to characterize soil contamination at the northeastern corner of the fuel dispenser area.

Field Clearing of Boring Locations

The proposed source area investigation borings are located adjacent to existing USTs and dispensers; therefore, in order to ensure that subsurface fuel piping is not damaged, each boring location will be examined by Allterra staff prior to commencing Geoprobe® boring activities. Boring locations will be cleared by coring through existing asphalt or concrete and using a shop vacuum equipped with a PVC attachment to remove backfill material (pea gravel) to an approximate depth of 4 feet bgs. Once the boring location is cleared, the hole will be backfilled and temporarily capped. If subsurface piping is encountered, boring location will be moved and the hole will be backfilled and resurface to match previous conditions.

Geoprobe® Drilling

Nineteen Geoprobe® borings (GP-1 through GP-19) will be advanced to depths of approximately 30 feet bgs (or until groundwater is encountered) in the field cleared locations presented in Figure 3. Drilling and sampling activities will be performed by a licensed C-57 drilling company using a truck-mounted Geoprobe® drill rig, equipped with steam cleaned, 2.5-inch-diameter, push core drilling equipment. Geoprobe® borings will be backfilled to surface grade with neat cement containing 5% bentonite upon completion of drilling and sampling activities.

Classification of Soil and Sample Collection

Soils encountered during drilling activities will be described and classified using the Unified Soil Classification System (USCS). Soil samples from the nineteen borings will be collected continuously for lithology and field screened for volatile organic compounds (VOCs) using a photo-ionization detector (PID). Soil samples will be collected at 4-foot intervals for submittal to an analytical laboratory. Additionally, one "grab" groundwater sample will be collected from each boring for laboratory analyses.

In general, Allterra plans to have soil samples from 8, 12, 16, and 20 feet bgs analyzed and samples from 24 and 28 feet held at the laboratory. If laboratory analysis indicates elevated contaminants in samples collected at 20 feet bgs, sample from 24 and 28 feet bgs may be tested. Additionally, in order to keep the project as cost effective as possible, for borings with no VOC detections in soil, the 8-foot sample will be analyzed and the remaining samples will be held at the laboratory pending results of the 8-foot sample. If the 8-foot sample has significant hydrocarbon detections, additional soil samples may be analyzed.

Laboratory Analysis

Soil and groundwater samples will be submitted under chain-of-custody protocol (Appendix A) for chemical testing to McCampbell Analytical, Inc., of Pacheco, California, a State of California certified laboratory (ELAP #1644). Soil and groundwater samples collected from the borings will be analyzed for TPHg by EPA Method 8015C, and benzene, toluene, ethylbenzene, and xylenes (BTEX) and MTBE by EPA Method 8021b. As a cost saving measure, testing for the five fuel oxygenates will not be performed.

Waste Disposal

Soil generated during drilling activities will be stored in DOT-approved 55-gallon drums on-site pending profile and disposal.

Project Schedule

Upon regulatory approval of this scope of work, Allterra will begin site investigation activities during fourth quarter 2006.

Final Report

Upon receipt of analytical data, Allterra will prepare a final report summarizing completed field activities, results of soil and groundwater analyses, a site map depicting the locations of the soil borings, soil boring logs, and conclusions and recommendations regarding site conditions and future work

References

Allterra Environmental, Inc., 2005, *Preliminary Soil and Groundwater Data Submittal and Proposed Boring and Monitoring Well Locations,* 160 Holmes Street, Livermore, CA

Allterra Environmental, Inc., 2006, *Soil and Groundwater Investigation Report,* 160 Holmes Street, Livermore, CA

Allterra Environmental, Inc., 2006, *Dual-Phase Extraction Pilot Test Report,* 160 Holmes Street, Livermore, CA

ETIC, 2000, *Preliminary Site Assessment: Installation of Groundwater Monitoring Wells,* 160 Holmes Street, Livermore, CA

Geo Environmental Technologies, 2001, *Downgradient Investigation of Groundwater,* 160 Holmes Street, Livermore, CA

Geo Environmental Technologies, 2002, *Off-Site Assessment and Installation of Groundwater Monitoring Wells,* 160 Holmes Street, Livermore, CA

Geo Environmental Technologies, 2001, *Pump Test,* 160 Holmes Street, Livermore, CA

Geo Environmental Technologies, 2001, *Soil Vapor Extraction Feasibility Study,* 160 Holmes Street, Livermore, CA

Limitations

The data, information, interpretation, and recommendations contained in this Work Plan are presented solely as preliminary to the existing environmental conditions at 160 Holmes Street. Site conditions can change over time; therefore, data, information, interpretation, and recommendations presented in this work plan are only applicable to the timeframe of this study. The conclusions and professional opinions presented herein were developed by Allterra in accordance with environmental principles and practices generally accepted at this time and location, no warranties are expressed or implied.

If you have any questions, please call Allterra at (831) 425-2608.

Sincerely,
Allterra Environmental, Inc.

Erik Allen
Staff Scientist

Mike Killoran, P.G. 6670
Senior Geologist

PROFESSIONAL GEOLOGIST
MICHAEL J. KILLORAN
No. 6670
STATE OF CALIFORNIA

James Allen, R.E.A.
Project Manager

Attachments:
Figure 1, Site Vicinity Map
Figure 2, Site Map
Figure 3, Proposed Boring Locations

Table 1, Historical Soil Analytical Results
Table 2, Historical Soil Vapor Analytical Results
Table 3, Historical Groundwater Analytical Results

APPENDIX A: Allterra Environmental, Inc.'s Site Investigation Field Protocol
APPENDIX B: Site Specific Health and Safety Plan

cc: Mr. Jerry Wickham, ACEH
State of California GeoTracker Database

FIGURES 1-3

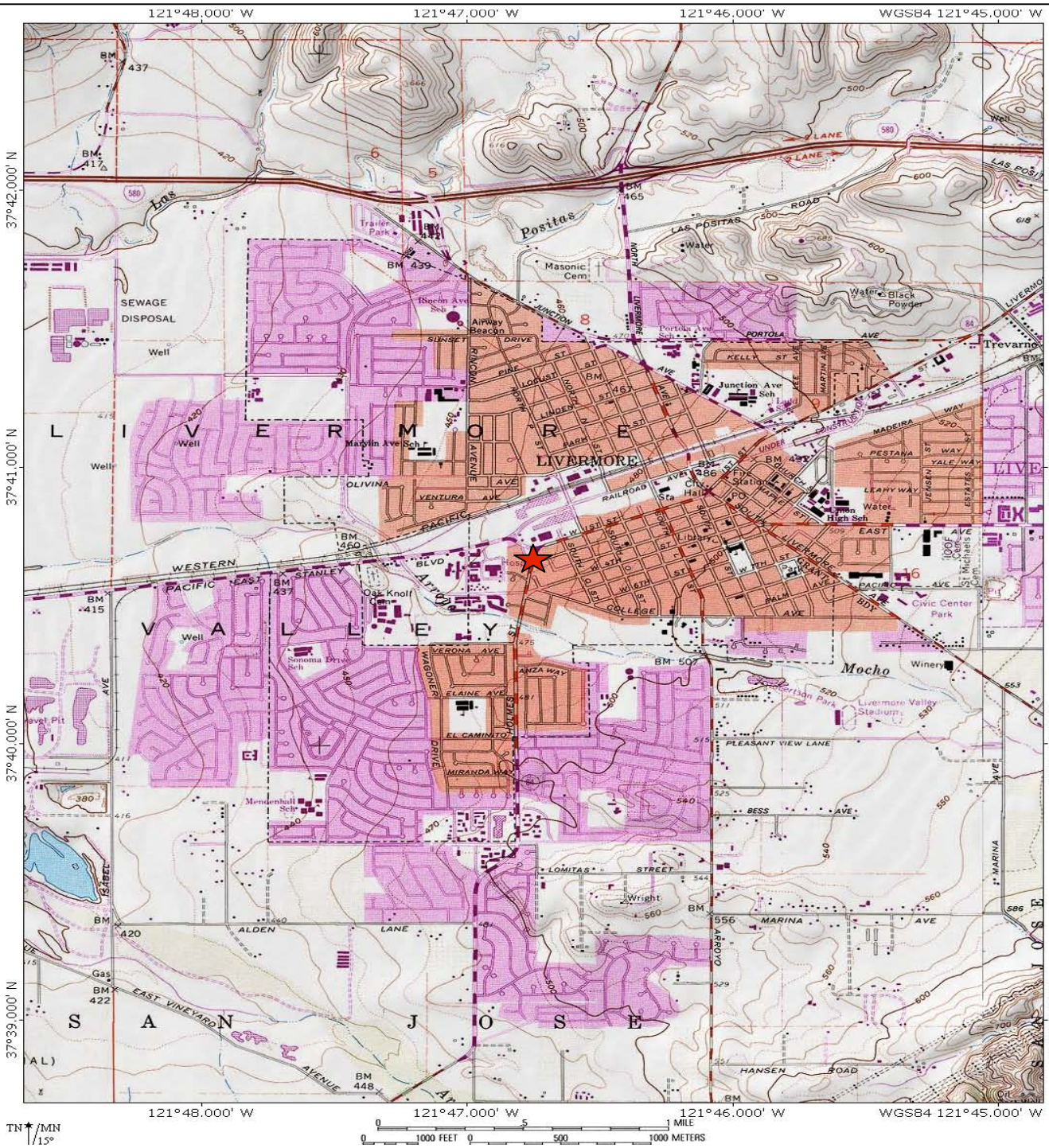

Figure 1	3/31/06

Vicinity Map

Livermore Gas and Mini-mart
160 Holmes Street
Livermore, California

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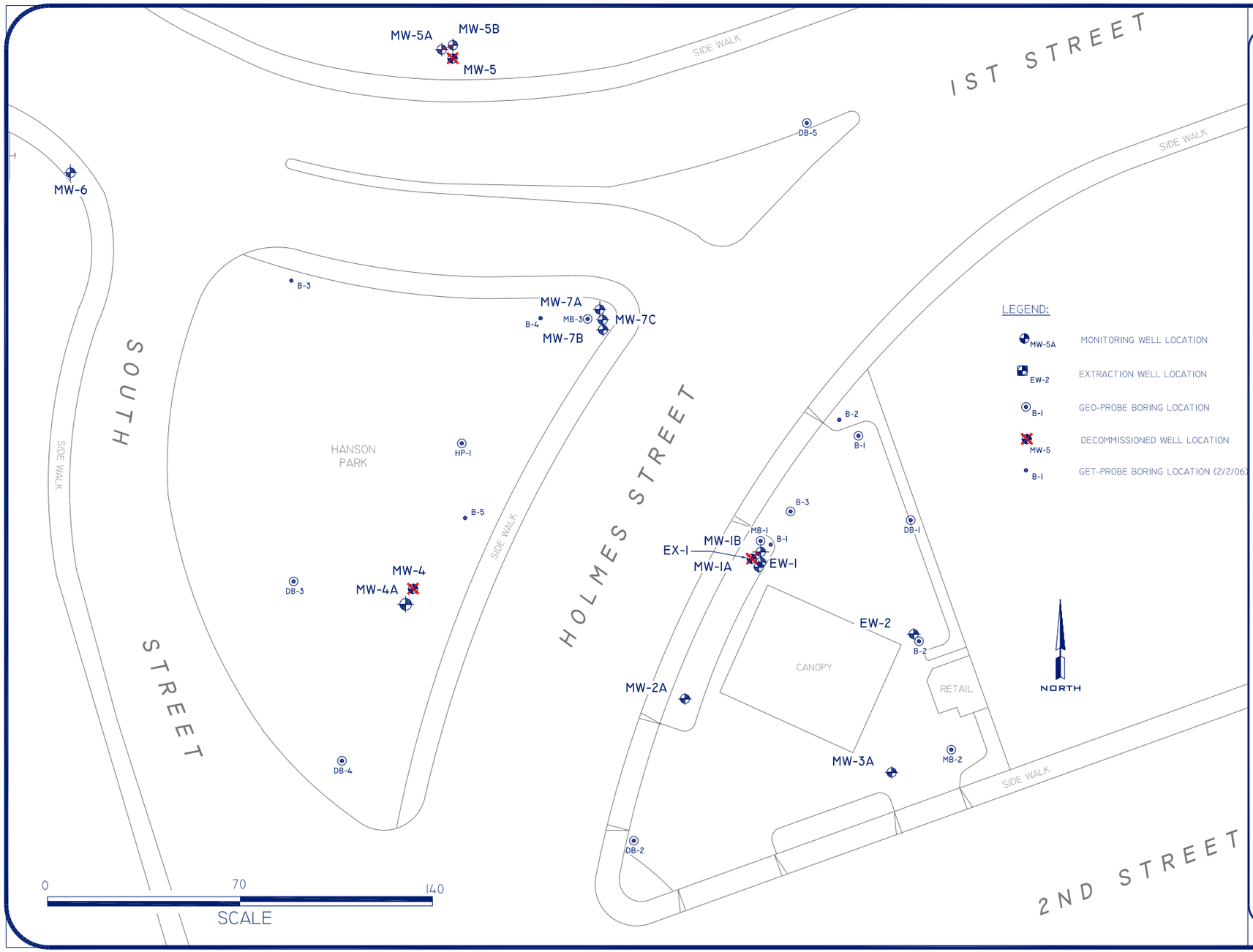

General Notes

STAMP

160 HOLMES STREET
SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

PREPARED BY: ALLTERRA

No.	Revision/Issue	Date
0	DRAFT/REVIEW	4/28

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Sheet Name and Address

SITE PLAN

160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
015-01-018	FIGURE 2
Date: 9-7-06	
Scale: SEE DRAWING	

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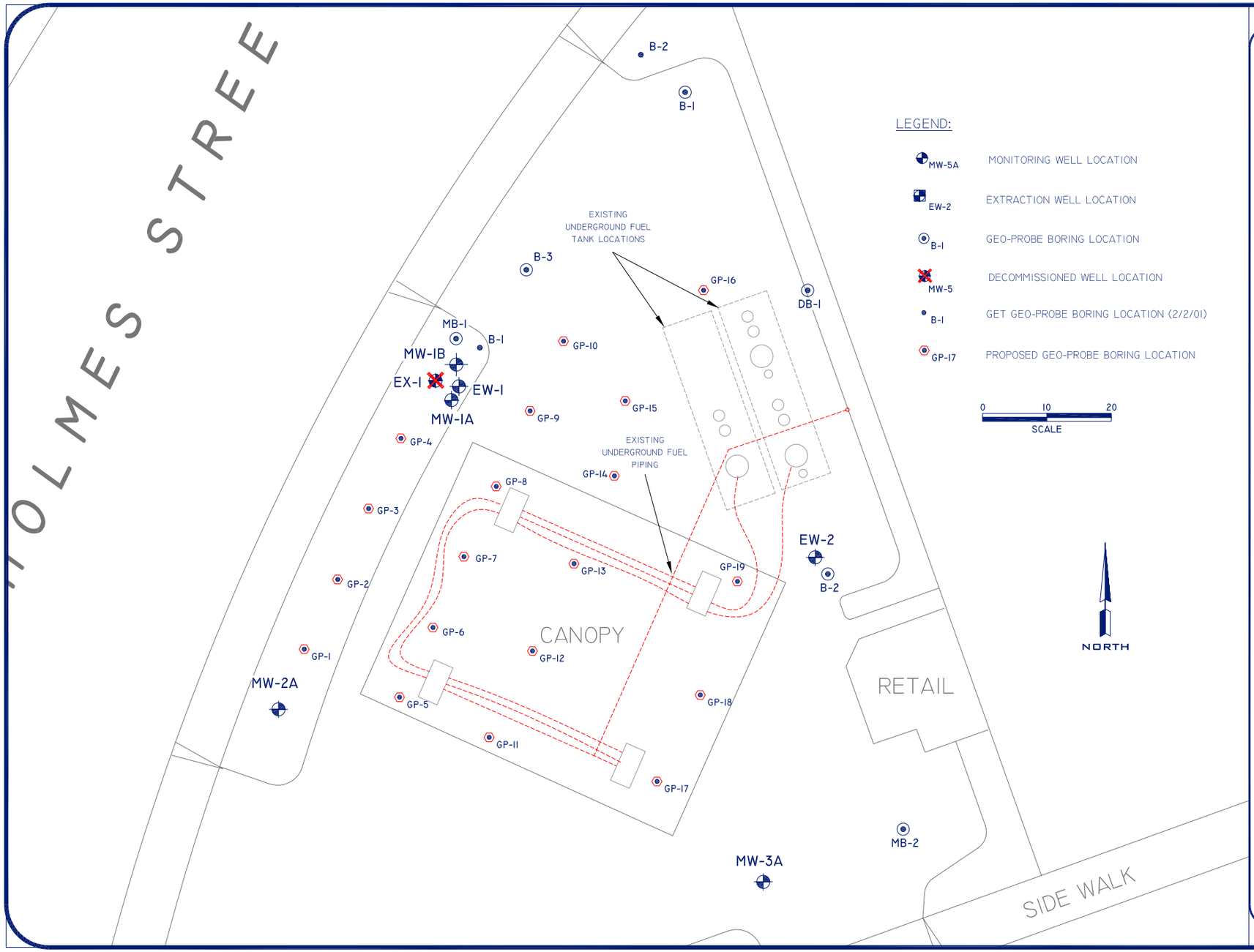
USER



General Notes

STAMP

160 HOLMES STREET
SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

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0	DRAFT/REVIEW	4/28

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Sheet Name and Address
PROPOSED BORING LOCATION PLAN

160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
015-01-018	FIGURE 3
Date: 9-7-06	
Scale: SEE DRAWING	

USER REVDATE FNAME

TABLES 1-3

Table 1

Historical Soil Analytical Results
160 Holmes Street, Livermore, California

Sample ID (Field Point)	Sample Depth (feet)	Sample Date	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MB-1	18	11/11/05	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MB-1	22	11/11/05	78	23	0.028	0.073	1.0	4.8	2.3
MB-1	26	11/11/05	110	18	0.27	0.51	2.0	1.7	14
MB-3	20	11/11/05	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MB-3	28	11/11/05	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MB-3	32	11/11/05	1,400	100	<0.5	5.0	20	67	<5.0
B-1	28	11/10/05	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
B-2	16	11/10/05	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05
B-2	20	11/10/05	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05
B-2	24	11/10/05	5.7	9.5	<0.005	0.018	0.076	0.25	1.7
B-2	28	11/10/05	11	2.4	0.075	0.073	0.26	0.14	7.2
B-3	16	11/10/05	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05
B-3	20	11/10/05	<1.0	--	<0.005	0.0058	0.0071	0.024	<0.05
B-3	24	11/10/05	9.0	1.4	0.077	0.037	0.32	1.1	<1.0
B-3	28	11/10/05	48	6.1	0.053	0.20	0.53	0.49	<1.0
DB-1	26	11/10/05	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW-1B	61	2/23/06	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05
MW-5B	55	2/27/06	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05
MW-7C	70	2/27/06	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05
EW-2	41.5	2/24/06	1.4	--	<0.005	<0.005	<0.005	<0.005	0.22

Notes:
All results are in milligrams per kilogram (mg/kg)
TPHg and TPHd were analyzed by EPA Method 8015CM
Benzene, toluene, ethylbenzene, xylenes, and MTBE were analyzed by EPA Method 8021B
-- : not analyzed
TPHg: Total Petroleum Hydrocarbons as gasoline
TPHd: Total Petroleum Hydrocarbons as diesel
MTBE = methyl tertiary butyl ether

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Table 2

Historical Soil Vapor Analytical Results
160 Holmes Street, Livermore, California

Sample ID (Field Point)	Duration of Vapor Extraction (hr)	Sample Date	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW1#1	NA	3/24/03	4,000	23	280	60	207	210
MW1#2	NA	3/24/03	5,100	39	480	120	480	440
EW-1-0	0	4/12/06	<25	<0.25	<0.25	<0.25	<0.25	7
EW-1-6	6	4/12/06	<25	<0.25	<0.25	<0.25	0.51	4.9
EW-2-0	0	4/11/06	41	0.97	0.39	0.6	2.4	96
EW-2-3	3	4/11/06	<25	<0.25	<0.25	<0.25	0.51	<2.5
EW-2-6	6	4/11/06	<25	<0.25	<0.25	<0.25	0.51	<2.5

Notes:

All results are in milligrams per cubic meter (ppb)
TPHg and TPHd were analyzed by EPA Method 8015CM
Benzene, toluene, ethylbenzene, xylenes, and MTBE were analyzed by EPA Method 8021B
-- : not analyzed
TPHg: Total Petroleum Hydrocarbons as gasoline
TPHd: Total Petroleum Hydrocarbons as diesel
MTBE = methyl tertiary butyl ether
NA = Data not available

Table 3
Historical Groundwater Analytical Results
160 Holmes Street, Livermore, California

Well ID	Date Collected	Groundwater Elevation (feet above MSL)***	Total Petroleum Hydrocarbonss (µg/L)		Aromatic Volatile Organic Compounds (µg/L)					Oxygenated Volatile Organics (µg/L)							Lead Scavengers (µg/L)	
			Gasoline	Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE (8021B)	TAME	TBA	DIPE	ETBE	MTBE	ethanol	methanol	EDB	1,2-DCA
MW - 1A*	8/10/96	NC	170,000	57,000	6,400	7,600	4,200	9,700	320,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/96	443.09	170,000	17,000	8,400	3,200	2,700	10,000	200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/21/97	442.12	82,000	11,000	5,100	1,000	13,000	8,700	190,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/29/97	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/14/01	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	438.87	130,000	NA	7,700	1,100	4,500	1,500	<5000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	437.48	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	442.40	180,000	3,800	7,100	3,200	4,300	6,000	220,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/03	442.93	71,000	3,100	7,500	4,700	4,800	8,900	210,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	440.12	37,000	3,600	4,600	220	3,600	930	150,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	443.28	44,000	4,000	6,800	1,500	4,000	3,800	180,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/04	447.58	72,000	3,100	6,000	11,000	3,900	10,000	260,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/04	442.65	42,000	4,300	5,000	1,800	3,700	6,000	210,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	439.42	24,000	2,900	2,800	<33	2,900	500	83,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	442.85	31,000	2,700	4,600	190	4,400	2,800	200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	448.08	58,000	2,800	4,000	2,500	4,500	7,800	230,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	446.61	79,000	4,600	4,300	6,200	5,100	13,000	240,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	443.65	80,000	NS	4,300	5,300	5,400	14,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	442.54	58,000	NS	4,300	240	5,600	8,300	170,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/6/06	**446.98**	**47,000**	**3,700**	**3,100**	**1,100**	**4,400**	**5,900**	**180,000**	**<2,500**	**<25,000**	**<2,500**	**<2,500**	**240,000**	**<250,000**	**<2,500,00**	**<2,500**	**<2,500**
MW-1B	3/13/06	446.44	<50	<50	<0.5	<0.5	<0.5	<0.5	8.2	<0.5	<5.0	<0.5	<0.5	7.9	<50	<500	<0.5	<0.5
	4/6/06	**449.43**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<0.5**	**1.0**	**<50**	**<500**	**<0.5**	**<0.5**
MW - 2A*	8/10/96	NC	4,500	1,900	220	52	160	170	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/96	443.14	3,400	1,300	150	21	100	70	1,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/21/97	442.07	7,600	880	25	<10	69	25	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/29/97	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/14/01	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	438.24	400	86	5.4	<0.5	1.9	2.3	230	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	438.98	260	NA	1.3	<0.5	0.57	0.77	200	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	437.38	250	120	7.9	1.6	13	9.9	180	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	442.53	830	110	56	<0.5	<0.5	<1.0	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/03	442.97	260	180	0.92	2.9	3.1	8.1	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	440.24	420	260	3.6	3.4	5.2	2.4	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	443.36	240	120	0.82	3.1	7.8	3.9	1,400	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/04	447.63	280	210	9.4	4.2	14	11	1,400	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Historical Groundwater Analytical Results
160 Holmes Street, Livermore, California

Well ID	Date Collected	Groundwater Elevation (feet above MSL)***	Total Petroleum Hydrocarbonss (µg/L)		Aromatic Volatile Organic Compounds (µg/L)					Oxygenated Volatile Organics (µg/L)							Lead Scavengers (µg/L)	
			Gasoline	Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE (8021B)	TAME	TBA	DIPE	ETBE	MTBE	ethanol	methanol	EDB	1,2-DCA
	9/17/04	442.76	150	150	2.1	2.4	2.2	1.3	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	439.50	61	70	<0.5	1.0	<0.5	<0.5	730	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	442.94	84	110	<0.5	1.2	<0.5	1.5	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	448.19	63	91	0.55	<0.5	0.63	0.51	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	446.65	270	59	14	3.9	19	6.8	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	444.48	280	NS	8.6	2.5	17	2.5	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	442.64	<50	NS	<.5	<.5	<.5	<.5	680	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/7/06	**447.27**	**1,700**	**890**	**4.4**	**1.3**	**120**	**18**	**530**	**<10**	**330**	**<10**	**<10**	**590**	**<1000**	**<10,000**	**<10**	**<10**
MW - 3A*	8/10/96	NC	59	260	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/96	443.39	<50	<65	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/21/97	442.33	<50	100	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/29/97	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/14/01	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	NC	not sampled - well dry							NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	439.23	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	437.66		NS						NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	442.80	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/03	443.25	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	440.51	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	443.47	<50	69	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/04	447.96	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/04	443.02	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	439.75	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	443.19	<50	<50	<0.5	<0.5	<0.5	<0.5	7.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	448.51	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	446.95	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	444.74	<50	NS	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	442.90	<50	NS	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/7/06	**447.60**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<50**	**<500**	**<0.5**	**<0.5**
MW-4**	11/14/01	431.31	510	90	4.0	<0.5	<0.5	<0.5	14	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	438.40	150	<50	3.5	0.5	<0.5	<0.5	48	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	438.49	<50	NA	<0.5	<0.5	<0.5	<0.5	15	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	436.76	<50	<50	<0.5	<0.5	<0.5	<0.5	24	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	442.01	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/03	442.43	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	439.76	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	442.73	<50	69	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Historical Groundwater Analytical Results
160 Holmes Street, Livermore, California

Well ID	Date Collected	Groundwater Elevation (feet above MSL)***	Total Petroleum Hydrocarbonss (µg/L)		Aromatic Volatile Organic Compounds (µg/L)					Oxygenated Volatile Organics (µg/L)							Lead Scavengers (µg/L)	
			Gasoline	Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE (8021B)	TAME	TBA	DIPE	ETBE	MTBE	ethanol	methanol	EDB	1,2-DCA
	6/15/04	446.95	<50	<50	<0.5	<0.5	<0.5	<0.5	37	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/04	442.20	<50	<50	<0.5	<0.5	<0.5	<0.5	7.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	439.03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	442.42	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	447.55	<50	<50	<0.5	<0.5	<0.5	<0.5	14	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	446.01	<50	<50	<0.5	<0.5	<0.5	<0.5	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	443.90	<50	NS	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	442.30	<50	NS	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4A	3/13/06	445.87	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	0.70	<50	<500	<0.5	<0.5
	4/7/06	**448.77**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**1.1**	**<50**	**<500**	**<0.5**	**<0.5**
MW-5**	11/14/01	429.71	<50	<66	<0.5	<0.5	<0.5	<0.5	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	436.75	140	<50	<0.5	<0.5	<0.5	<0.5	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	436.66	<50	NA	<0.5	<0.5	<0.5	<0.5	6.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	435.15	73	<50	<0.5	<0.5	<0.5	<0.5	160	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	440.39	110	<50	<0.5	<0.5	<0.5	<0.5	170	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/03	440.64	<50	<50	<0.5	<0.5	<0.5	<0.5	89	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	437.82	630	<50	<0.5	3.5	<0.5	2.6	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	440.97	<0.5	<50	<0.5	<0.5	<0.5	<0.5	630	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/04	445.43	57	<50	<0.5	<0.5	<0.5	<0.5	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/04	440.45	<50	<50	<0.5	<0.5	<0.5	<0.5	750	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	436.97	<50	<50	<0.5	<0.5	<0.5	<0.5	780	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	440.72	<50	<50	<0.5	<0.5	<0.5	<0.5	120	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	446.09	<50	<50	<0.5	<0.5	<0.5	<0.5	320	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	444.50	<50	<50	<0.5	<0.5	<0.5	<0.5	120	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	442.10	<50	NS	<0.5	<0.5	<0.5	<0.5	97	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	441.30	<50	NS	<0.5	<0.5	<0.5	<0.5	41	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5A	3/13/06	444.48	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	4/7/06	**447.29**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<50**	**<500**	**<0.5**	**<0.5**
MW-5B	3/13/06	444.46	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	0.69	<50	<500	<0.5	<0.5
	4/7/06	**447.15**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<0.5**	**0.98**	**<50**	**<500**	**<0.5**	**<0.5**
MW - 6	11/14/01	430.25	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	437.12	<50	<67	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	437.10	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	435.36	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	440.67	<50	<50	<0.5	<0.5	<0.5	<1.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Historical Groundwater Analytical Results
160 Holmes Street, Livermore, California

Well ID	Date Collected	Groundwater Elevation (feet above MSL)***	Total Petroleum Hydrocarbonss (µg/L)		Aromatic Volatile Organic Compounds (µg/L)					Oxygenated Volatile Organics (µg/L)							Lead Scavengers (µg/L)	
			Gasoline	Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE (8021B)	TAME	TBA	DIPE	ETBE	MTBE	ethanol	methanol	EDB	1,2-DCA
	6/25/03	441.05	<50	<50	<0.5	<0.5	<0.5	<1.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	438.36	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	441.54	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/04	445.48	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/04	440.82	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	437.57	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	441.04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	446.09	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	444.56	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	442.53	<50	NS	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	441.92	<50	NS	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/7/06	**445.14**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**0.86**	**<50**	**<500**	**<0.5**	**<0.5**
MW-7A	3/13/06	445.85	6,200	1,800	140	21	200	560	6,900	<100	4400	<100	<100	6,300	<10,000	<100,000	<100	<100
	4/7/06	**448.71**	**5,300**	**1,700**	**130**	**26**	**330**	**420**	**5,900**	**<100**	**7,500**	**<100**	**<100**	**6,600**	**<10,000**	**<100,000**	**<100**	**<100**
MW-7B	3/13/06	445.64	230	<50	1.8	4.7	<0.5	2.2	1,500	<50	7300	<50	<50	1,300	<5,000	<50,000	<50	<50
	4/7/06	**448.54**	**81**	**<50**	**1.9**	**1.6**	**1.1**	**0.58**	**1,000**	**<50**	**9,200**	**<50**	**<50**	**930**	**<5,000**	**<50,000**	**<50**	**<50**
MW-7C	3/13/06	445.34	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	4/7/06	**448.21**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<50**	**<500**	**<0.5**	**<0.5**
EX-1**	11/14/01	431.89	13,000	2,000	180	1,000	330	3,200	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/7/02	437.72	7,700	560	320	<25	66	150	6,200	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/11/02	NC	2,800	NA	32	<13	14	<13	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/11/02	437.32	3,000	100	81	<0.5	44	<1.0	4,800	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/14/03	442.28	750	50	<0.5	<0.5	7.7	13	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/03	442.89	120	<50	3.2	3.7	4.2	7.6	260	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/16/03	440.65	170	<50	0.5	1.5	<0.5	0.9	1,600	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/10/04	447.31	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/04	442.82	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/17/04	439.39	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/04	NC	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/2/05	NC	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/27/05	446.62	NS	NS	NS	NS	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/05	443.75	<50	NS	<0.5	<0.5	<0.5	<0.5	610	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/05	442.57	<50	NS	<0.5	<0.5	<0.5	<0.5	31	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/9/06	447.25	580	55	40	25	45	43	4,200	<170	<1,700	<170	<170	5,200	<170,000	<17,000	<170	<170
EW-1	3/13/06	446.47	210	120	5.0	4.1	7.5	12	3,400	<50	<100	<50	<50	2,300	<5,000	<50,000	<50	<50
	4/6/06	**449.46**	**1,900**	**190**	**66**	**170**	**110**	**380**	**7,900**	**<100**	**<1000**	**<100**	**<100**	**6,400**	**<10,000**	**<100,000**	**<100**	**<100**
EW-2	3/13/06	446.81	<250	69	<2.5	<2.5	<2.5	<2.5	5,400	<100	<1,000	<100	<100	5,100	<10,000	<100,000	<100	<100
	4/6/06	**449.79**	**470**	**160**	**15**	**2.5**	**24**	**13**	**2,000**	**<50**	**<500**	**<50**	**<50**	**1,800**	**<5,000**	**<50,000**	**<50**	**<50**

Table 3
Historical Groundwater Analytical Results
160 Holmes Street, Livermore, California

Well ID	Date Collected	Groundwater Elevation (feet above MSL)***	Total Petroleum Hydrocarbonss (µg/L)		Aromatic Volatile Organic Compounds (µg/L)					Oxygenated Volatile Organics (µg/L)							Lead Scavengers (µg/L)	
			Gasoline	Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE (8021B)	TAME	TBA	DIPE	ETBE	MTBE	ethanol	methanol	EDB	1,2-DCA
B1	2/2/01	30	650,000	13,000	6,300	10000.0	<2,500	12,000	290,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
B2	2/2/01	30	56	<0.5	<0.5	<0.5	<0.5	<0.5	47	NA	NA	NA	NA	NA	NA	NA	NA	NA
B3	2/2/01	30	6,200	NA	<50	<50	<50	<50	3,800	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4	2/2/01	30	12,000	NA	<50	<50	<50	<50	6,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
B5	2/2/01	30	<25,000	960	<250	<250	<250	<250	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
MB-1-A	11/10/01	28	21,000	4,300	970	<25	3,300	1200	NA	<2,500	<25,000	<2,500	<2,500	100,000	NA	NA	NA	NA
MB-1-B	11/10/01	50	470	210	7.8	0.97	31	48	NA	<25	<250	<25	<25	1,500	NA	NA	NA	NA
MB-1-C	11/10/01	70	990	NA	17	1.3	89	160	NA	<25	<250	<25	<25	1,200	NA	NA	NA	NA
MB-2-A	11/9/01	28	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	<0.5	NA	NA	NA	NA
MB-2-B	11/10/01	50	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	<0.5	NA	NA	NA	NA
MB-3-A	11/10/01	28	40,000	41,000	120	130	1,700	2,800	NA	<50	2,500	<50	<50	<4,500	NA	NA	NA	NA
MB-3-B	11/13/01	50	1,400	210	0.93	9.3	14	27	NA	<50	6,200	<50	<50	190	NA	NA	NA	NA
MB-3-C	11/13/01	70	930	260	1.7	3.8	33	100	NA	<100	16,000	<100	<100	330	NA	NA	NA	NA
DB-1-A	11/9/01	28	160	NA	<0.5	<0.5	<0.5	<0.5	NA	<1.7	<17	<1.7	<1.7	86	NA	NA	NA	NA
DB-2-A	11/10/01	28	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	<0.5	NA	NA	NA	NA
DB-3-A	11/13/01	28	<50	51	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	<0.5	NA	NA	NA	NA
DB-4-A	11/13/01	28	<50	57	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	<0.5	NA	NA	NA	NA
DB-5-A	11/10/01	28	<50	910	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	<0.5	NA	NA	NA	NA
B-1-A	11/9/01	28	<50	230	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<5.0	<0.5	<0.5	28	NA	NA	NA	NA
B-2-A	11/9/01	28	25,000	6,200	900	<50	2,000	2,600	NA	<1,700	<17,000	<1,700	<1,700	80,000	NA	NA	NA	NA
B-3-A	11/9/01	28	42,000	14,000	530	140	2,400	7,800	NA	<500	<5,000	<500	<500	19,000	NA	NA	NA	NA
HP-1-A	11/13/01	28	<50	NA	<0.5	<0.5	<0.5	0.80	NA	<50	24	<50	<50	12	NA	NA	NA	NA

Notes:

Samples analyzed for TPHg and TPHd by EPA Method 8015Cm, BTEX by EPA Method 8021B,

µg/L = micrograms per liter
NA = Not Analyzed
EDB = 1,2-Dibromoether
NS = Not Sampled
1,2-DCA = 1,2-Dichloroethane
MTBE = methyl tertiary butyl ether
DIPE =Di-isoprpopyl Ether
ETBE = Ethyl tert-Butyl Ether
TAME - tert-Amyl Methyl Ether
TBA = tert-Butanol
** = Well destroyed in February 2006

* = Well MW-1 renamed MW-1A, well MW-2 renamed MW-2A, Well MW-3 renamed MW-3A in February 2006
*** = For monitoring and extraction wells elevation is calculated in feet above sea level, for soil borings = sample depth

APPENDIX A
Site Investigation Field Protocol

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Geoprobe Boring Installations and Sampling: A truck-mounted Geoprobe rig hydraulically pushes a 4-foot steel core barrel (usually 2.5-inch diameter) equipped with an acetate liner into undisturbed soil. Four-foot core soil samples are collected in the acetate liner. The core barrel is extracted from the boring and the liner is removed. Soil samples from the necessary depth is cut from the acetate liner and capped with Teflon® sheets and plastic caps. The sample is labeled and stored on ice in an ice chest. The remainder of the acetate liner is then cut open and examined for lithology according to the Unified Soil Classification System. Job location, boring location, boring name, date, soil types, observations and activities are recorded on the boring logs. A portion of each sample is field screened using portable photo-ionization detector (PID). The core barrel is decontaminated between each boring. If groundwater samples are not necessary, the hole is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade.

Once the borings are advanced to the necessary depth, water samples are collected using a clean stainless steel bailer. If the boring does not stay open, a temporary well casing and screen is lowered into the boring to aid in water sample collection. Recovered water is transferred into labeled sample containers placed on ice. After the water samples are collected, the temporary well casing and screen are removed from the boring and is filled with a cement grout and bentonite mixture from the bottom of the boring to surface grade.

Monitoring Well Installation/Construction and Soil Sampling: A truck-mounted, hollow-stem auger drill rig is used to drill boreholes for monitoring wells. The borehole diameter is a minimum of 4-inches larger than the outside diameter of the casing when installing well screen. The hollow-stem auger provides minimal interruption of drilling while permitting soil sampling at desired intervals. An Allterra geologist or engineer will continuously log each borehole during drilling and will constantly check drill cuttings for indications of both the first recognizable occurrence of groundwater and volatile organic compounds using a portable photoionization detector (PID).

During drilling, soil samples are collected in 2-inch by 6-inch brass sleeves. Three brass tubes are placed in an 18-inch long split-barrel (spoon) sampler of the appropriate inside-diameter. The split-barrel sampler is driven its entire length using a 140-pound hammer, or until refusal. The sampler is extracted from the borehole and the bottom brass sleeve is capped with Teflon® sheets and plastic caps, labeled, and stored on ice. The two other brass sleeves are used for soil lithology classification (according to the Unified Soil Classification System) and field screening using a PID.

All soil borings not converted into monitoring wells are backfilled with a mixture of neat cement with 5% bentonite powder to surface grade.

Monitoring wells are constructed with blank and factory-perforated Schedule 40 polyvinyl chloride (PVC). The perforated interval consists of slotted casing, generally with 0.02-inch wide by 1.5-inch long slots, with 42 slots per foot. A threaded PVC cap is secured to the bottom of the casing. After setting the casing inside the hollow-stem auger, sand or gravel filter material is poured into the annular space to fill from boring bottom to generally 1 to 2 feet above the screened interval. A 1- to 2-foot thick bentonite seal is set above this sand/gravel pack. Neat cement containing approximately 5% bentonite is then tremmied into the annular space from the top of the bentonite plug to approximately 0.5 feet below ground surface. A traffic-rated well box is installed around each wellhead.

Monitoring Well Development: After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore and fine material from the filter pack. Typically, 10 well volumes are removed from the well and field parameters, such as pH, temperature, and conductivity, are recorded between each well volume. Well development techniques used may include surging, swabbing, bailing, and/or pumping All development water is collected either in drums or tanks for temporary storage, and properly disposed of pending laboratory analytical results. Following development, the well is typically allowed to stand undisturbed for a minimum of 48 hours before its first sampling.

Well Monitoring and Sample Collection: A Teflon bailer or submersible pump was used to purge a minimum of three well volumes of groundwater from each well. After each well volume is purged, field parameters such as pH, temperature, and conductivity are recorded. Wells are purged until field parameters have stabilized or a maximum of 10 well volumes of groundwater have been removed. If the well yield is low and the well was dewatered, the well is allowed to recharge to 80% of its original volume prior to sample collection. Field parameter measurements and pertinent qualitative observations, such as groundwater color and odor, are recorded in Groundwater Sampling Field Logs. Groundwater samples are collected in appropriate bottles and stored on ice for delivery, under chain-of-custody documentation, to a state-certified laboratory for analysis.

Sample Identification and Chain-Of-Custody Procedures: Each sample container submitted for analysis is labeled to identify the job number, date, time of sample collection, a sample number unique to the sample, any in-field measurements made, sampling methodology, name(s) of on-site personnel, and any other pertinent field observations also recorded on the field excavation or boring log. During shipment, the person with custody or the samples will relinquish them to the next person by signing the chain-of-custody form(s) and noting the date and time.

Equipment Decontamination: All drilling, sampling, well construction, and well development equipment is cleaned in a solution of laboratory grade detergent and distilled water or steam cleaned before use at each sampling point.

Field Personnel: During groundwater sampling activities, sampling personnel will wear pertinent attire to minimize risks to health and safety. Field personnel will also use a pair of clean, powderless, surgical gloves for each successive sampling point. Used surgical gloves will be placed into waste drums for future disposal.

Waste Disposal: Soil generated during drilling will be stored in DOT-approved 55-gallon waste drums pending proper disposal. Water generated during well development, purging, and sampling activities will be placed into DOT-approved 55-gallon waste drums pending disposal and/or permitted discharge to the sanitary sewer.

APPENDIX B
Site Specific Health and Safety Plan

Site Specific Health and Safety Plan
160 Holmes Street, Livermore, California

Project No.: 015-01-018

Prepared For:
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Introduction
The purpose of this Health and Safety Plan (HASP) is to ensure that all individuals engaged in site activities do so in a safe manner and in compliance with EPA, state and local regulations. The primary regulatory documents with which site personnel need to comply are OSHA 29 CFR, Part 1910, and the California Administrative Code, Title 8. In addition, all site work will comply with Allterra Environmental, Inc.'s (Allterra) Health and Safety Program and all supporting Standard Operating Procedures. This HASP may be modified during actual field activities, if necessary, as more information and site-specific data are obtained.

Prior to beginning any work on-site, an approved copy of this HASP shall be provided to all employees and subcontractors by the Project Manager. Each subcontractor will be responsible for providing his own HASP. Allterra retains the right to review and approve each subcontractor's Health and Safety Plan prior to the beginning of fieldwork.

Purpose and Objectives
The purpose of this site-specific Health and Safety Plan is to provide guidelines and procedures to ensure the health and physical safety of those persons working at the site. While it may be impossible to eliminate all risks associated with site work, the goal is to provide state-of-the-art precautionary and responsive measures for the protection of on-site personnel, the general public and the environment. The HASP objectives are as follows:

a. Ensure the safety of all site personnel;
b. Protect the public and the environment; and
c. Adhere to Allterra health and safety policies and procedures.

Implementation
This site-specific Health and Safety Plan, and any additional HASP, will be reviewed by all site personnel prior to their scheduled field work. Whenever the site-specific HASP is revised or amended, personnel will be instructed of changes and new procedures.

The site-specific Health and Safety Plan will be implemented in the field by Allterra's Health and Safety Coordinator and/or designated Site Safety Officer (SSO).

Background and Site Description
The subject site is located on the southwest corner of Holmes Street and Second Street at 160 Holmes Street in Livermore, California. The site currently operates as a service station and convenience store.

Proposed Work
Allterra has proposed to advance 19 soil borings for characterizing subsurface lithology and soil and groundwater contamination. All proposed work will be conducted on-site.

Job Hazard Assessment

Chemical Health Hazards

Chemical	PEL/Ceiling/ IDLH	Known Concentrations in Soil, Water, Air, Etc.	Signs/Symptoms
Benzene	1 ppm	Soil = NA Water = 7,700 ppb	Irritation of eyes, nose, and respiratory systems. Headache, giddiness, fatigue, anorexia, staggered gait, and dermatitis
Toluene	100 ppm	Soil = NA Water = 11,000 ppb	Irritation of eyes and mucous membrane, headache, dermatitis, narcosis, and coma.
Xylene	100 ppm	Soil = NA Water = 13,000 ppb	Irritation of eyes, nose, and throat, excitement, drowsiness, headache, dizziness, nausea ,vomiting, anorexia, staggered gait, and dermatitis.
Ethyl Benzene	300 ppm	Soil = NA Water = 13,000 ppb	Irritation of eyes and mucous membrane, headache, dermatitis, narcosis, and coma.
Gasoline	300 ppm	Soil = 6,500 ppm Water = 180,000 ppb	Skin irritant, disturbance of eyes. Deep burning in the throat and respiratory track and bronchopneumonia. Repeated chronic dermal contact may result in drying of skin, lesions and other dermatological conditions.
Diesel	100 mg/m^3	Soil = 1,300 ppm Water = 57,000 ppb	Irritation to skin. Prolonged breathing at high vapor concentrations can cause central nervous system effects
Lead	100 mg/m^3	NA	Prolonged exposure may result in anorexia, low weight, malnutrition, constipation, abdominal pain, colic, or anemia
Tetraethyl-lead	40 mg/m^3	NA	Irritating to the eyes. Prolonged exposure may result in insomnia, anxiety, tremors, hypotension, nausea, low-weight, convulsions, and coma.
Tetramethyl-lead	40 mg/m^3	NA	Prolonged exposure may result in insomnia, anxiety, tremors, hypotension, nausea, low-weight, convulsions, and coma.
Tetra-chloro-ethylene	500 ppm	NA	Inhalation exposure is associated with eye, nose and throat irritation. Ingestion is associated with nausea, flush face and neck.

Physical Hazards

Hazard	Mitigation Measure
Drilling Equipment Hazard	Heavy equipment will be in good working order and operated in accordance with recognized industry standards. Strive to keep a safe distance from heavy machinery so that you would not be in the path of a moving part if it were to swing suddenly. Always be aware of the movement of machinery around you. Approach vehicles from the driver's side. Make sure you are seen by the vehicle operator. Make eye contact.
Trip/Fall Hazard	Good housekeeping and shoes with traction will be worn.

Fire and Explosion Hazards

List Flammable or combustible materials kept on-site. Keep ignition sources away from the following materials.

Flammable (Flash Point < 100 °F)	Combustible (Flash Point < 200 °F)
Gasoline (43 °F)	Diesel (130 °F)

Flammability will be monitored by LEL meter.

List all oxidizers kept on-site: Unknown

Type and location of Fire Extinguisher: ABC fire extinguisher will be located in the support zone in the truck or outside.

Other Hazards

X *Noise*:

Activities likely to generate noise exceeding 85 Db: drilling Use hearing protection during these activities.

X *Heat Stress*

Symptoms: Heat Cramps: Muscular pains and spasms.
Heat Exhaustion: Cool, pale, moist skin; dilated pupils, headache, sweating, nausea, dizziness, vomiting, near normal body temperature.
Heat Stroke: Hot, red skin; small pupils; high body temperature; reduced sweating

Mitigation: Cool place for breaks (in the shade or in trucks)
Whenever ambient temperatures exceed 80 °F, or whenever semipermeable or impermeable protective clothing is worn and ambient temperatures exceed 70 °F, monitoring the worker may include:

Calculate the workers heart rate at the beginning of the rest period. If the heart rate exceeds 110 beats/min shorten the next work cycle. If the heart

rate still exceeds 110 beats/min during the next rest period, shorten the work cycle by 1/2 and continue monitoring.

Take frequent breaks in shaded areas. Remove PPE during breaks and provide plenty of drinking water. Record the time and duration of all breaks. Heat stroke victims must receive emergency medical care.

_____*Hypothermia/ Frostbite*

Symptoms: Hypothermia: Shivering, apathy, loss of consciousness, decreasing pulse and breathing rate.
Frostbite: White, then greyish yellow processing to greyish blue skin. Cold numb body parts.

Mitigation: Wear multi-layer cold weather clothing. Take frequent breaks in a warm sheltered area. Provide warm drinks. For frostbite victims, warm the injured part gradually, do not rub the affected area. Warm hypothermia victims and transport to emergency medical care.

Exposure Monitoring
All samples will be recorded in the exposure log. Copies of the exposure log are filed in the job file. All sampling instruments will be calibrated per the manufacturer's instructions on a daily basis.

Monitoring Equipment	Hazard Monitored	Sample Location	Sample Frequency	Action Level	Action
PID	Volatile organic vapors	To be determined	hourly	1,000 ppm	Use of a respirator while working

Personal Protective Equipment
As a minimum, Level D protection is required on all Allterra worksites. Level D includes: steel-toe boots, safety glasses, and a hard hat. For each task on this project, identify additional protective garments as requires, include the conditions (exposure levels, etc.) under which the level of PPE would be modified for each task.

Task(s)	Condition	Garment(s)
All	At all times	steel-toe boots, safety glasses, and hard hat

Site Control and Communication
The site will be secured as follows: Traffic safety equipment and caution tape.

Work Zones will be marked as follows: Marked with florescent or caution tape and traffic safety equipment. Exclusion Zone is within 15 feet of machinery. Only essential personnel will be allowed into an Exclusion Zone. When practical, 25 to 75 feet of space surrounding Exclusion Zones will be designated as Contamination Reduction Zones. Support Zone is all other area.

On-site communication:
Radio ____
Verbal X
Hand Signals X
Other ____

Off-site communication:
Radio ____
Telephone X
Other ____

The specific signal for an emergency is: Waving both arms overhead
The specific signal for an evacuation is: Wave personnel toward assembly point
Evacuation assembly point is: To be designated prior to work so a head count can be taken in the event of an evacuation.

Sanitation and Decontamination
As required, all equipment (trucks, field equipment, heavy machinery, etc.) shall be decontaminated prior to exiting the work zone. Personnel decontamination shall be conducted as needed in accordance with the health and safety section of this plan. All waste soils removed during drilling activities will be placed into drums and will remain on site pending disposal.

Personal decontamination procedure: *Hands and face must be clean prior to eating, drinking, or smoking*.
Location of Wash Water: *Support Zone, or to designated prior to work start.*
Location of toilet: *Support Zone, or to designated prior to work start.*
Location of drinking water: *Support Zone, or to designated prior to work start.*
Equipment Decontamination Procedures: *Steam cleaned or washed with Alconox.*
Materials to be disposed of as Hazardous Waste: *Personal Protective Equipment*.

This hazard assessment is based on available information concerning chemical hazards suspected to be present at the site. The work to be performed will be conducted in accordance with EPA and CAL-OSHA regulations and Monterey County requirements.

Emergency Services

If an emergency should occur on-site, the Emergency System (911) should be activated. Two-way communication between the site and the emergency trauma center will be maintained via a portable cellular telephone. Emergency telephone numbers shall be posted on-site and a portable telephone unit made immediately available at all times. These numbers shall include the following:

Emergency

Ambulance	911
Police	911
Poison Control	(800) 662-9886
Pleasanton Urgent Care Medical Center	(925) 462-9300

Non Emergency

Alameda County Fire Department #8	(925) 551-6868
Livermore Police Department	(925) 371-4900
National Response Center	(800) 424-8802

Emergency/Contingency Plans and Procedures

Start at 160 Holmes Street going towards and turn onto 1st Street. Continue on 1st Street for approximately 0.2 miles and turn onto P Street. Continue on P Street and turn onto Portola Avenue. Continue on Portola Avenue and take the I-580 west towards Oakland. Continue on I-580 west for approximately 5 miles and take the Santa Rita Road/Tassajara Road Exit (Exit #47). Coninue for approximately 0.3 miles and turn onto Santa Rita Road. Continue on Santa Rita Road for approximately 1.0 mile and arrive at 3128 Santa Rita Road in Pleasanton, California.

Key Safety Personnel and Responsibilities

Project Manager

The Allterra Project Manager is the SSO. The SSO will ensure that site personnel have proper protective equipment available, that specific site hazards are noted, and that personnel have knowledge of the nearest hospital location. The site safety officer can stop work at the site upon determination that an eminent health or safety hazard exists. If a stop-work order is issued, Allterra will take appropriate steps to remedy the situation and resume site activities. Allterra's Project Manager is responsible for directing all project operations. The Project Manager is also responsible for ensuring that the safety personnel are given free access to all relevant site information that could impact health and safety. The project manager will remain in view of all field activities, and he will inform site personnel of a change in activities.

Employees

All Allterra employees working at the site are responsible for reading and understanding the HASP. Other subcontractors at the site are responsible for providing their own HASPs, which

must incorporate, at a minimum, Allterra's HASP. As described above, Allterra's SSO has the authority to ensure that subcontractor employees are following the Allterra Health and Safety Plan provisions.

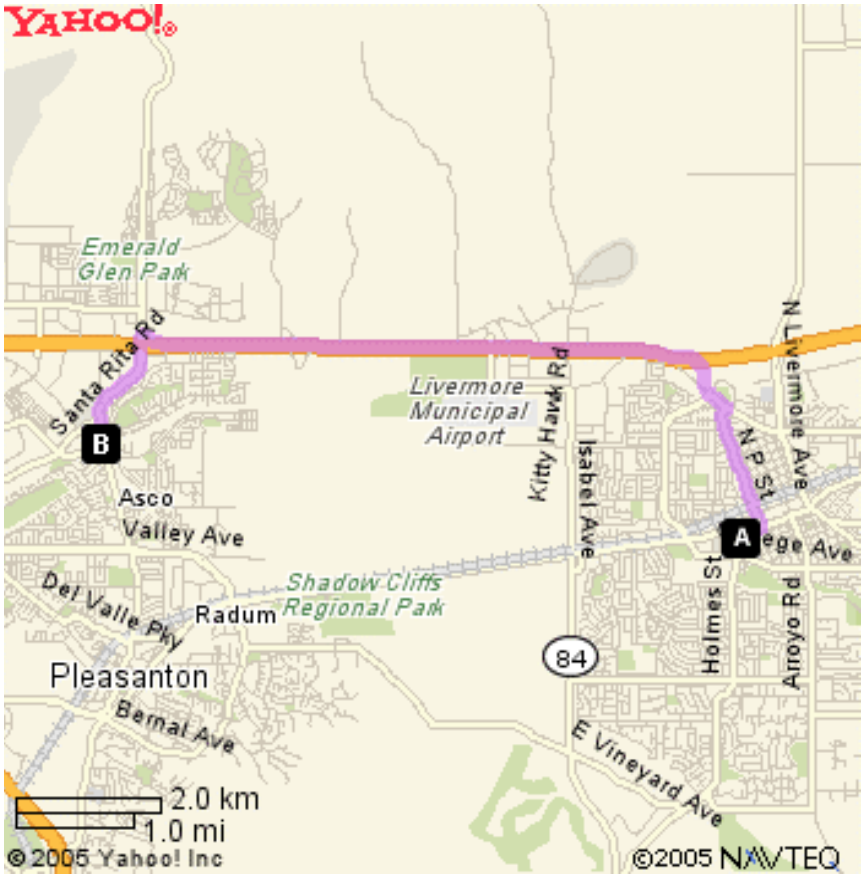
Site Safety Briefing Procedures (Tailgate Meeting):
All field personnel from Allterra and the subcontractors must attend a safety orientation meeting prior to commencing field activities. The meeting will be scheduled and conducted by the SSO and is to include an overview of the site history, the potentially hazardous compounds, their potential mode of ingress into the body, protective equipment requirements, and emergency response equipment. All individuals who do not have respirators and who may be required to wear them, will not be allowed on the site until they are provided with and fit tested for respirators by their respective employers.

A tailgate meeting will be held every morning before the start of work and is to be attended by all personnel on-site. The purpose of the meeting is to discuss the days work, potential hazards, and specific health and safety procedures to be utilized during the day.

Sign-Off
I have read the HASP and fully understand the hazards associated with the following job:
160 Holmes Street, Livermore, California

I will comply with the minimum safety requirements set forth in the HASP. I agree to notify the responsible employee of Allterra should any unsafe acts be witnessed by me while I am on-site.

Print Name	Signature	Date



Driving Route to Hospital

Hospital Location

Hospital Location Map

160 Holmes Street, Livermore, California