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

Client: Manwel Shuwayhat
Project Location: 160 Holmes Street, Livermore, California
Subject: Low-Risk Case Closure Evaluation
Report Date: December 30, 2011

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 declare, under penalty of perjury, that the information and/or recommendations contained in the attached proposal or report is true and correct to the best of my knowledge."

Sincerely,

Manwel Shuwayhat

December 30, 2011

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

Subject: **Low-Risk Case Closure Evaluation 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) transmits this Low-Risk Case Closure Evaluation for the property located at 160 Holmes Street in Livermore, California (Site). This report presents a summary of historical investigation and remediation activities completed at the Site, a review of current Site conditions, and a low-risk screening using various criteria established in State Water Resources Control Board (SWRCB) resolutions and past Water Quality Orders (WQOs).

If you have any questions or concerns, please contact us at (831) 425-2608.

Sincerely,

Allterra Environmental, Inc.

James Allen
Project Manager

Joe Mangine, PG 8423
Senior Geologist

cc: Mr. Jerry Wickham, Alameda County Environmental Health
SWRCB Geotracker

Low-Risk Case Closure Evaluation
Fuel Leak Case No. RO0000324
Livermore Gas and Mini Mart
160 Holmes Street, Livermore, California

Date:
December 30, 2011

Prepared For:
Manwel and Samira Shuwayhat
Livermore Gas and Mini Mart
54 Wolfe Canyon Road
Kentfield, California 94904

Allterra Environmental, Inc.
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1.0 INTRODUCTION

This report presents the findings of a Low-Risk Case Closure Evaluation completed for Fuel Leak Case No. RO0000324, Livermore Gas & Mini Mart, located at 160 Holmes, Street in Livermore, California (Site). This evaluation consisted of a review of historical investigative and corrective action work completed at the Site, a review of current environmental conditions, and a Low-Risk screening using criteria established in State Water Resources Control Board (SWRCB) resolutions and past Water Quality Orders (WQOs). Conclusions and recommendations based on our findings are also presented in this report.

The purpose of this evaluation was to determine if the Site could be categorized as "low risk" and qualify for case closure. If this fuel leak case can be closed, it would end a long history that began in 1998 when the case was opened by the Alameda County Environmental Health (ACEH), Local Oversight Program.

Corrective action at the Site began in April 1999 when four underground storage tanks (USTs) were removed from the Site. During UST removal activities, petroleum hydrocarbon-impacted soil was identified. Subsequent investigations revealed impacts to shallow groundwater beneath and immediately down-gradient (north-northwest) of the former USTs. Contaminate migration and seasonal groundwater fluctuations also resulted in impacts to smear zone soils at depths of approximately 24 to 28 feet below ground surface (bgs) beneath the Site. The maximum lateral and vertical extent of the groundwater plume was characterized though several investigations performed from 1999 to 2008. Interim vapor and groundwater was conducted at the Site to the greatest extent practicable from 2006 to 2010. Additionally, in-situ soil and shallow groundwater treatment was implemented at the Site in 2011. The quarterly groundwater monitoring program has continued to monitor post-remediation contaminate levels.

2.0 SITE DESCRIPTION

2.1 Location and Description

The Site is located at the northeast intersection of Holmes Street and Second Street in Livermore, California (Figure 1). A gasoline fuel station currently occupies the Site and the surrounding area is primarily residential with scattered retail businesses along 1st and 2nd Streets. The approximate surface elevation at the Site is 465 feet above mean sea level (MSL) and the surface slightly slopes to the northwest. Pertinent site features, including the locations of the current USTs, existing monitoring and extraction wells, and previous soil borings, are presented on Figures 2 and 3.

2.2 Additional Information

2.2.1 Lead Oversight Agency Information

Agency Name: Alameda County Environmental Health (ACEH)	Address: 1131 Harbor Bay Parkway, Suite 250, Alameda, California 94502-6577
Responsible Staff Person: Mr. Jerry Wickham	Title: Senior Hazardous Materials Specialist

2.2.2 Case Information

ACEH Fuel Leak Case No. RO0000324	Geotracker Global ID: T0600102287
Site Name: Livermore Gas and Mini-Mart	Site Address: 160 Holmes Street Livermore, California 94553
Responsible Party: Manwel and Samira Shuwayhat	54 Wolfe Canyon Road Kentfield, California 94904
USTCF Claim No: 14294 Number of Years Open: 11	USTCF Expenditures to Date: $1,003,526

2.2.3 Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active?	Date
3	12,000	Gasoline	Removed	April 5, 1999
1	12,000	Diesel	Removed	April 5, 1999

2.2.4 Release Information

- Source of Release: UST System
- Estimated Date of Release: Unknown (prior to April, 1999)
- Affected Media: Soil and Groundwater

2.2.5 Site Information

- Groundwater Basin: The Site is located in the Livermore Amador Groundwater basin.
- Land Use Designation: The Site is zoned as Downtown Specific Plan Area (DPS)
- Distance to Nearest Supply Well: In 2007, Allterra documented several wells within 2,000 feet of the Site, including one State of California production well (3S/2E 8P1) located approximately 1,500 feet north (cross- and down-gradient) of the Site. The closest identified well (3S/2E 17C25) is located approximately 400 feet north of the Site, however data indicates this well is no longer active.

2.2.6 Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Most Recent Depth To Water (DTW) - 11/4/11
MW-1A	7/26/00	15 - 30	23.00
MW-1B	2/23/06	50 - 55	22.95
MW-2A	7/26/00	15 - 30	22.77
MW-3A	7/26/00	15 - 30	23.60
MW-4	10/30/01	15 - 30	Destroyed on 11/22/04
MW-4A	2/28/06	15 - 30	23.40
MW-5	10/30/01	20 - 50	Destroyed on 11/22/04
MW-5A	2/27/06	20 - 35	24.50
MW-5B	2/27/06	50 - 55	24.40

MW-6	10/30/01	20 - 50	23.00
MW-7A	2/27/06	15 - 30	23.45
MW-7B	2/28/06	45 - 50	24.10
MW-7C	2/27/06	65 - 70	24.40
MW-8A	7/16/08	16 - 36	24.10
MW-8B	7/17/08	46 - 51	23.50
MW-9A	7/16/08	14 - 36	23.50
MW-9B	7/16/08	47 - 52	23.35
EX-1	10/30/01	30 - 55	Destroyed on 11/22/04
EW-1	2/24/06	15 - 40	23.35
EW-2	2/24/06	15 - 40	23.60
EW-3	5/18/07	25 - 30	23.30

2.3 Surrounding Property Use

Residential properties are located south and west of the Site, while commercial developments predominately surround the Site to the north and east. Valleycare Memorial Hospital is located approximately 1,000 feet northeast of the Site. The closest school to the Site is Granada High School, located approximately ¼ mile to the east-southeast. Highway 580 is located approximately 2½ miles north of the Site.

2.4 Regional Geology and Hydrology

Livermore Valley is an east west trending structural valley located in the Diablo Mountain Range. The Diablo Mountain Range is part of the Coast Range physiographic province of California. Oblique lateral northwestern motion of the Pacific Plate relative to the North American Plate and associated convergent stress has generated a long history of uplift in the coastal mountain ranges and contributes to the reoccurring seismic activity of the region. The east west trend of the Livermore Valley is anomalous to the general northwest/southeast structural grain of the central coast region and the complex relationship between the faults bracketing the valley have not been completely explained. Livermore Valley is bound by the Calaveras-Sunol Fault system to the west and the Greenville Fault system to the east. Both fault systems are active and have produced large historic earthquakes (Carpenter et. al., 1984).

Livermore Valley is filled with recent (Miocene to Holocene) terrestrial detritus composed of fluvial and alluvial deposits, terrace deposits, and some lacustrine deposits. These deposits consist of unconsolidated to semi-consolidated gravel, sand, silt and clay (DWR, 2006). The majority of the upper deposits in the south central portion of the valley are inferred to be a series of coalescing terrestrial alluvial fan deposits locally interposed and cut by both recent and ancestral fluvial deposits (Ferriz, 2001). Generally speaking, alluvial fans deposits closer to their source area (range fronts) are comprised of coarser materials and finer material towards their distal ends (valley centers). A thick section of clay (most likely lacustrine in origin) overlies the valley fill in the western portion of the valley.

Livermore Valley surface drainage is captured by a network of southwestern flowing intermittent tributaries of Arroyo de Laguana. Arroyo de Laguana joins Alameda creek and exits Livermore

Valley through Sunol Valley to the southwest. Groundwater in Livermore Valley generally flows towards a regional potentiometric depression north of Pleasanton in the western region of the valley (Ferriz, 2001). In the City of Livermore, groundwater generally flows to the northeast. The closest surface water body to the Site is Arroyo Mocho, located approximately 1,500 feet to the south. Arroyo Mocho is a spring fed steam that flows to the west-northwest through Livermore eventually joining the Arroyo de Laguana system. Livermore Valley receives an average annual precipitation range between 16 to 20 inches (DWR, 2006).

2.5 Site Geology and Hydrogeology

The local geology in the vicinity of the Site has been interpreted as Quaternary aged fluvial and alluvial deposits. Subsurface sediments encountered beneath the Site primarily consist of clayey sand and silty clay fill material from surface grade to approximately eight (8) feet bgs. This material in underlain by native alluvial sediments consisting of silty clay, sandy silt, and silty sand to approximately 28 feet bgs. A generally continuous coarse-grained deposit consisting of sandy gravel with varying amounts of silt and clay occurs from approximately 28 feet bgs to depths ranging from approximately 54 to 69 feet bgs. This material is underlain by a generally continuous sandy to silty clay layer, however the thickness of this clay layer has not been determined. This deposit of low permeability material is inferred to form a continuous confining layer separating shallow groundwater from deeper water bearing zones. Historic geologic cross sections prepared by Allterra are presented in Appendix A.

First-encountered groundwater beneath the Site has fluctuated between depths of approximately 28 and 48 feet bgs. Static groundwater, as measured in on- and off-site monitoring wells, generally occurs between depths of approximately 15 and 25 feet bgs. Differences between initial and static water levels indicate the shallow aquifer is at least partially confined in places where fine-grained soils extend below the potentiometric surface. The larger fluctuations in observed groundwater elevations appear to be largely dependent upon regional factors including, but not limited to, regional groundwater pumping, large-scale regional dewatering associated with mining activities, seasonal drought conditions, and government managed groundwater recharge programs. Based on historic quarterly groundwater monitoring data, shallow groundwater generally flows to the north-northwest at gradients ranging from 0.0039 feet per foot (ft/ft) to 0.0157 ft/ft. During the fourth quarter of 2011, shallow groundwater flow beneath the Site was to the northwest at an approximate gradient of 0.0071 ft/ft (Figure 4). Historical groundwater elevation data is presented in Table 1.

3.0 SITE HISTORY

3.1 UST Removal and Sampling Activities

On April 5, 1999, three 12,000-gallon gasoline USTs, one 12,000-gallon diesel UST, and associated piping and dispensers were removed from the Site. The USTs, piping, and dispensers were transported and disposed of by Erikson Inc., a licensed disposal facility located in Richmond, California. Four soil samples were collected from the native soil beneath the west end of the former USTs on April 5, 1999 and four samples were collected from beneath the east

end of the former USTs on May 6, 1999. Total petroleum hydrocarbons as gasoline (TPHg) was detected in three samples at concentrations up to 31 milligrams per kilogram (mg/kg) and methyl tertiary butyl ether (MTBE) was detected in all samples at concentrations ranging from 24 to 110 mg/kg. On May 20, 1999, soil samples were collected from beneath each of the seven former fuel dispensers (the sample collected beneath Dispenser-4 was not analyzed). TPHg was detected in four samples at concentrations up to 6,500 mg/kg. Total petroleum hydrocarbons as diesel (TPHd) was detected beneath the former diesel fuel dispenser at 1,300 mg/kg (ETIC, 1999b). The soil samples collected beneath the former fuel dispensers contained the highest historic detections of petroleum hydrocarbons. Historical soil analytical data is presented in Table 3.

3.2 Previous Site Investigations

- On February 26, 1999, one soil boring was reportedly advanced in the western portion of the Site (near the current location of well MW-1A). A groundwater sample collected from the boring indicated TPHg at a concentration of 100,000 micrograms per liter (µg/L), benzene at 6,100 µg/L, and MTBE at 60,000 µg/L (ETIC, 1999a). Historical groundwater analytical data is presented in Table 2.

- In July 2000, three groundwater monitoring wells (MW-1 through MW-3) were installed at the Site to total depths of 30 feet bgs with screen intervals from 15 to 30 feet bgs. Groundwater analytical results from initial well samples confirmed that shallow groundwater had been impacted from an unauthorized fuel release associated with the former USTs. Groundwater samples collected from well MW-1 contained the highest levels of TPHg, TPHd, benzene, and MTBE at concentrations of 170,000 µg/L, 57,000 µg/L, 6,400 µg/L, and 320,000 µg/L, respectively (ETIC, 2000).

- In February 2001, five Geoprobe® soil borings (B1 through B5) were advanced as part of additional soil and groundwater investigation activities at the Site. Petroleum constituents were detected in groundwater samples collected from each boring, with the highest levels detected in boring B1 at 650,000 µg/L (TPHg) and 290,000 µg/L (MTBE). Results from down-gradient borings indicated that the dissolved plume had migrated more than 150 feet to the north-northwest (GET, 2001).

- On October 30, 2001, three groundwater monitoring wells (MW-4 through MW-6) were installed down-gradient of the Site and one extraction well (EX-1) was installed on-site, adjacent to MW-1. Wells MW-4 through MW-6 were installed to approximate depths of 50 feet bgs with screen intervals from 20 to 50 feet bgs. EX-1 was installed to a total depth of approximately 55 feet bgs with a screen interval from 30 to 55 feet bgs. Samples were collected from the new wells on November 14, 2001 and analytical results indicated that petroleum constituents had migrated off-site. Sample results from MW-4 indicated TPHg, TPHd, benzene, and MTBE at concentrations of 510 µg/L, 90 µg/L, 4.0 µg/L, and 14 µg/L, respectively. No dissolved hydrocarbons were detected in well MW-6 (farthest down-gradient well). Sample results from extraction well EX-1 indicated TPHg, TPHd,

benzene, and MTBE at concentrations of 13,000 µg/L, 2,000 µg/L, 180 µg/L, and 2,200 µg/L, respectively (GET, 2002a).

- On June 27, 2002, Geo Environmental Technologies (GET) completed a groundwater pumping test at the Site using EX-1 as the test well. Results of the pumping test suggested that groundwater pump and treat was not a viable remedial alternative at the Site due to the low sustainable extraction rate of less than 1.0 gallon per minute (gpm). Transmissivity values of 1.4 square feet per day (ft^2/d) and 1.2 ft^2/d were derived using various iterations of the Theis approximation. GET also concluded that the low flow conditions were inconsistent with the course-grained soil types encountered during installation of EX-1 (a smeared borehole was suspected) (GET, 2002b).

- On April 24, 2003, GET completed a soil vapor extraction (SVE) feasibility study at the Site. The SVE test resulted in an extraction flow rate of approximately 1.4 standard cubic feet per minute (scfm) and vapor phase TPHg levels up to 5,100 milligrams per cubic meter (mg/m^3). GET's conclusions suggested that SVE could be a feasible remedial alternative if new vapor extraction wells were installed. Historical vapor analytical data is presented in Table 4 (GET, 2003).

- Between November 2005 and February 2006, Allterra conducted a soil and groundwater investigation that included the advancement 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 installation of nine monitoring and extraction wells (MW-1B, MW-4A, MW-5A/B, MW-7A/B/C, EW-1, and EW-2) (Figure 2). Monitoring wells denoted with MW-1, MW-2, and MW-3 were renamed MW-1A, MW-2A, and MW-3A, respectively to further denote depth discreet screen intervals. 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. Generally, impacted soil samples were collected from the smear zone suggesting that soil is likely being impacted by contaminates present in shallow groundwater. 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, 2006a).

- On January 10 and 11, 2007, Allterra advanced 20 Geoprobe® soil borings surrounding the fuel dispenser areas at the Site. Of the 65 soil samples analyzed, only 36 indicated detectable concentrations of petroleum hydrocarbons. All detections were at low levels and generally limited to the smear zone. All 17 groundwater samples collected indicated detectable concentrations of petroleum hydrocarbons, with TPHg at levels ranging from 160 µg/L (GP-16) to 210,000 µg/L (GP-14), benzene ranging from 1.4 µg/L (GP-11) to 11,000 µg/L (GP-14), and MTBE ranging from 61 µg/L (GP-1) to 1,500,000 µg/L (GP-14) (Allterra, 2007a).

- On May 10, 2007, Allterra installed an additional extraction well (EW-3) on-site in the immediate vicinity of boring GP-14 based on elevated contaminate levels in groundwater.

The screen interval for EW-3 (25 to 30 feet bgs) was selected to target the highly impacted zone that occurs at the top of the water table (estimated to be at approximately 28 feet bgs). Results of groundwater samples collected from EW-3 indicated concentrations of TPHg, benzene, and MTBE at 15,000 µg/L, 1,500µg/L, and 170,000 µg/L, respectively (Allterra, 2007b).

- In 2007, Allterra completed a survey for wells located within a 2,000-foot radius of the Site. Well survey activities included a review of a Zone 7 Water Agency well map, a file search at the Department of Water Resources (DWR), and requests for well information to 520 property addresses within a 2,000-foot radius of the Site. The well survey identified several wells within 2,000 feet of the Site; including one State of California production well (3S/2E 8P1) located approximately 1,500 feet north (cross- and down-gradient) of the Site. Based on historical sample results from wells MW-5A/B, it appears that the distal end of the dissolved MTBE plume is more than 1,000 feet from the State well. The closest well (3S/2E 17C25) was determined to be approximately 400 feet north of Site; however, well logs and construction details were not found for this well. A recent field reconnaissance indicated no visible evidence of the presence of this well.

- In 2007, underground utilities within approximately 100 feet of the former UST complex were located to evaluate the presence of potential contaminant horizontal and vertical migration pathways. Results of the utility study indicated that subsurface utilities near the Site are well above the water table and not a factor for spreading contamination originating from the Site.

- In July 2008, Allterra advanced eight soil borings (GP-20 through GP-27) and installed four additional off-site monitoring wells (MW-8A/B and MW-9A/B). The purpose of this investigation was to further characterize the down-gradient vertical extent of hydrocarbon impacts to soil and groundwater (Allterra, 2008).

3.3 Previous Site Remediation

- On April 11 and 12, 2006, Allterra personnel performed dual-phase extraction (DPE) remedial pilot tests at on-site wells EW-1 and EW-2. Soil vapor samples collected from EW-1 indicated TPHg was not detected at or above laboratory reporting limits and MTBE was detected at a maximum concentration of 7.0 mg/m^3. Soil vapor samples collected from EW-2 indicated TPHg levels up to 41 mg/m^3 and MTBE levels up to 96 mg/m^3. Groundwater extraction flow rates stabilized at approximately 5.0 gpm and groundwater stream samples collected from EW-1 indicated levels of TPHg up to 13,000 µg/L and MTBE up to 44,000 µg/L. Groundwater stream samples collected from EW-2 indicated levels of TPHg up to 1,000 µg/L and MTBE up to 2,700 µg/L. DPE pilot testing results indicated groundwater extraction from wells EW-1 and EW-2 was a feasible remedial alternative; however, soil vapor concentrations were much lower than expected. Following DPE pilot testing, interim groundwater extraction, treatment, and discharge activities were implemented at the Site (Allterra, 2006b).

- In May 2007, extraction well EW-3 was designed and installed to address the most highly impacted groundwater zone (25 to 30 feet bgs) that occurs at the top of the water table (estimated to be at approximately 28 feet bgs). After EW-3 was installed, interim groundwater extraction activities were primarily focused using this well. All pumped groundwater was treated and discharged under permit to the sanitary sewer.

- During the second and fourth quarters of 2010, Allterra completed pilot scale soil vapor extraction (SVE) and groundwater extraction (GWE) from on-site extraction wells EW-1 and EW-3. Data collected during pilot scale operations was used to evaluate remedial effectiveness and to determine the best approach for completing remediation in this area of the Site. Pilot scale remedial activities varied from more SVE focused to GWE focused as groundwater elevations beneath the Site changed and remedial performance data was gathered. As remediation commenced in early 2010, water elevations increased significantly and performing SVE was not technically feasible. Therefore, GWE was added to remedial operations to lower the water table and improve SVE performance. After the first month of operation, influent vapor levels for the SVE system dropped by an order of magnitude and the contaminant mass removal rate decreased. During this time, GWE contaminant mass removal rates were high and GWE influent levels were elevated, with TPHg concentrations up to 78,000 µg/L and MTBE up to 310,000 µg/L.

- During the fourth quarter of 2010, groundwater elevations beneath the Site dropped to approximately 27 feet bgs. This likely caused the decrease in the groundwater extraction flow rate from approximately 2 gpm to <0.5 gpm, which made GWE ineffective. The SVE system was tested again, however, SVE was also ineffective and indicated a very low SVE flow rate due to a saturated smear zone. Based on low recovery rates, pilot-scale remedial efforts at the Site were discontinued in November 2010.

- Since remediation began in 2006, a total of approximately 93,550 gallons of groundwater were removed, treated and discharged under permit to the sanitary sewer and a total of approximately 264,846 cubic feet (ft^3) of soil vapor were removed, treated, and released under permit. An approximate total of 8.1 pounds of TPHg, 0.16 pounds of benzene, and 48.78 pounds of MTBE were removed from the Site through GWE activities (Table 5). An approximate total of 100.06 pounds of TPHg, 0.81 pounds of benzene, and 11.80 pounds of MTBE were removed from the Site through SVE activities (Table 6).

- After DPE remedial activities at the Site were no longer effective, Allterra developed a in-situ remedial work scope involving the pressure injection of two Regenesis products designed to address residual soil and groundwater impacts in the source area (Figure 3). On April 7 and 11, 2011, Allterra tested the ability for the subsurface soils to accommodate the volume of chemical oxidizer solution proposed. Approximately 300 gallons of clean, potable water was injected into the target depth interval. No adverse affects were observed (high back-pressures and/or surfacing) and the proposed solution volume was deemed feasible.

- In April and May 2011, Allterra injected a total of approximately 4,000 lbs of RegenOx™ and 600 lbs of ORC-Advanced™ into the subsurface in an offset grid pattern spaced approximately 10 feet apart within the target area. The remedial solution was injected at 2-foot intervals between 24 and 34 feet bgs. Eight key wells (EW-1, EW-2, EW-3, MW-1A/B, MW-2A, and MW-7A/B) were sampled after each event and twice biweekly after the final post injection monitoring event to assess the effectiveness of remedial efforts and to monitor any adverse effects (Allterra, 2011a). Following in-situ remedial activities, residual contaminates in shallow groundwater beneath and down-gradient of the Site have been significantly reduced. Trend plots showing petroleum constituent concentrations in key wells over time are presented in Figures 8 through 14. Additionally, petroleum constituent percent reductions for key wells are presented in Table 7.

4.0 CURRENT ENVIRONMENTAL CONDITIONS

4.1 Soil

A significant portion of petroleum hydrocarbon-impacted soil at the Site was likely removed by over-excavation during UST removal activities, however the volume of soil removed was not documented in historic reports. Historical and current soil analytical data indicate that the extent of soil impacts on- and off-site is limited, both laterally and vertically (Table 3). Soil borings advanced in 2005 indicated soil impacts at depths below 28 feet bgs. These samples were collected below first-encountered groundwater and may represent pore water concentrations within the saturated soil sample rather than the soil itself. During a 2006 investigation in the fuel dispenser areas, only 36 of 65 soil samples showed detectable concentrations of petroleum hydrocarbons. All detections were at low to trace levels and were limited to the smear zone, which annually fluctuates between 24 to 28 feet bgs. Remaining soil impacts are predominately confined to the smear zone where the current groundwater plume extends beneath and down-gradient of the Site. Soil samples collected from off-site borings showed a lack of impact above the high water table; therefore, residual off-site contamination occurs at depths greater than 20 feet bgs. Additionally, interim SVE operations effectively removed vapor phase contaminants beneath the Site to the greatest extent practicable, and in-situ remedial efforts directly treated residual contaminants trapped in smear zone soils.

4.2 Groundwater

High-level petroleum hydrocarbon-impacted groundwater was removed from the Site to the greatest extent practicable between 2006 and 2010 through interim GWE activities. Additionally, in-situ remedial efforts aggressively treated remaining contaminants in shallow groundwater beneath the Site. The remaining contaminant plume has been significantly reduced, is stable, and continues to shrink. Currently, only low to non-detect concentrations of residual petroleum hydrocarbons remain in groundwater beneath the Site, with the exception of groundwater in the immediate vicinity of EW-3 (Figures 5 through 7). Shallow groundwater impacts near EW-3 are well defined, limited in extent, and relatively immobile due to a localized zone of low permeability fine-grained soils. Current levels of petroleum constituents in groundwater dramatically decrease immediately down-gradient from EW-3. MTBE concentrations drop by three orders of magnitude (from 82,000 to 97 µg/L) only 34 feet down-gradient from EW-3.

Since the beginning of active remediation at the Site in 2006, the lateral extent of the TPHg and MTBE groundwater plumes have been reduced by approximately 97% and 95%, respectively. On- and off-site wells continue to exhibit decreasing trends in contaminant concentrations, indicative of active biodegradation and natural attenuation (Figures 8 through 14). Percent reductions of contaminate concentrations in key wells are presented in Table 7. Currently all off-site wells have low to trace levels of petroleum constituents (Figure 5). Groundwater data from well clusters with depth discreet screen intervals, both on- and off-site, indicate petroleum constituent concentrations decrease significantly with depth. Historical groundwater analytical results are summarized in Table 2. Historical Site figures, including previous iso-contour maps showing plume extent, are included in Appendix A.

4.3 Petroleum Constituent Summary

Petroleum Constituent	Soil (mg/kg)			Groundwater (µg/L)				Water Quality Objectives
	Sample Point	Maximum Detection (5/20/99)	GP-25 @ 32' bgs (7/8/08)	Well ID (Max Date)	Maximum Detection	4th Quarter 2011	SF Regional Board Basin Plan (µg/L)	CA Maximum Contaminant Levels (µg/L)
TPHg	Disp 3	6,500	3.1	MW-1A (3/14/03)	180,000	100	NL	NL
TPHd	Disp D	1,300	NA	MW-1A (8/11/00)	57,000	150	NL	NL
Benzene	GP-14 (1/11/07)	0.47	0.0074	MW-1A (10/19/00)	8,400	1.3	1.0	1.0
Toluene	Disp 3	81	0.015	MW-1A (3/10/04)	11,000	0.99	150	150
Ethylbenzene	Disp 3	120	0.082	MW-1A (2/22/01)	13,000	<0.5	700	300
Total Xylenes	Disp 3	940	0.012	EW-3 (3/4/10)	28,000	130	1,750	1,750
MTBE	GP-14 (1/11/07)	140	5.1	EW-3 (2/4/09)	420,000	82,000	13 (Primary) 5 (Secondary)	13 (Primary) 5 (Secondary)

mg/kg = milligrams per kilogram NL = not listed
µg/L = micrograms per liter NA = not analyzed

4.4 Conceptual Site Model (CSM)

This section outlines the current CSM for the Site, which is also depicted on Figure 15 (flow diagram). The CSM summarizes subsurface conditions beneath the Site, the extent of petroleum constituents in soil and groundwater, the likely sources of petroleum constituents in soil and groundwater, potential release mechanisms and transport pathways, potential exposure pathways, and potential receptors.

The Site geology and hydrogeology was previously presented in Section 2.5 of this document and describes subsurface sediments and groundwater conditions encountered beneath the Site. As mentioned above, the predominant chemicals historically detected in subsurface soil and groundwater samples at the Site are TPHg, TPHd, benzene, toluene, ethylbenzene, xylenes (BTEX), and MTBE. Remaining impacts appear to be confined to the area proximate to on-site

well EW-3. The likely sources of petroleum constituents detected in the subsurface are the former gasoline and diesel USTs and residual petroleum-impacted soil that may not have been removed during over-excavation activities. The former USTs and associated fuel dispensers and product lines were excavated and removed from the Site in 1999. Petroleum constituents were likely released in a free phase due to perforations or cracks in the former single-walled USTs, or leakage from product delivery lines and dispensers. Contaminants moved from these sources to the surrounding subsurface soil and eventually reached shallow groundwater. Dissolved TPHg, TPHd, BTEX, and MTBE in groundwater migrated north-northwest following the general direction of shallow groundwater flow. Some of these chemicals in soil and groundwater may have also volatilized into the soil pore space above the water table.

Based on types of chemicals present at the Site and the media in which the chemicals are present, the following potential mechanisms for chemical transport have been identified for the Site:

- Volatilization of petroleum constituents from soil and groundwater into unsaturated soil pore space (soil gas);
- Leaching of petroleum constituents from the soil into the groundwater; and
- Transport of petroleum constituents in groundwater via advective flow and dispersion.

The following potential human exposure routes for chemicals have been identified for the Site:

- Inhalation of petroleum constituents volatilized from soil gas (outdoor and indoor); and
- Ingestion of petroleum-impacted groundwater.

<u>Incomplete Exposure Pathways</u>
Potential receptors include on-site workers (commercial and construction) who may potentially be exposed by inhaling (breathing) chemical vapors present in indoor and/or outdoor air. However, the inhalation of petroleum constituents volatilized from soil gas (outdoor and indoor) is considered an incomplete pathway based on the following:

- Remaining petroleum impacts on- and off-site appear to be limited to shallow groundwater and the soils found in the smear zone at depths ranging from 24 to 28 feet bgs; both of these elements have a minimum of 10 feet of clean soil cover. A 2009 study completed by Robin Davis concluded that five feet of any type of clean soil attenuates vapors associated with dissolved concentrations of 1,000 μg/L benzene and 10,000 μg/L TPHg (Davis, 2009);
- Current benzene concentrations detected in on- and off-site wells are well below the RWQCB environmental screening level (ESL) for potential vapor intrusion concerns at commercial sites (1,800 μg/L);
- The majority of the Site is capped with an impervious concrete surface;
- The current contaminant plume does not extend under any buildings or structures; and
- The residual contaminates have been mitigated to the greatest extent practical by DPE and in-situ remedial activities.

Other potential receptors include people who may ingest groundwater impacted by Site-related petroleum constituents. However, this exposure route is considered hypothetical because drinking water in the area of the Site is supplied by the City of Livermore Water Department (CLWD) from off-site sources and, to a limited extent, from municipal wells located more than ¼ mile from the Site that extract water from deeper aquifers than those impacted by contaminants at the Site.

5.0 SITE-SPECIFIC RISK PROFILE

When evaluating this case for potential low-risk closure, Allterra predominantly used the criteria established under the San Francisco Bay Regional Water Quality Control Board's (RWQCB) *Supplemental Instructions to State Water Board December 8, 1995 Interim Guidance on Required Cleanup at Low Risk Fuel Sites* as well as the precedents set under the 56 Water Quality Orders resulting in case closure from SWRCB closure petitions (Appendix B). Allterra also referred to criteria established in a December 9, 2009 document prepared by Closure Solutions, Inc. titled *California Independent UST Case Closure Study: A Quantification of Cases Potentially Closable Under Low-Risk Criteria*. A discussion of how current Site conditions compare to the various Low-Risk closure criteria is presented below.

5.1 Free Product Removal and Remediation

The leak has stopped and ongoing sources, including free product, have been removed or remediated to the extent practicable.

The Low-Risk closure criterion for source removal and remediation has been satisfied, as summarized below:

- The fuel leak at the Site was stopped when the three former USTs and associated fuel dispensers and piping were removed in 1999.
- Ongoing sources were removed by 1) over-excavation of impacted soils during UST removal activities; 2) interim GWE and SVE operation from 2006 to 2010; and 3) in-situ remedial efforts that aggressively targeted remaining petroleum constituents in smear zone soils and shallow groundwater beneath the Site.
- Historically, no free product was observed in any of the wells or excavations at the Site.

5.2 Groundwater Contaminant Levels

In general, petroleum hydrocarbon releases should be considered low-risk if the maximum concentrations in groundwater are less than:

- *10,000 µg/L for TPHg and for TPHd*
- *1,000 µg/L for each individual petroleum hydrocarbon constituent*
- *500 µg/L for each individual fuel oxygenate*

TPHg and TPHd concentrations should be used as an indicator of gross contamination; the concentration of TPH in and of itself should not be used as a regulatory driver. LUFT cases that

do not contain appreciable concentrations of benzene or MTBE should be considered 'low-risk' irrespective of TPH concentration.

Residual concentrations of petroleum constituents in groundwater beneath the Site are within the criteria for Low-Risk closure, with the exception of shallow groundwater in the immediate vicinity of EW-3. The Site has a network of 18 groundwater monitoring and extraction wells with up to 11 years of monitoring data to demonstrate clear decreasing trends for contaminant concentrations in each well. Currently, 15 of the 18 monitoring wells have trace to non-detect levels of petroleum constituents (Figure 5). One well (EW-3) has groundwater contaminant concentrations that warrant further discussion when considering the Low-Risk criteria.

Well EW-3 is centrally located on-site, slightly down-gradient of the former USTs. The total depth of this well is approximately 30 feet bgs with a screened interval from 25 to 30 feet bgs. The screen interval for EW-3 was selected to target the highly impacted zone that occurs at the top of the water table (estimated to be at approximately 28 feet bgs). Historic high levels of TPHg, TPHd, benzene, and MTBE in EW-3 are 140,000 µg/L, 5,200 µg/L, 240 µg/L, and 420,000 µg/L, respectively. Most recently, sample results from November 2011 indicated TPHg at <6,000 µg/L, TPHd at 860 µg/L, benzene at <50 µg/L, and MTBE at 82,000 µg/L. Remedial efforts and continuing biodegradation have resulted in a dramatic reduction in contaminant levels in EW-3. Based on recent groundwater data, TPHg in EW-3 has been reduced by 96%, TPHd has been reduced by 83%, benzene has been reduced by 79%, and MTBE has been reduced by 80%. Of note, well EW-3 was used as a vapor and groundwater extraction well during interim remedial efforts from 2007 to 2010.

Additionally, we believe that EW-3 data represents a very thin layer of contamination within the capillary fringe and the results should not be used when evaluating contaminant levels for the entire shallow water-bearing zone (A-zone). This conclusion is partially based on the total depth of the well (only 30 feet bgs), the historic data from nearby A-zone wells (MW-1A and EW-1), and the understanding that samples collected from the top of the water table tend to show higher levels of contaminants than wells screened through an adequate length of the targeted water column.

The current extent of elevated petroleum constituents in groundwater in close proximity to EW-3 is very limited, covering an area of approximately 360 square feet. Contaminants in this area are considered relatively immobile due to the presence of a localized zone of fine-grained, low permeability material found near the top of the saturated zone. It is likely that residual petroleum constituents have remained in subsurface soils in this area due to lithologic controls (i.e. low conductivity clay-rich soils). Based on subsurface conditions observed in this portion of the Site, significant contaminant migration is not expected and the residual groundwater plume limited in extent, stable, and continues to shrink. Additionally, the injection of ORC-Advanced™, a long-acting oxygen releasing compound, throughout the impacted area in May 2011 will continue to accelerate natural attenuation and enhance biodegradation.

5.3 Plume Stability and Migration

A groundwater contaminant plume is considered to be stable when the source has been removed to the extent practicable and contaminant concentrations in the most highly impacted areas are stable or decreasing. Plume stability may be judged by visual interpretation of the concentration trend with respect to time, a Kendall Trend test, or a linear regression.

This Low-Risk closure criterion has been satisfied as demonstrated by historical groundwater monitoring data. The following discussion highlights key findings:

- At this time, residual dissolved petroleum constituents are generally limited to shallow groundwater beneath the Site in the vicinity of well EW-3.
- The down-gradient migration of contaminants is adequately monitored with multiple well locations located to the north-northwest of the Site to address annual changes in the direction of groundwater flow (Figure 2). Off-site wells MW-5A/B have indicated "non-detect" concentrations for all petroleum constituents since 2009 and MW-6 has been non-detect since 2002.
- Concentrations of petroleum constituents have shown a decreasing trend in all wells since groundwater remediation activities began in 2006.
- Migration control and remedial efforts performed at the Site for several years have helped decrease the lateral and vertical extent of impacted groundwater and prevented further off-site migration.
- The clear decreasing trend for petroleum constituents in groundwater indicates plume stability as well as substantial natural attenuation preventing further migration of residual concentrations beyond their current limited extent.
- Graphs showing petroleum constituents over time for wells MW-1A, MW-2A, MW-7A, MW-7B, EW-1, and EW-3 are presented in Figures 8 through 14. Historical groundwater analytical data is provided in Table 2.

5.4 Adequate Characterization

A groundwater plume is considered adequately delineated when reasonable professional judgment can be used to estimate the extent of the overall plume with respect to distance to nearby receptors.

The residual groundwater plume on- and off-site is adequately characterized and this Low-Risk closure criterion has been satisfied. A discussion of the adequacy of site characterization is presented below:

- Since February 1998, 36 soil borings and 18 groundwater monitoring/extraction wells were installed, both on- and off-site, fully characterizing the extent of the hydrocarbon-impacted soil and the dissolved groundwater plume both laterally and vertically. The impacted groundwater plume is well defined and is generally confined to the upper groundwater-bearing zone ("A" zone).
- Vertical characterization was completed by collecting depth discrete groundwater samples in various geoprobe borings and installing monitoring wells with screened

intervals that monitor multiple water bearing zones. Generally, the "A" zone wells monitor groundwater at depths from approximately 15 and 30 feet bgs, the "B" zone wells monitor groundwater from approximately 45 to 50 feet bgs, and the "C" zone wells monitor groundwater from approximately 65 to 70 feet bgs.

- The lateral extent of petroleum hydrocarbon-impacts was characterized by several investigative transects that included borings and wells installed as far as 270 feet down-gradient (MW-6), 100 feet cross-gradient to the southwest (DB-2), 150 feet cross-gradient to the northeast (DB-5), and 70 feet up-gradient (MW-3A) of the source area.
- Eleven years of groundwater monitoring data has been collected from on- and off-site wells, allowing for a comprehensive evaluation of groundwater quality under varying seasonal conditions (Table 2).

5.5 Potential Impacts to Drinking Water Wells

Contaminants that have a reasonable potential to impact drinking water wells due to plume migration cannot be considered low-risk. The distance considered to be adequately protective of drinking water wells vary with the mobility and persistence of the constituents of concern, and should be measured in the predominant groundwater flow direction.

The residual groundwater plume beneath the Site is not a potential threat to drinking water wells; therefore, this Low-Risk closure criterion has been satisfied. The following discussion identifies key findings and provides a summary of previous sensitive receptor survey results:

- Numerous studies of the fate and transport of petroleum hydrocarbons have been performed; including 1995 and 1998 reports published by Lawrence Livermore National Laboratories and a 2004 Los Angeles Area Petroleum Hydrocarbon and Fuel Oxygenate Study. These studies indicate that unabated, petroleum hydrocarbon and MTBE groundwater plumes reach a maximum length before the processes of natural attenuation, diffusion, advection, and dispersion reduce concentrations to water quality objectives or levels adequately protective of human health (Closure Solutions, 2009).
- According to the 1995 and 1998 reports, the lateral dimensions of most (non-MTBE) petroleum hydrocarbon-impacted sites do not exceed more than a few hundred feet, and in 90% of cases, the benzene concentration had decreased below 1.0 μg/L within 400 feet of the source area (LLNL, 1995b, 1998). The 2004 Study indicated that the longest MTBE plume length observed (5.0 μg/L) was approximately 1,000 feet, and that 90% of MTBE cases resulted in a plume length of 540 feet or less (Shih, 2004).
- No active public water wells, surface water bodies, or other sensitive environmental receptors are located within 1,000 feet of the Site.
- There are several municipal wells located within a 2,000-foot radius of the Site and one State of California production well located approximately 1,500 feet north of the Site. These wells extract water from deeper aquifers than those impacted by contaminants originating from the Site. The distal end of the maximum down-gradient extent of MTBE in groundwater is over 1,000 feet away from the state production well.
- According to available subsurface data, a laterally continuous confining layer consisting of clayey soils exists at approximately 53 to 69 feet bgs, both on- and off-site. This low

permeability zone, or aquitard, will inhibit vertical migration of petroleum constituents and therefore the potential for Site-related contaminates impacting deeper aquifers is extremely low.

- The nearest surface water channel is Arroyo Mocho, located approximately 1,500 feet to the south (up-gradient).
- The remaining groundwater plume is stable, and the threat of contaminants reaching any water supply wells or impacting Arroyo Mocho is extremely low.
- Municipal water is supplied to nearby residents and businesses; therefore, it is highly unlikely that shallow groundwater under the active fuel station will be used directly as a source of drinking water in the foreseeable future.

5.6 Achievement of Water Quality Objectives Before Resource Used

Unless the water within the contaminant plume itself has an actual or probable beneficial use, it is inappropriate to require that Water Quality Objectives be met at the time of case closure. Closure should be granted if Water Quality Objectives would be reached in a "reasonable timeframe", based on actual or probable beneficial use.

Conditions at the Site indicate that Water Quality Objectives will be met within a reasonable timeframe based on probable beneficial use; therefore, this Low-Risk closure criterion is satisfied. This conclusion is based on the following facts:

- The remaining groundwater plume at the Site has been adequately characterized, is stable, and is no longer migrating. Additionally, groundwater data collected from deeper groundwater-bearing zones ("B" and "C" zones) has indicated that the vertical extent of residual contaminants is generally limited to first-encountered groundwater ("A" zone).
- Underground utilities near the Site exist at shallow depths along adjacent streets, and thus are unlikely to become a transport medium for residual contaminants in groundwater, which occur at depths of 18 to 28 feet bgs.
- Historic data collected from down-gradient wells MW-5A/5B, MW-6, MW-7A/B/C, MW-8A/B, and MW-9A/B demonstrate degradation of petroleum constituents at a short distance from the former USTs. Data trends are indicative of active bioattenuation directly proportional to the distance from the source area (Table 2).
- SWRCB Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of site closure but allows for compliance with cleanup goals and objectives within a reasonable time frame. For this Site, the maximum contaminant levels (MCLs) for TPHg, TPHd, BTEX, and MTBE are currently met for 16 out of the 18 wells sampled during the 4th quarter of 2011. Residual BTEX and MTBE in shallow groundwater proximate to EW-3 may reach MCL levels within a few decades, while TPHg and TPHd could remain above the water quality objectives for a significant period of time. This is because the longer-chain hydrocarbons comprising TPHg and TPHd biodegrade more slowly than other petroleum constituents, such as benzene, are more recalcitrant (i.e. less volatile, less soluble, and highly absorbent), and are less mobile.
- Although it may take a significant period of time before water quality in the immediate vicinity of EW-3 will meet all water quality objectives, that period of time may be

reasonable under the circumstances of this case. Municipal water is supplied to nearby residents and businesses; therefore, it is highly unlikely that shallow groundwater under the active fuel station will be used directly as a source of drinking water in the foreseeable future.

- Demonstrated diminishment of petroleum constituents at short distances from the source area further supports our opinion that water quality beneath the Site will continue to improve through natural attenuation and biodegradation.

5.7 Non-Residential Land Use in Probable Extent of Plume

If contaminant migration is beneath solely commercial or industrial land uses, exposure and risk to human health is significantly diminished.

The Site is zoned as commercial and the residual groundwater plume does not extend beneath any residential properties; therefore, this Low-Risk closure criterion is satisfied.

5.8 Potential Impacts to Human Health

Cases that pose an insignificant risk to human health should be considered for low-risk closure. The primary means of impacting human health are considered to be ingestion of impacted drinking water and inhalation of soil vapor.

This Low-Risk closure criterion is satisfied because this case poses an insignificant risk to human health. This conclusion is based on current Site conditions, the results of a 2009 vapor intrusion study by Robin Davis, and the lack of contaminant exposure pathways. Further discussion is presented below:

Current Site Conditions

As previously discussed, sources of petroleum constituents at the Site have been remediated to the extent practicable and data trends indicate the remaining contaminant plume has been significantly diminished, is stable, and is attenuating. Residual concentrations of TPHg, TPHd, benzene, and MTBE in groundwater remain on-site at levels up to 6,000 µg/L, 860 µg/L, 50 µg/L, and 82,000 µg/L, respectively; however this is limited to the area immediately proximate to EW-3. Based on historic groundwater elevation fluctuations and on- and off-site soil boring data, potential soil impacts generally begin at a depth of approximately 24 feet bgs and extend downward. Therefore, it is likely that on- and off-site soils are clean from ground surface to a depth much greater than 10 feet bgs.

Robin Davis Study

A 2009 study completed by Robin Davis of the Utah Department of Environmental Quality is pertinent to this case and this Low-Risk closure criterion because it evaluates the characteristics of petroleum constituents in the subsurface with respect to the vertical distance from the ground surface to the impacted media. The Robin Davis study concluded that, "There are no reported cases where vapor intrusion has occurred at low dissolved sources (<1,000 µg/L benzene: <10,000 µg/L TPHg) when clean soil and oxygen are present between the source and the receptor." According to this study, regardless of soil type, the data indicate that five feet of any

type of clean soil attenuates vapors associated with dissolved concentrations of 1,000 µg/L benzene and 10,000 µg/L TPHg (Davis, 2006, 2009). Based on the results of the Robin Davis study and the approximate depth and concentrations of on- and off-site contaminants in soil and groundwater, no vapor intrusion concerns currently exist at or adjacent to this Site.

Lack of Exposure Pathways

As discussed in Section 4.4, the only potential human exposure routes for chemicals identified for this Site include 1) ingestion of petroleum-impacted groundwater, and 2) inhalation of petroleum constituents volatilized from soil gas (outdoor and indoor). Allterra contends that these pathways are incomplete and, therefore, pose an insignificant risk to human health.

The ingestion of petroleum-impacted groundwater is considered highly unlikely because CLWD supplies drinking water in the area of the Site, it is not expected that water beneath the Site will be used as a drinking water source in the near future, and Water Quality Objectives will be met within a reasonable timeframe based on probable beneficial use. Sections 5.5 and 5.6 provide a thorough discussion of these contentions.

The inhalation of petroleum constituents volatilized from soil gas (outdoor and indoor) is considered an incomplete pathway, and therefore, not a risk to human health for the following reasons:

- Current benzene levels in all on- and off-site wells (including EW-3) are below the RWQCB environmental screening level (ESL) for potential vapor intrusion concerns at commercial sites (1,800 µg/L). The ESL is a screening tool used to determine if additional investigation may be needed. Groundwater samples recently collected from Site wells indicate benzene concentrations below the ESL, suggesting no further vapor intrusion investigative work is necessary.
- The 2009 Robin Davis study concluded five feet of any type of clean soil attenuates vapors associated with dissolved concentrations of 1,000 µg/L benzene and 10,000 µg/L TPHg; therefore, the minimum of 10 feet of clean soil above on- and off-site dissolved petroleum hydrocarbons eliminates the volatile contaminant pathway.
- The residual contaminant plume occurs at depths greater than 20 feet bgs and does not extend below any occupied buildings.
- The majority of the Site is capped with an impervious concrete surface.
- The residual contaminates beneath the Site have likely been mitigated to a level of insignificance by DPE and in-situ remedial activities.

5.9 Potential Impacts to Environmental Receptors

Cases that pose an insignificant risk to environmental receptors should be considered for low-risk closure. Unacceptable risk to environmental receptors should be evaluated within the receiving water and with respect to acute and chronic effects.

The residual groundwater plume beneath and down-gradient of the Site is not a potential threat to environmental receptors; therefore, this Low-Risk closure criterion is satisfied. Further discussion is presented below:

- Numerous studies of the fate and transport of petroleum hydrocarbons have been performed; including 1995 and 1998 reports published by Lawrence Livermore National Laboratories and a 2004 Los Angeles Area Petroleum Hydrocarbon and Fuel Oxygenate Study. These studies indicate that unabated, petroleum hydrocarbon and MTBE groundwater plumes reach a maximum length before the processes of natural attenuation, diffusion, advection, and dispersion reduce concentrations to water quality objectives or levels adequately protective of human health (Closure Solutions, 2009).
- According to the 1995 and 1998 reports, the lateral dimensions of most (non-MTBE) petroleum hydrocarbon-impacted sites do not exceed more than a few hundred feet, and in 90% of cases, the benzene concentration had decreased below 1.0 μg/L within 400 feet of the source area (LLNL, 1995b, 1998). The 2004 Study indicated that the longest MTBE plume length observed (5.0 μg/L) was approximately 1,000 feet, and that 90% of MTBE cases resulted in a plume length of 540 feet or less (Shih, 2004).
- No active public water wells, surface water bodies, or other sensitive environmental receptors are located within 1,000 feet of the Site.
- The nearest surface water channel is Arroyo Mocho, located approximately 1,500 feet to the south (up-gradient).
- The remaining groundwater plume is stable, and the threat of contaminants reaching any water supply wells or impacting Arroyo Mocho, or any other environmental receptor, is extremely low. Also, underground utilities near the Site exist at shallow depths along adjacent streets, and thus are unlikely to become a transport medium for residual contaminants in groundwater, which occurs at approximately 18 to 28 feet bgs.

5.10 Discussion of Low-Risk Closure Criteria Screening

In summary, eight of the nine criteria for screening a case for Low-Risk closure were satisfied. The one criterion that was not satisfied was *No. 2 - Groundwater Contaminate Levels*. While groundwater contaminate levels are above Low-Risk criteria in a very limited portion of the Site (near EW-3), there is enough information to show that the residual contamination from the Site poses an insignificant risk to human health, as explained in Section 5.8. With the Site posing insignificant risk to human health, criteria No. 2 is not a hurdle for Low-Risk closure.

6.0 SWRCB WATER QUALITY ORDERS

SWRCB Resolution No. 2009-0081 states, "When considering whether a UST cleanup case should be closed, Agencies shall apply the decisional framework established in previous State Water Board UST closure orders." Fifty-six (56) SWRCB Water Quality Orders (WQOs) for site closure have resulted from the petition process under 23 Cal. Admin. Code §2814.6. Several cases were closed in spite of the groundwater in the source area with TPHg in excess of 2,000 parts per billion (ppb), and five were closed in spite of benzene in excess of 500 ppb. Most of these cases indicated the contaminated groundwater plume was stable, and ultimately, biodegradation could be expected to reduce plume contaminants to Basin Plan concentrations,

even in the shallow groundwater regime, within several hundred feet of the source area. These WQOs reiterate that, pursuant to SWRCB Resolution 92-49, a site may be closed if the basin plan requirements will be met within a reasonable time frame, which can be several decades or more. Several cases described in these WQOs are generally similar and applicable to the 160 Holmes Street case in that they involved extensive investigation and remediation to the extent practicable, the dissolved plume was proved to be stable and decreasing, residual contaminants were confined to a small, limited area, no sensitive receptors were likely to be impacted, and water quality goals were expected to be met within a reasonable timeframe as required to meet Basin Plan objectives. Appendix B presents a summary of the applicable WQOs.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Based on the results of this Low-Risk case closure evaluation, Allterra concludes the following:

- Extensive investigative work completed on- and off-site has fully characterized residual petroleum constituents in soil and groundwater.

- Major sources of petroleum constituents at the Site have been mitigated and vapor and dissolved phase contaminants were controlled and greatly reduced by various remedial activities performed at the Site.

- More than ten years of groundwater monitoring data have indicated a clear decreasing trend for all petroleum constituents demonstrating plume stability and substantial natural attenuation preventing further migration of residual concentrations beyond their current limited extent.

- Currently, no active production wells, surface water bodies, or other sensitive environmental receptors are located within 1,000 feet of the Site. Municipal water is supplied to nearby residents and businesses; therefore, it is highly unlikely that shallow groundwater under the active fuel station will be used directly as a source of drinking water in the foreseeable future.

- Site-specific data demonstrates the residual contaminants beneath the Site pose an insignificant risk to human health. Based on current Site conditions, the results of a 2009 vapor intrusion study by Robin Davis, and the lack of contaminant exposure pathways, no groundwater ingestion or vapor intrusion concerns exist at or adjacent to this Site.

- SWRCB Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of site closure but allows for compliance with cleanup goals and objectives within a reasonable time frame. Although it may take a significant period of time before water quality beneath the Site will meet all water quality objectives, that period of time is reasonable under the circumstances of this particular case.

- This Low-Risk closure evaluation demonstrates the Site can be considered "low risk" based on SWRCB resolutions and past WQOs, particularly if residual contaminant concentrations near EW-3 continue to decrease.

7.2 Recommendations

Based on our review of current site conditions, the extent of site investigation and corrective action completed, and results of this Low-Risk closure evaluation, we recommend this fuel leak case be considered for closure.

8.0 LIMITATIONS

Allterra prepared this report for the use of Mr. And Mrs. Shuwayhat, RWQCB, and ACEH in evaluating environmental conditions at select locations at the time of this study. Statements, conclusions, and recommendations in this report are based solely on the field observations and analytical results related to work performed by Allterra and there is no warranty, expressed or implied. Site conditions and data may change over time; therefore, data presented in this report is only applicable to the timeframe of this study. Allterra's services have been performed in accordance with environmental principles generally accepted at this time and location.

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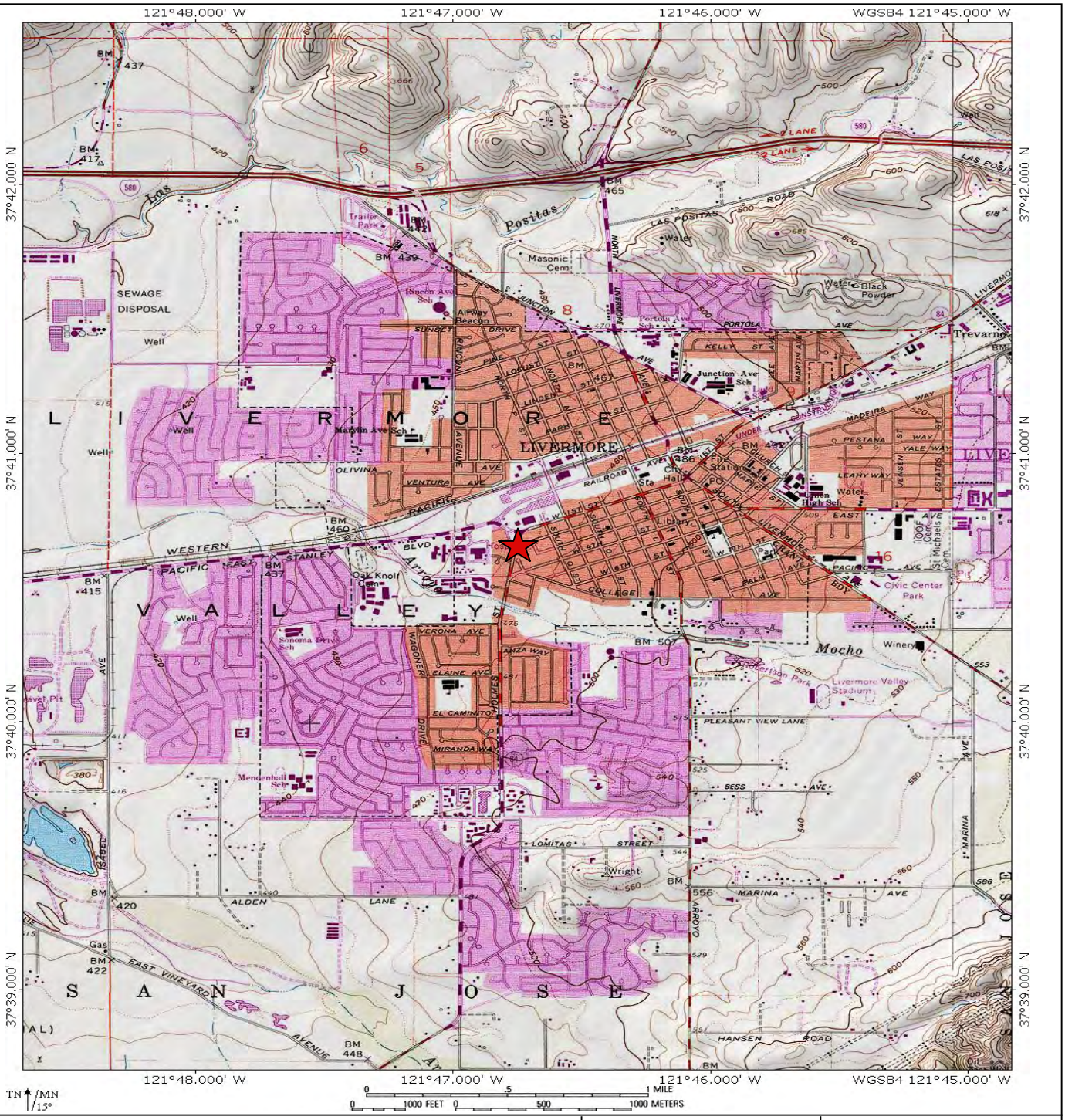
FIGURES 1 - 15



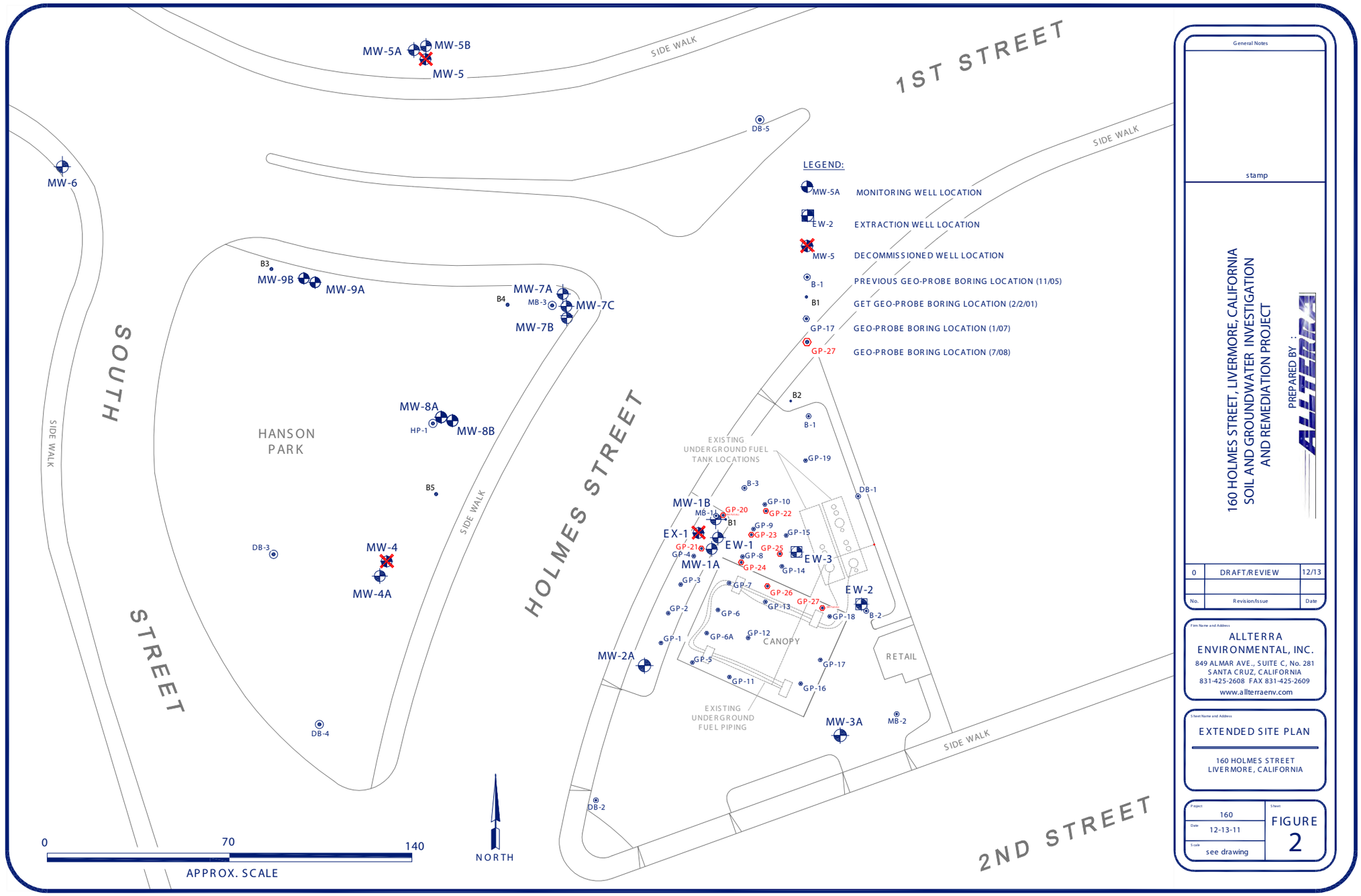
Vicinity Map

Livermore Gas and Minimart
160 Holmes Street
Livermore, California

Figure 1

12/13/11

ALLTERRA
849 Almar Avenue, Suite C, No. 281
Santa Cruz, California
http://www.allterraenv.com



General Notes

stamp

160 HOLMES STREET, LIVERMORE, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION
AND REMEDIATION PROJECT

PREPARED BY :

No.	Revision/Issue	Date
0	DRAFT/REVIEW	12/13

Firm Name and Address
ALLTERRA ENVIRONMENTAL, INC.
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Sheet Name and Address
EXTENDED SITE PLAN
160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
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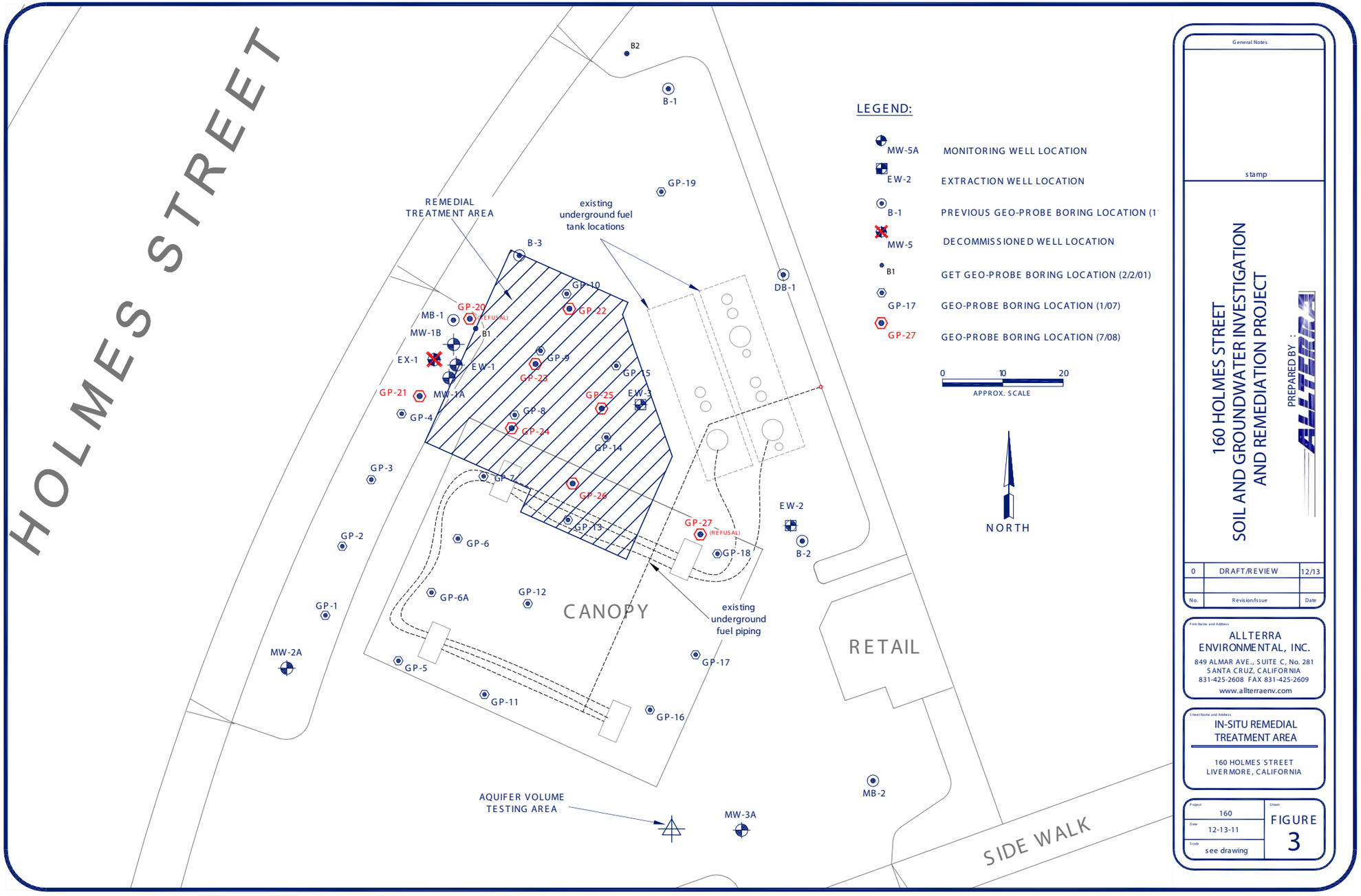

General Notes

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160 HOLMES STREET
SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

PREPARED BY :

No.	Revision/Issue	Date
0	DRAFT/REVIEW	12/13

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Sheet Name and Address
IN-SITU REMEDIAL TREATMENT AREA
160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
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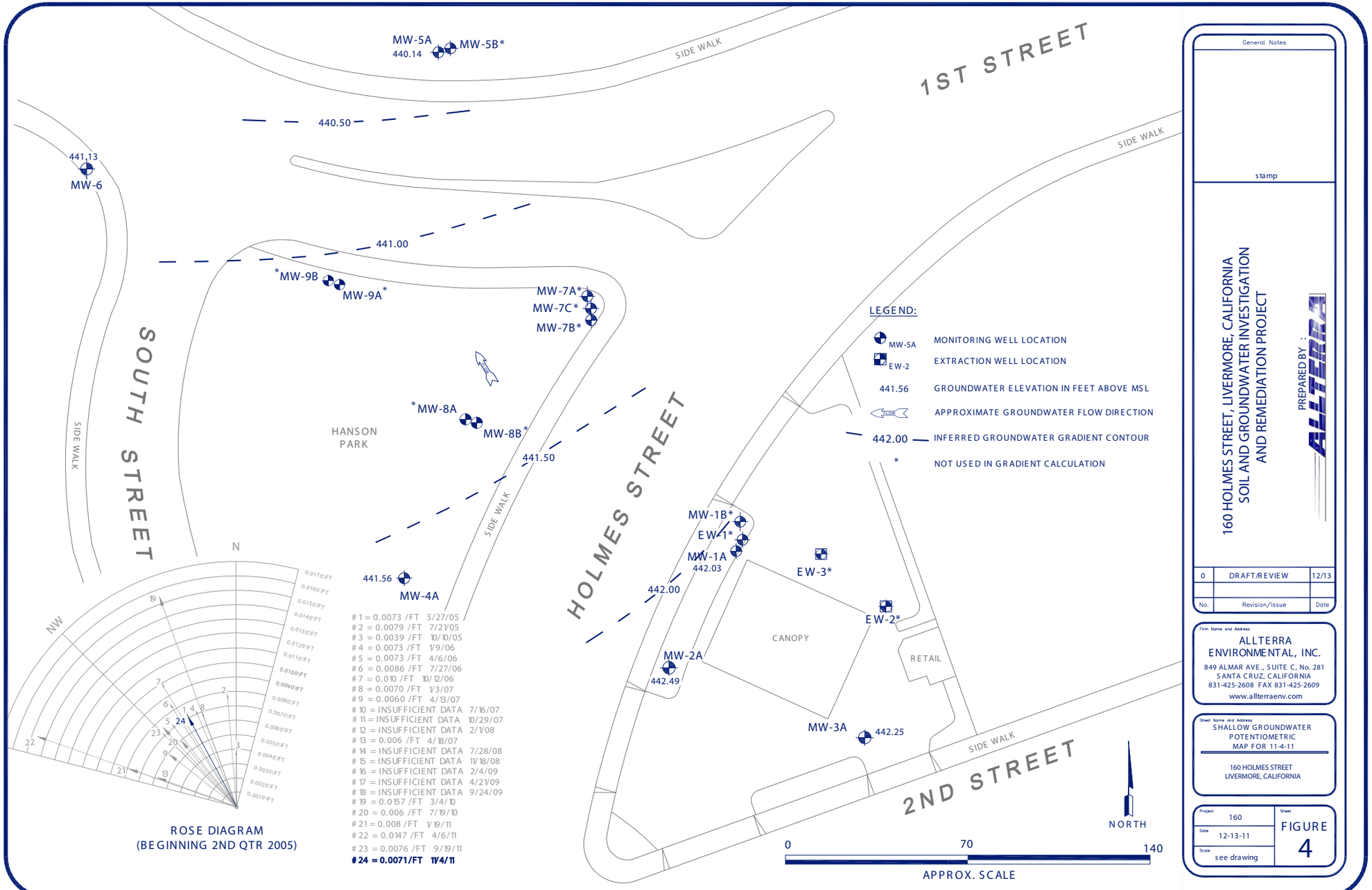
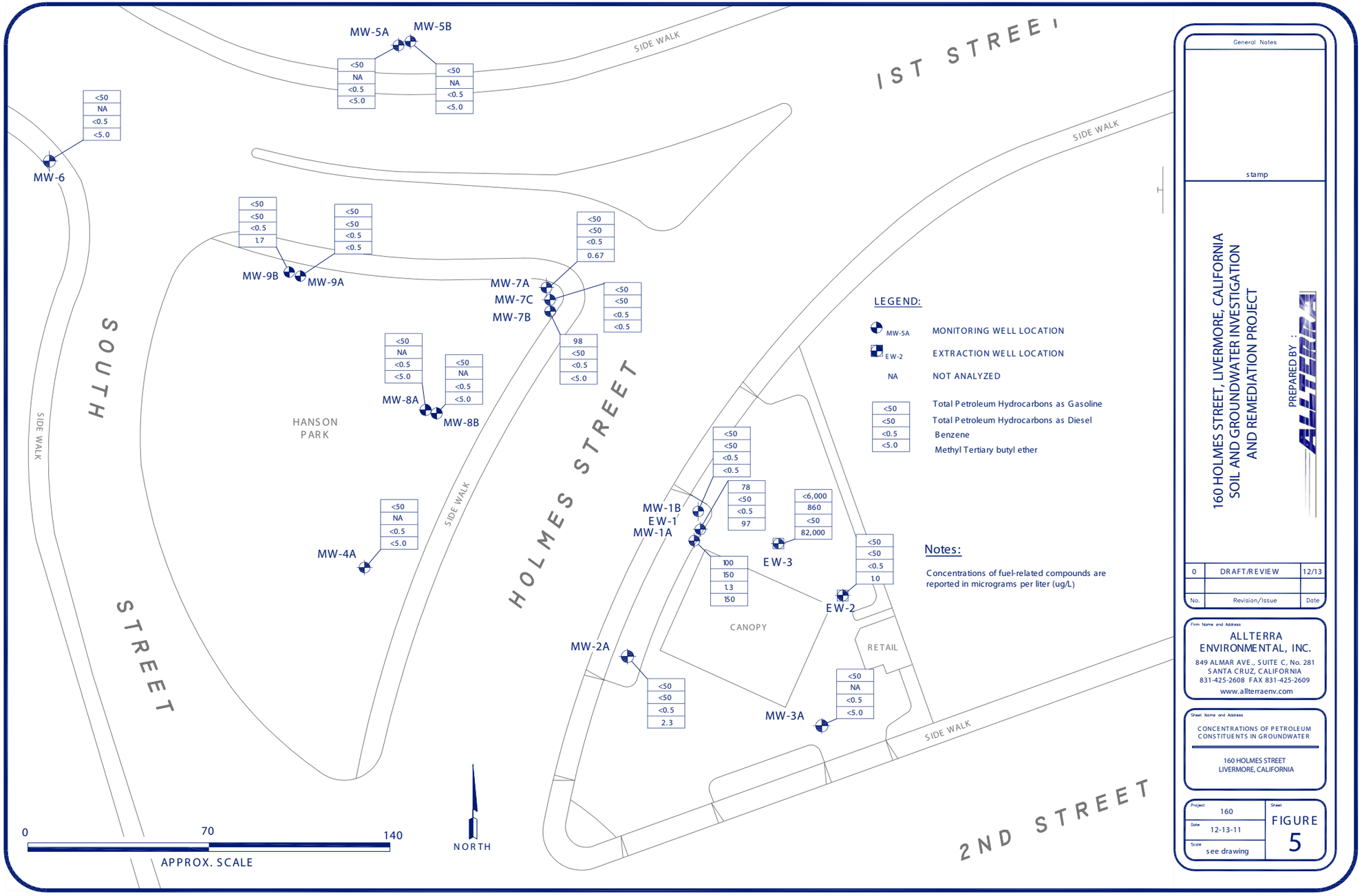

MW-5A
440.14
MW-5B*
SIDE WALK
1ST STREET
440.50
441.13
MW-6
441.00
*MW-9B
MW-9A*
MW-7A*
MW-7C*
MW-7B*
SOUTH STREET
SIDE WALK
*MW-8A
MW-8B*
HANSON
PARK
441.50
SIDE WALK
HOLMES STREET
441.56
MW-4A
MW-1B*
EW-1*
MW-1A
442.03
442.00
EW-3*
EW-2*
CANOPY
RETAIL
MW-2A
442.49
MW-3A
442.25
SIDE WALK
2ND STREET
NORTH
0
70
140
APPROX. SCALE
LEGEND:
MW-5A MONITORING WELL LOCATION
EW-2 EXTRACTION WELL LOCATION
441.56 GROUNDWATER ELEVATION IN FEET ABOVE MSL
FLOW APPROXIMATE GROUNDWATER FLOW DIRECTION
442.00 INFERRED GROUNDWATER GRADIENT CONTOUR
* NOT USED IN GRADIENT CALCULATION
N
NW
0.0170'/FT
0.0160'/FT
0.0150'/FT
0.0140'/FT
0.0130'/FT
0.0120'/FT
0.0110'/FT
0.0100'/FT
0.0090'/FT
0.0080'/FT
0.0070'/FT
0.0060'/FT
0.0050'/FT
0.0040'/FT
0.0030'/FT
0.0020'/FT
0.0010'/FT
ROSE DIAGRAM
(BEGINNING 2ND QTR 2005)
1 = 0.0073 /FT 5/27/05
2 = 0.0079 /FT 7/21/05
3 = 0.0039 /FT 10/10/05
4 = 0.0073 /FT 1/9/06
5 = 0.0073 /FT 4/6/06
6 = 0.0086 /FT 7/27/06
7 = 0.010 /FT 10/12/06
8 = 0.0070 /FT 1/3/07
9 = 0.0060 /FT 4/13/07
10 = INSUFFICIENT DATA 7/16/07
11 = INSUFFICIENT DATA 10/29/07
12 = INSUFFICIENT DATA 2/1/08
13 = 0.006 /FT 4/18/07
14 = INSUFFICIENT DATA 7/28/08
15 = INSUFFICIENT DATA 11/18/08
16 = INSUFFICIENT DATA 2/4/09
17 = INSUFFICIENT DATA 4/21/09
18 = INSUFFICIENT DATA 9/24/09
19 = 0.0157 /FT 3/4/10
20 = 0.006 /FT 7/19/10
21 = 0.008 /FT 1/19/11
22 = 0.0147 /FT 4/6/11
23 = 0.0076 /FT 9/19/11
24 = 0.0071/FT 11/4/11
General Notes
stamp
160 HOLMES STREET, LIVERMORE, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION
AND REMEDIATION PROJECT
PREPARED BY :
ALLTERRA
0 DRAFT/REVIEW 12/13
No. Revision/Issue Date
Firm Name and Address
ALLTERRA
ENVIRONMENTAL, INC.
849 ALMAR AVE., SUITE C, No. 281
SANTA CRUZ, CALIFORNIA
831-425-2608 FAX 831-425-2609
www.allterraenv.com
Sheet Name and Address
SHALLOW GROUNDWATER
POTENTIOMETRIC
MAP FOR 11-4-11
160 HOLMES STREET
LIVERMORE, CALIFORNIA
Project 160
Date 12-13-11
Scale see drawing
Sheet
FIGURE
4



General Notes

stamp

160 HOLMES STREET, LIVERMORE, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION
AND REMEDIATION PROJECT

PREPARED BY :

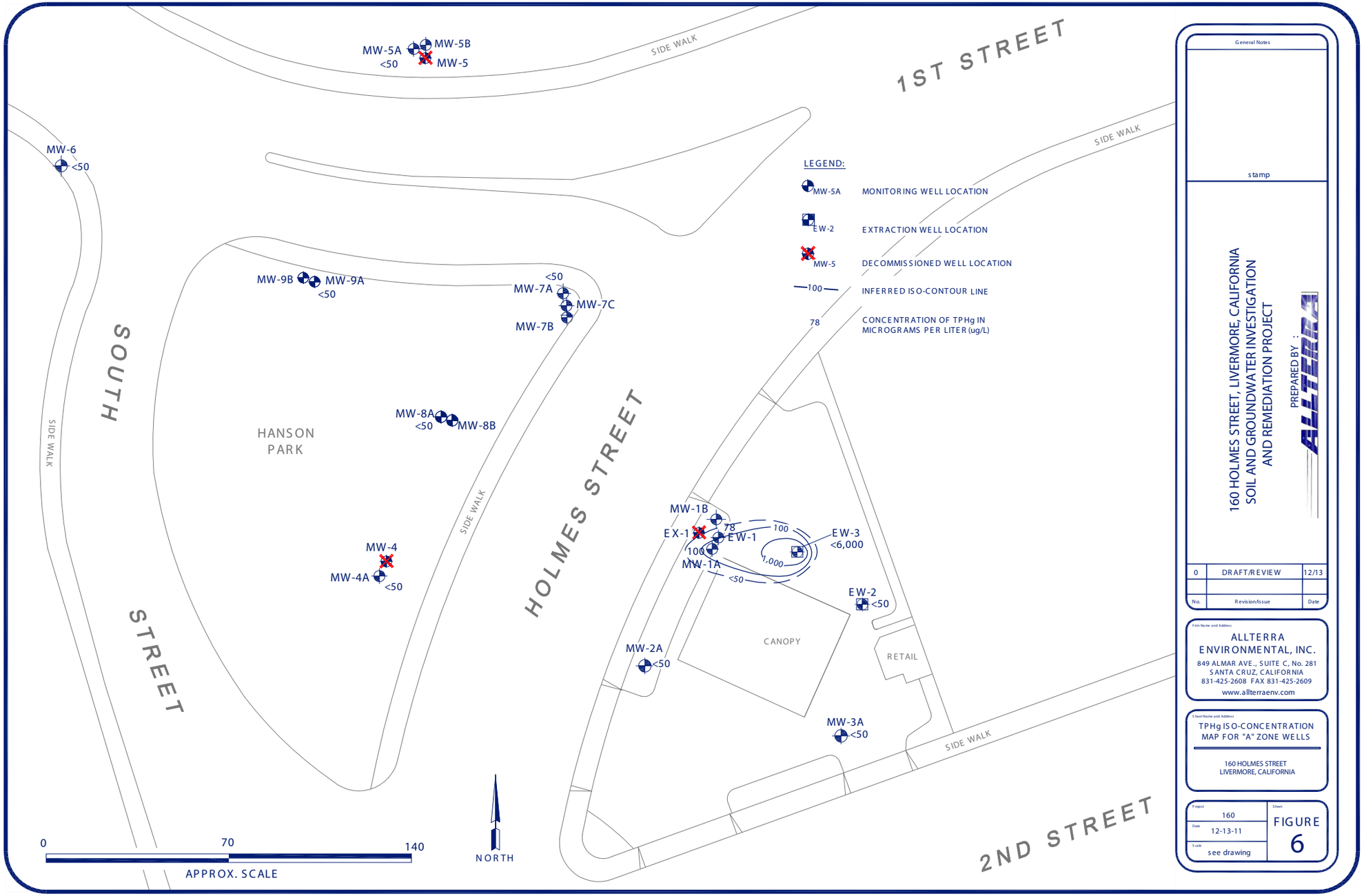
No.	Revision/Issue	Date
0	DRAFT/REVIEW	12/13

Firm Name and Address
ALLTERRA
ENVIRONMENTAL, INC.
849 ALMAR AVE., SUITE C, No. 281
SANTA CRUZ, CALIFORNIA
831-425-2608 FAX 831-425-2609
www.allterraenv.com

Sheet Name and Address
CONCENTRATIONS OF PETROLEUM CONSTITUENTS IN GROUNDWATER

160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
160	FIGURE 5
Date: 12-13-11	
Scale: see drawing	



General Notes

stamp

160 HOLMES STREET, LIVERMORE, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION
AND REMEDIATION PROJECT

PREPARED BY :

No.	Revision/Issue	Date
0	DRAFT/REVIEW	12/13

Firm Name and Address
ALLTERRA
ENVIRONMENTAL, INC.
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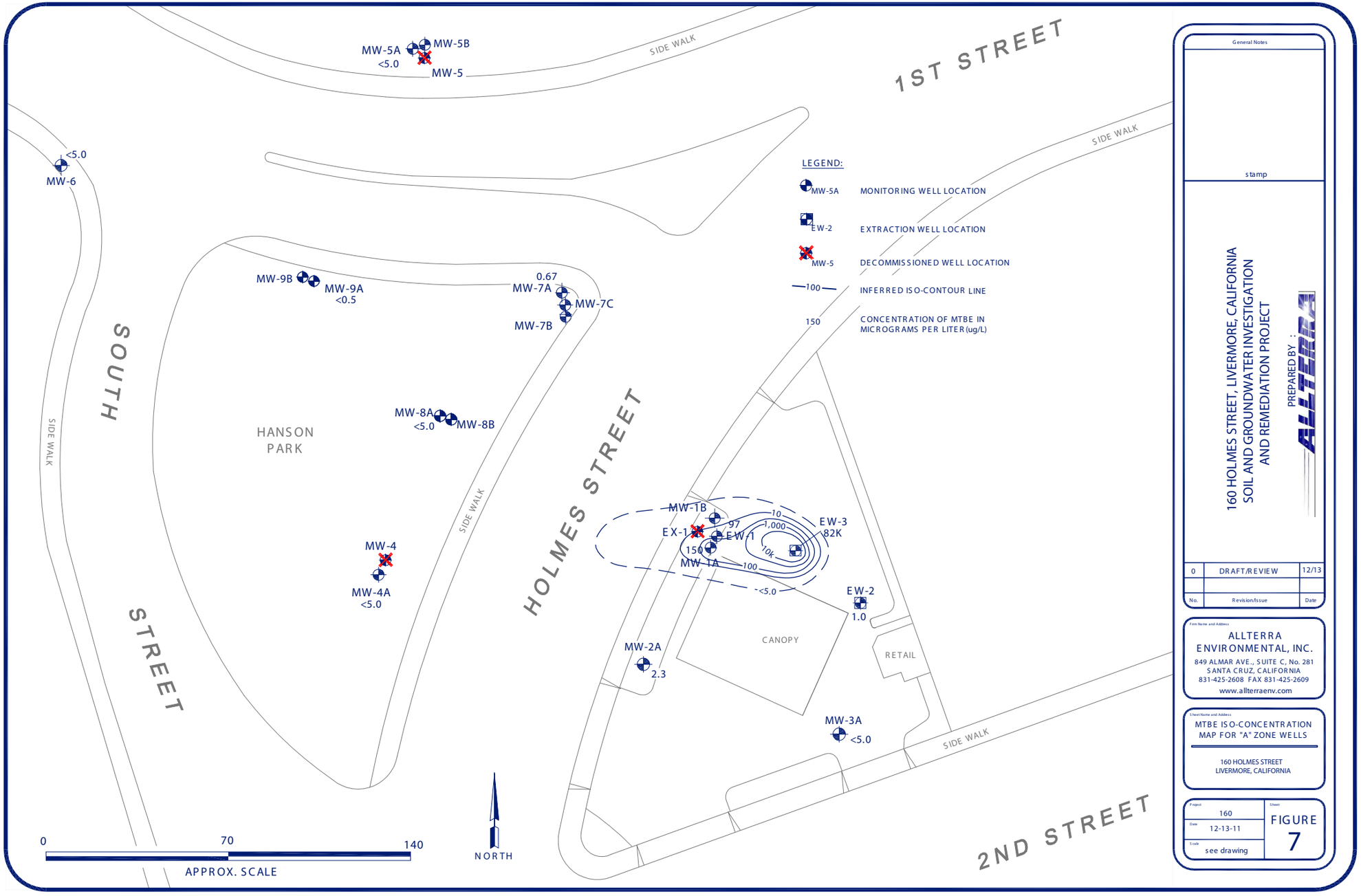
SANTA CRUZ, CALIFORNIA
831-425-2608 FAX 831-425-2609
www.allterraenv.com

Sheet Name and Address
TPHg ISO-CONCENTRATION
MAP FOR "A" ZONE WELLS

160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
160	FIGURE 6
Date: 12-13-11	
Scale: see drawing	



General Notes

stamp

160 HOLMES STREET, LIVERMORE, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION
AND REMEDIATION PROJECT

PREPARED BY :

No.	Revision/Issue	Date
0	DRAFT/REVIEW	12/13

Firm Name and Address
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ENVIRONMENTAL, INC.
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SANTA CRUZ, CALIFORNIA
831-425-2608 FAX 831-425-2609
www.allterraenv.com

Sheet Name and Address
MTBE ISO-CONCENTRATION
MAP FOR "A" ZONE WELLS

160 HOLMES STREET
LIVERMORE, CALIFORNIA

Project	Sheet
160	FIGURE 7
Date: 12-13-11	
Scale: see drawing	

Figure 8
MW-1A Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California

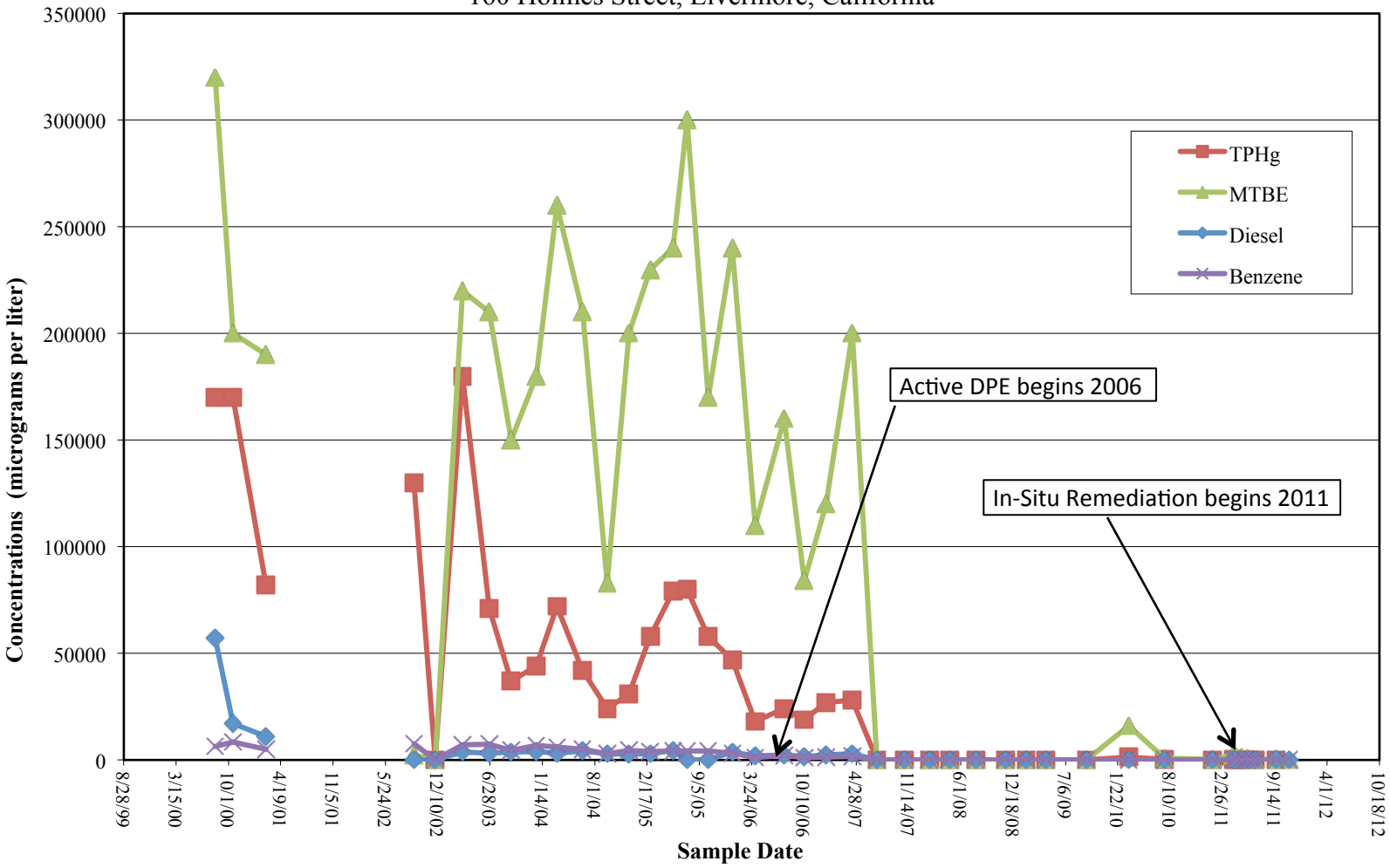


Figure 9
MW-2A Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California

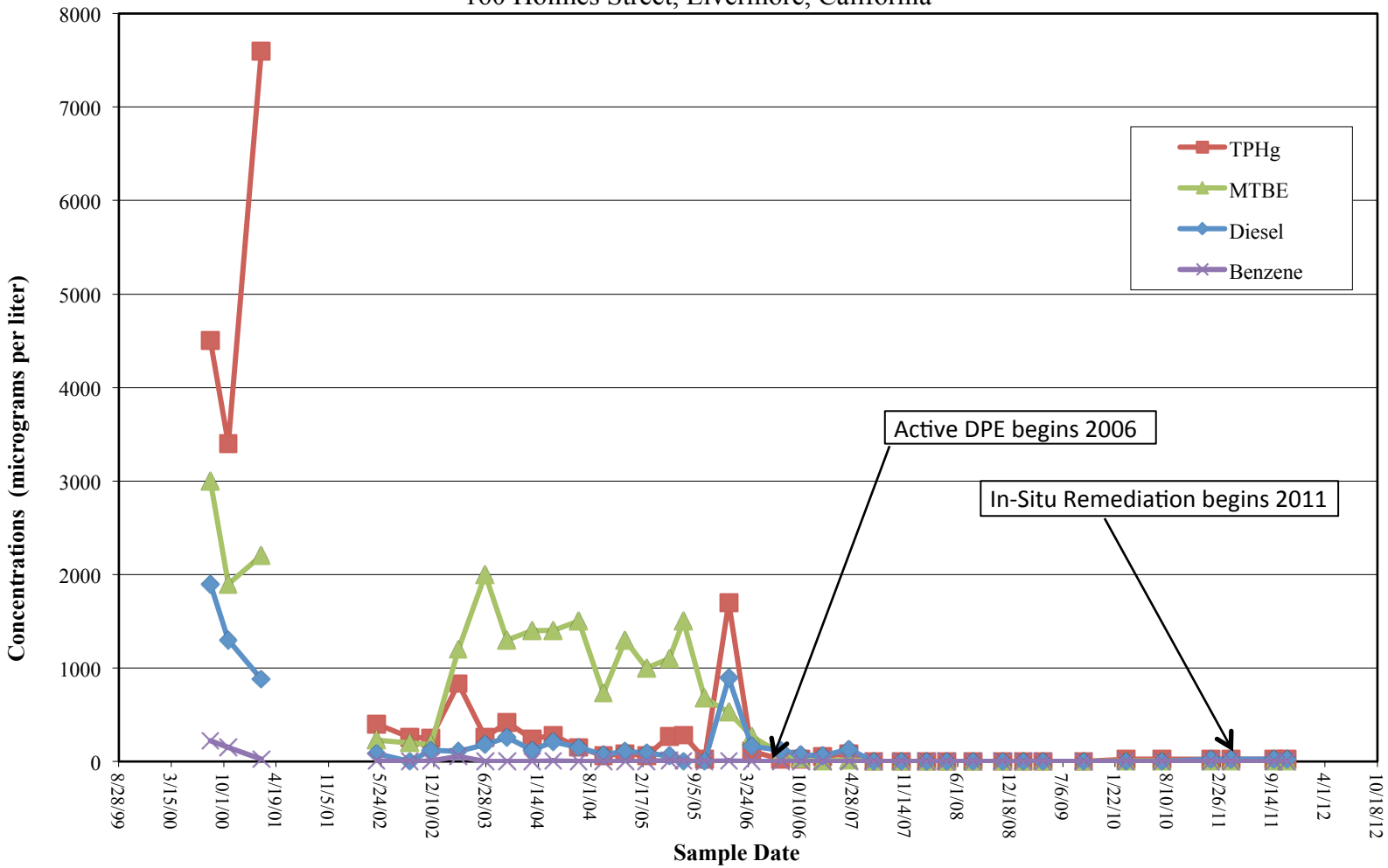


Figure 10
MW-7A Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California

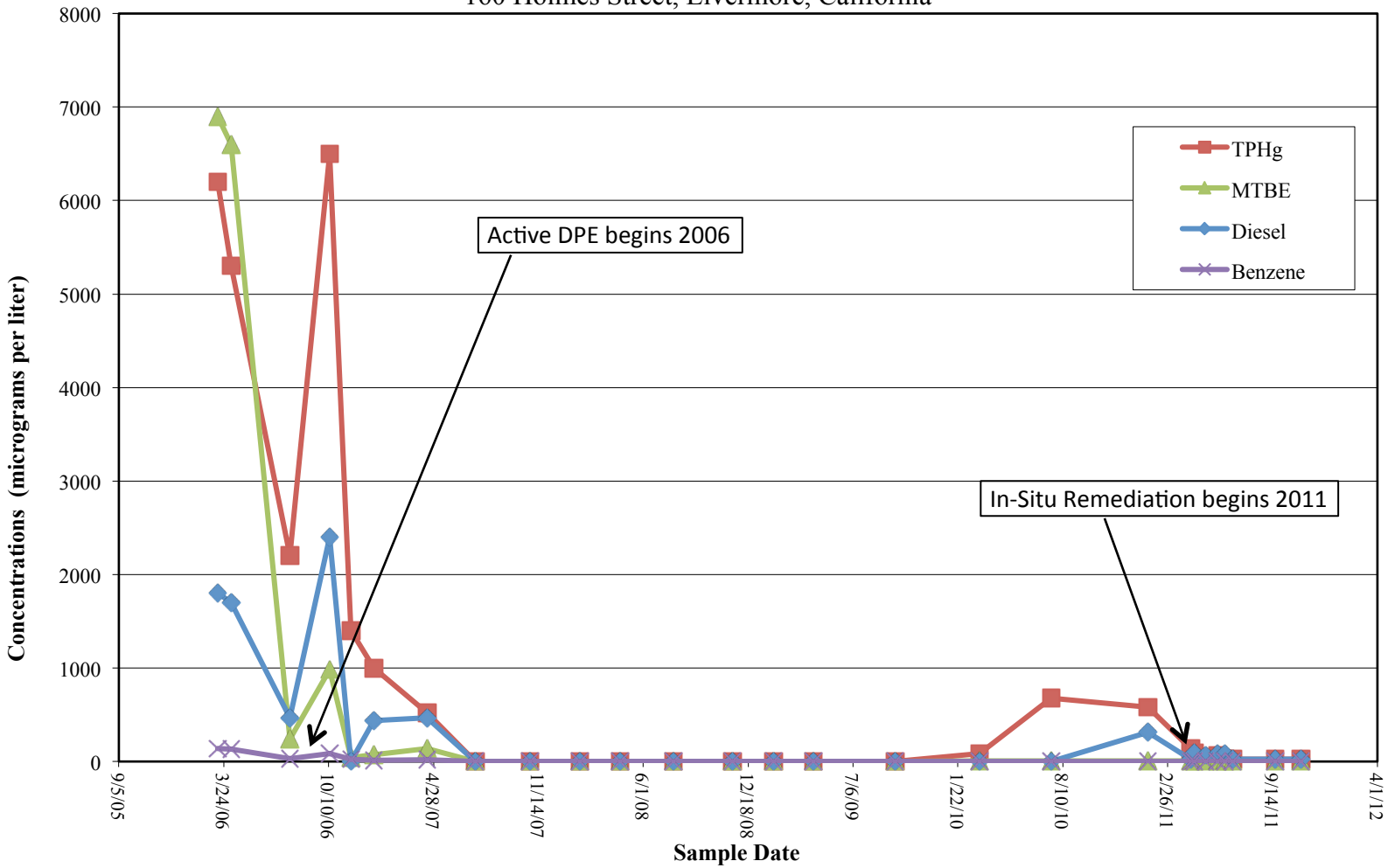


Figure 11
MW-7B Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California

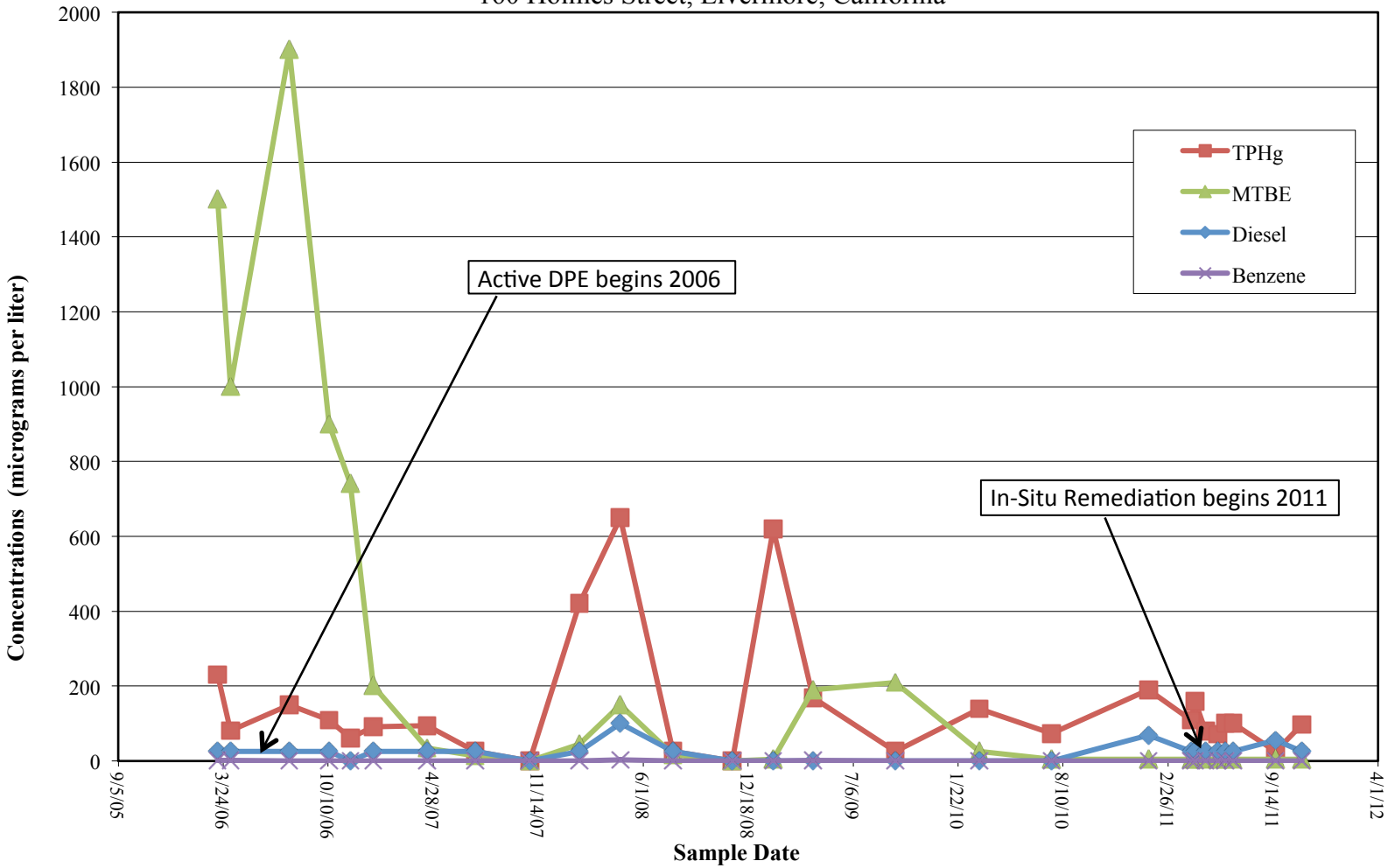


Figure 12
EW-1 Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California

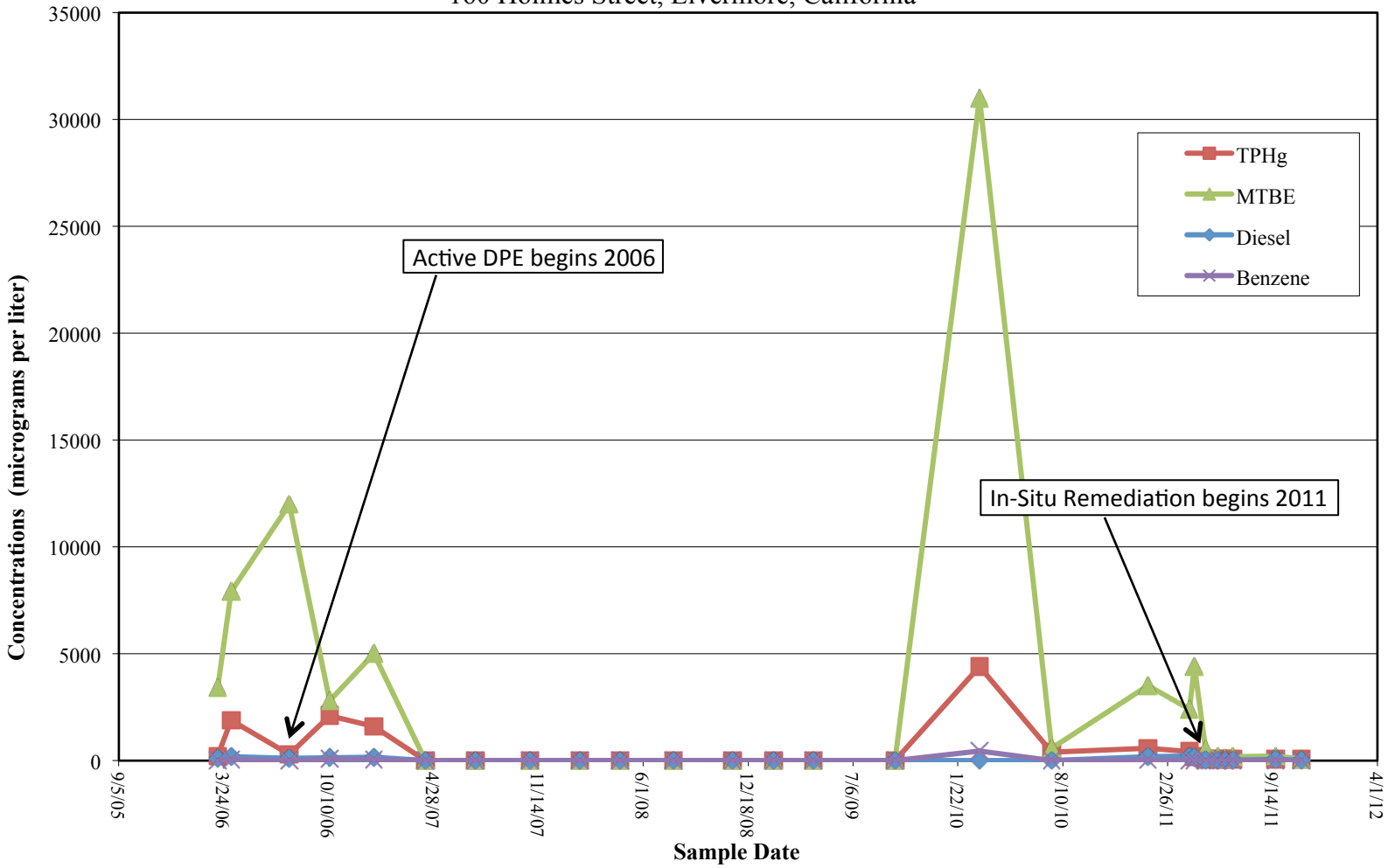


Figure 13
EW-2 Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California

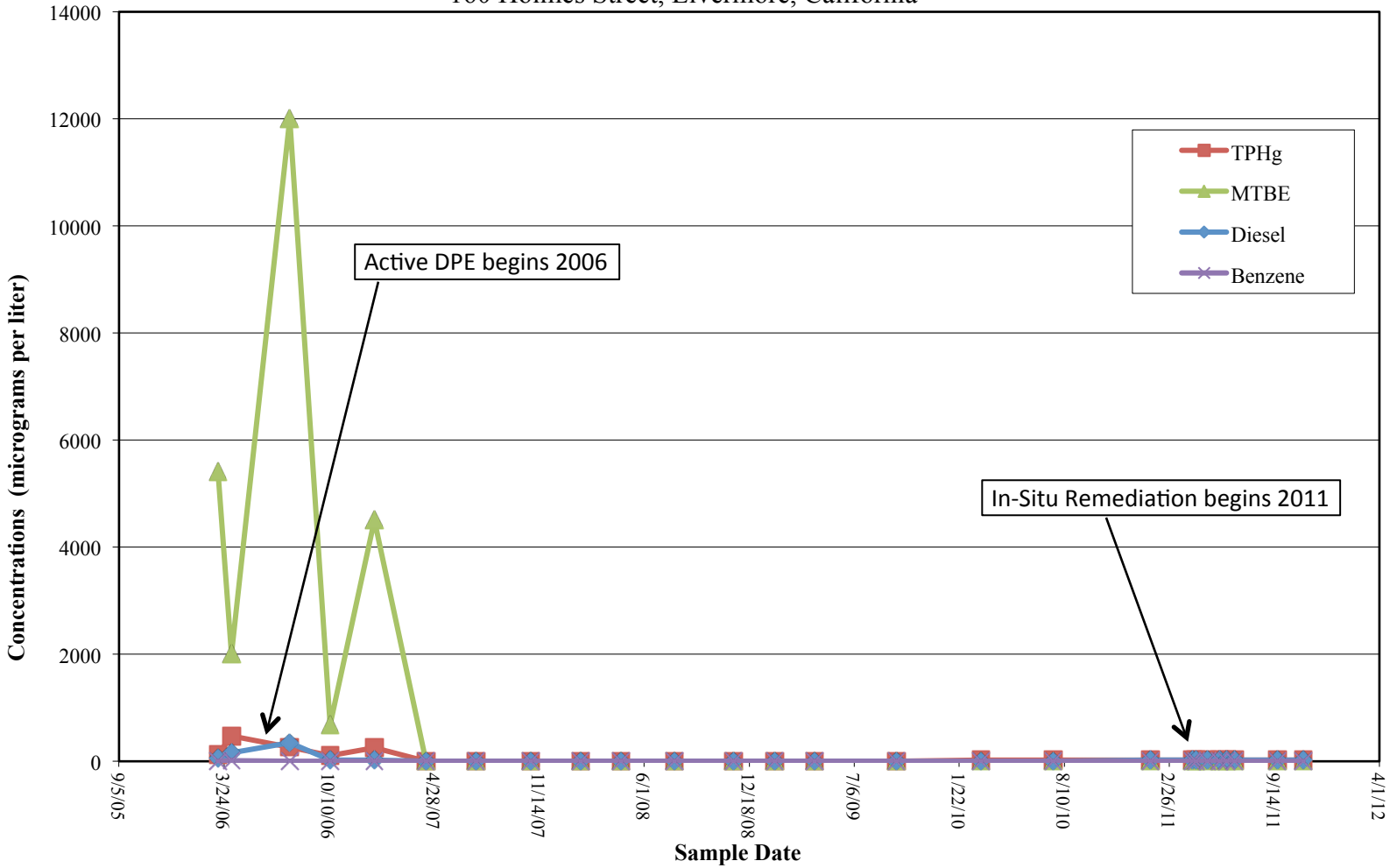
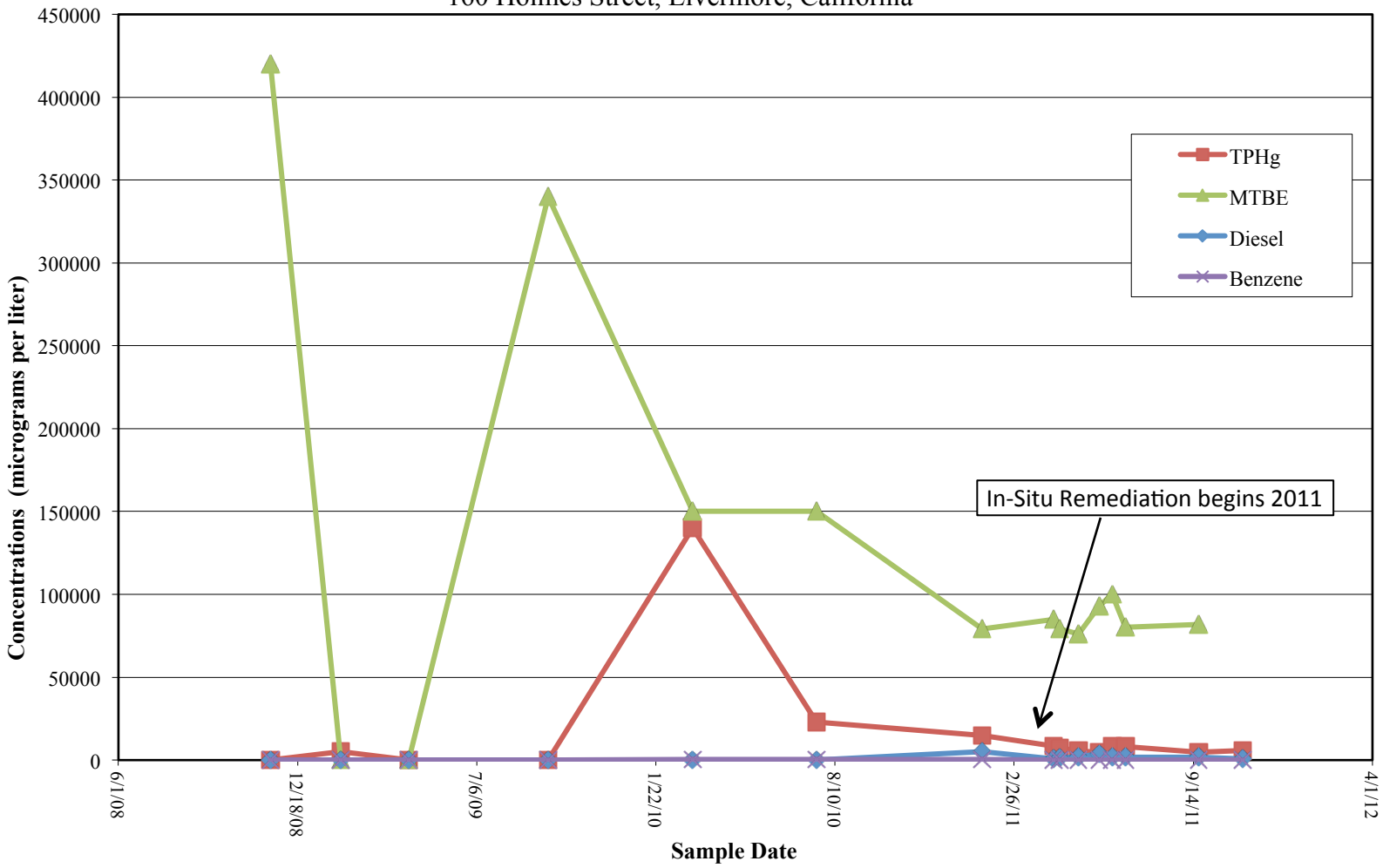
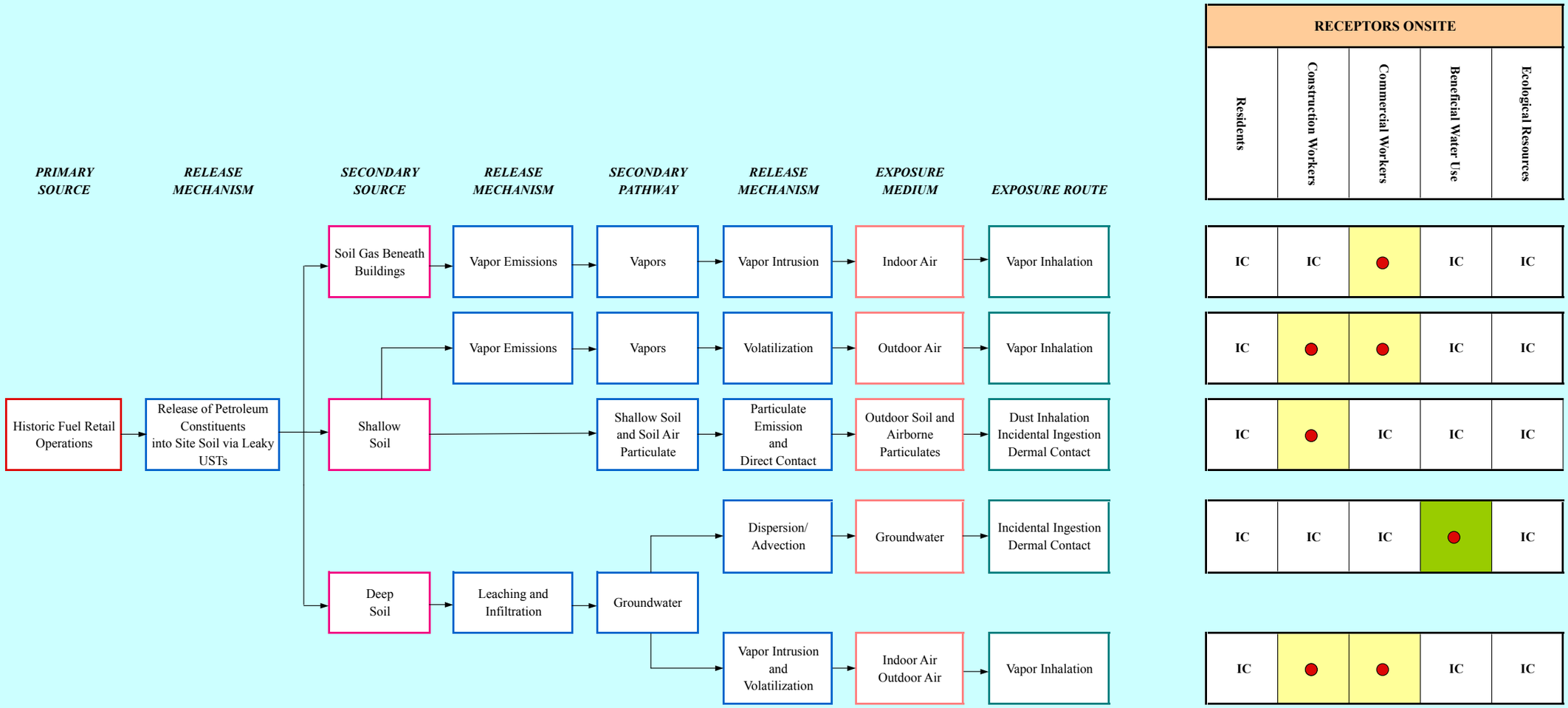


Figure 14
EW-3 Petroleum Constituent Concentrations Over Time
160 Holmes Street, Livermore, California





Notes:

● = Potentially complete pathway

IC = Exposure pathway is incomplete or not applicable

Yellow highlight = Likely mitigated to a level of insignificance by remedial activities

Green highlight = Likely insignificant based on limited plume extent and distance to water supply well

Project No. 160	ALLTERRA	CONCEPTUAL SITE MODEL - FLOW DIAGRAM	Figure 15
160 Holmes Street Livermore, California			

TABLES 1 - 7

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-1*	8/11/00	465.03	15-30	NM	NC
	10/19/00	465.03	15-30	21.94	443.09
	2/22/01	465.03	15-30	22.91	442.12
	5/30/01	465.03	15-30	Dry	NC
	11/14/01	465.03	15-30	Dry	NC
	5/7/02	465.03	15-30	Dry	NC
	9/11/02	465.03	15-30	26.16	438.87
	12/1/02	465.03	15-30	27.55	437.48
	3/14/03	465.03	15-30	22.63	442.40
	6/25/03	465.03	15-30	22.10	442.93
	9/16/03	465.03	15-30	24.91	440.12
	12/22/03	465.03	15-30	21.75	443.28
	3/10/04	465.03	15-30	17.45	447.58
	6/15/04	465.03	15-30	22.38	442.65
	9/17/04	465.03	15-30	25.61	439.42
	12/10/04	465.03	15-30	22.18	442.85
	3/2/05	465.03	15-30	16.95	448.08
	5/27/05	465.03	15-30	18.42	446.61
	7/21/05	465.03	15-30	21.38	443.65
	10/10/05	465.03	15-30	22.49	442.54
	1/9/06	465.03	15-30	18.05	446.98
MW-1A*	4/6/06	465.03	15-30	15.60	449.43
	7/27/06	465.03	15-30	22.42	442.61
	10/12/06	465.03	15-30	23.46	441.57
	1/3/07	465.03	15-30	21.00	444.03
	4/13/07	465.03	15-30	23.24	441.79
	7/16/07	465.03	15-30	Dry	NC
	10/29/07	465.03	15-30	Dry	NC
	2/1/08	465.03	15-30	Dry	NC
	4/18/08	465.03	15-30	27.34	437.69
	7/28/08	465.03	15-30	Dry	NC
	11/18/08	465.03	15-30	Dry	NC
	2/4/09	465.03	15-30	Dry	NC
	4/21/09	465.03	15-30	Dry	NC
	9/24/09	465.03	15-30	35.00	430.03
	3/4/10	465.03	15-30	28.05	436.98
	7/19/10	465.03	15-30	23.85	441.18
	1/19/11	465.03	15-30	23.12	441.91
	4/6/11	465.03	15-30	18.40	446.63
	4/18/11	465.03	15-30	18.70	446.33
	5/9/11	465.03	15-30	19.26	445.77
	6/1/11	465.03	15-30	20.10	444.93
	6/15/11	465.03	15-30	20.44	444.59
	6/30/11	465.03	15-30	20.73	444.30
	9/19/11	465.03	15-30	22.91	442.12
	11/4/11	**465.03**	**15-30**	**23.00**	**442.03**
MW-1B**	4/6/06	465.02	50-55	15.59	449.43
	7/27/06	465.02	50-55	22.47	442.55
	10/12/06	465.02	50-55	23.51	441.51
	1/3/07	465.02	50-55	21.04	443.98
	4/13/07	465.02	50-55	23.30	441.72
	7/16/07	465.02	50-55	35.57	429.45
	10/29/07	465.02	50-55	47.32	417.70
	2/1/08	465.02	50-55	33.90	431.12
	4/18/08	465.02	50-55	27.35	437.67
	7/28/08	465.02	50-55	44.03	420.99
	11/18/08	465.02	50-55	48.50	416.52
	2/4/09	465.02	50-55	46.83	418.19
	4/21/09	465.02	50-55	37.10	427.92
	9/24/09	465.02	50-55	37.76	427.26
	3/4/10	465.02	50-55	27.41	437.61
	7/19/10	465.02	50-55	NM	NC
	1/19/11	465.02	50-55	23.10	441.92
	4/6/11	465.02	50-55	18.40	446.62
	4/18/11	465.02	50-55	18.60	446.42
	5/9/11	465.02	50-55	19.11	445.91
	6/1/11	465.02	50-55	20.10	444.92
	6/15/11	465.02	50-55	20.44	444.58
	6/30/11	465.02	50-55	20.74	444.28
	9/19/11	465.02	50-55	22.92	442.10
	11/4/11	**465.02**	**50-55**	**22.95**	**442.07**

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-2*	8/11/00	464.94	15-30	NM	NC
	10/19/00	464.94	15-30	21.80	443.14
	2/22/01	464.94	15-30	22.87	442.07
	5/30/01	464.94	15-30	Dry	NC
	11/14/01	464.94	15-30	Dry	NC
	5/7/02	464.94	15-30	26.70	438.24
	9/11/02	464.94	15-30	25.96	438.98
	12/11/02	464.94	15-30	27.56	437.38
	3/14/03	464.94	15-30	22.41	442.53
	6/25/03	464.94	15-30	21.97	442.97
	9/16/03	464.94	15-30	24.70	440.24
	12/22/03	464.94	15-30	21.58	443.36
	3/10/04	464.94	15-30	17.31	447.63
	6/15/04	464.94	15-30	22.18	442.76
	9/17/04	464.94	15-30	25.44	439.50
	12/10/04	464.94	15-30	22.00	442.94
	3/2/05	464.94	15-30	16.75	448.19
	5/27/05	464.94	15-30	18.29	446.65
	7/21/05	464.94	15-30	20.46	444.48
	10/10/05	464.94	15-30	22.30	442.64
	1/9/06	464.94	15-30	17.67	447.27
MW-2A*	4/6/06	464.94	15-30	15.47	449.47
	7/27/06	464.94	15-30	22.27	442.67
	10/12/06	464.94	15-30	23.35	441.59
	1/3/07	464.94	15-30	20.90	444.04
	4/13/07	464.94	15-30	23.16	441.78
	7/16/07	464.94	15-30	Dry	NC
	10/29/07	464.94	15-30	Dry	NC
	2/1/08	464.94	15-30	Dry	NC
	4/18/08	464.94	15-30	27.26	437.68
	7/28/08	464.94	15-30	Dry	NC
	11/18/08	464.94	15-30	Dry	NC
	2/4/09	464.94	15-30	Dry	NC
	4/21/09	464.94	15-30	Dry	NC
	9/24/09	464.94	15-30	Dry	NC
	3/4/10	464.94	15-30	25.12	439.82
	7/20/10	464.94	15-30	25.90	439.04
	1/19/11	464.94	15-30	25.30	439.64
	4/6/11	464.94	15-30	18.30	446.64
	9/19/11	464.94	15-30	22.45	442.49
	11/4/11	**464.94**	**15-30**	**22.77**	**442.17**
MW-3*	8/11/00	465.84	15-30	NM	NC
	10/19/00	465.84	15-30	22.45	443.39
	2/22/01	465.84	15-30	23.51	442.33
	5/30/01	465.84	15-30	Dry	NC
	11/14/01	465.84	15-30	Dry	NC
	5/7/02	465.84	15-30	Dry	NC
	9/11/02	465.84	15-30	26.61	439.23
	12/11/02	465.84	15-30	28.18	437.66
	3/14/03	465.84	15-30	23.04	442.80
	6/25/03	465.84	15-30	22.59	443.25
	9/16/03	465.84	15-30	25.33	440.51
	12/22/03	465.84	15-30	22.37	443.47
	3/10/04	465.84	15-30	17.88	447.96
	6/15/04	465.84	15-30	22.82	443.02
	9/17/04	465.84	15-30	26.09	439.75
	12/10/04	465.84	15-30	22.65	443.19
	3/5/05	465.84	15-30	17.33	448.51
	5/27/05	465.84	15-30	18.89	446.95
	7/21/05	465.84	15-30	21.10	444.74
	10/10/05	465.84	15-30	22.94	442.90
	1/9/06	465.84	15-30	18.24	447.60

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-3A*	4/6/06	465.84	15-30	16.02	449.82
	7/27/06	465.84	15-30	22.90	442.94
	10/12/06	465.84	15-30	23.99	441.85
	1/3/07	465.84	15-30	21.52	444.32
	4/13/07	465.84	15-30	23.78	442.06
	7/16/07	465.84	15-30	Dry	NC
	10/29/07	465.84	15-30	Dry	NC
	2/1/08	465.84	15-30	Dry	NC
	4/18/08	465.84	15-30	27.86	437.98
	7/28/08	465.84	15-30	Dry	NC
	11/18/08	465.84	15-30	Dry	NC
	2/4/09	465.84	15-30	Dry	NC
	4/21/09	465.84	15-30	Dry	NC
	9/24/09	465.84	15-30	Dry	NC
	3/4/10	465.84	15-30	27.95	437.89
	7/19/10	465.84	15-30	26.55	439.29
	1/19/11	465.84	15-30	23.63	442.21
	4/6/11	465.84	15-30	18.90	446.94
	9/19/11	465.85	15-30	23.40	442.45
	11/4/11	**465.85**	**15-30**	**23.60**	**442.25**
MW-4***	11/14/01	465.15	15-30	33.84	431.31
	5/7/02	465.15	15-30	26.75	438.40
	9/11/02	465.15	15-30	26.66	438.49
	12/11/02	465.15	15-30	28.39	436.76
	3/14/03	465.15	15-30	23.14	442.01
	6/25/03	465.15	15-30	22.72	442.43
	9/16/03	465.15	15-30	25.39	439.76
	12/22/03	465.15	15-30	22.42	442.73
	3/4/04	465.15	15-30	18.20	446.95
	6/15/04	465.15	15-30	22.95	442.20
	9/17/04	465.15	15-30	26.12	439.03
	12/10/04	465.15	15-30	22.73	442.42
	3/2/05	465.15	15-30	17.60	447.55
	5/27/05	465.15	15-30	19.14	446.01
	7/21/05	465.15	15-30	21.25	443.90
	10/10/05	465.15	15-30	22.85	442.30
	1/9/06	465.15	15-30	18.54	446.61
MW-4A**	4/6/06	464.96	15-30	16.19	448.77
	7/27/06	464.96	15-30	22.87	442.09
	10/12/06	464.96	15-30	23.90	441.06
	1/3/07	464.96	15-30	21.52	443.44
	4/13/07	464.96	15-30	23.78	441.18
	7/16/07	464.96	15-30	Dry	NC
	10/29/07	464.96	15-30	Dry	NC
	2/1/08	464.96	15-30	Dry	NC
	4/18/08	464.96	15-30	27.91	437.05
	7/28/08	464.96	15-30	Dry	NC
	11/18/08	464.96	15-30	Dry	NC
	2/4/09	464.96	15-30	Dry	NC
	9/24/09	464.96	15-30	Dry	NC
	4/21/09	464.96	15-30	Dry	NC
	3/4/10	464.96	15-30	25.66	439.30
	7/20/10	464.96	15-30	24.25	440.71
	1/19/11	464.96	15-30	23.64	441.32
	4/6/11	464.96	15-30	18.90	446.06
	9/19/11	464.96	15-30	23.43	441.53
	11/4/11	**464.96**	**15-30**	**23.40**	**441.56**

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-5***	11/14/01	464.65	20-50	34.94	429.71
	5/7/02	464.65	20-50	27.90	436.75
	9/11/02	464.65	20-50	27.99	436.66
	12/11/02	464.65	20-50	29.50	435.15
	3/14/03	464.65	20-50	24.26	440.39
	6/25/03	464.65	20-50	24.01	440.64
	9/16/03	464.65	20-50	26.83	437.82
	12/22/03	464.65	20-50	23.68	440.97
	3/10/04	464.65	20-50	19.22	445.43
	6/15/04	464.65	20-50	24.20	440.45
	9/17/04	464.65	20-50	27.68	436.97
	12/10/04	464.65	20-50	23.93	440.72
	3/2/05	464.65	20-50	18.56	446.09
	5/27/05	464.65	20-50	20.15	444.50
	7/21/05	464.65	20-50	22.55	442.10
	10/10/05	464.65	20-50	23.35	441.30
	1/9/06	464.65	20-50	19.53	445.12
MW-5A**	4/6/06	464.64	20-35	17.35	447.29
	7/27/06	464.64	20-35	24.40	440.24
	10/12/06	464.64	20-35	25.58	439.06
	1/3/07	464.64	20-35	22.53	442.11
	4/13/07	464.64	20-35	24.77	439.87
	7/16/07	464.64	20-35	Dry	NC
	10/29/07	464.64	20-35	Dry	NC
	2/1/08	464.64	20-35	34.03	430.61
	4/18/08	464.64	20-35	28.13	436.51
	7/28/08	464.64	20-35	Dry	NC
	11/18/08	464.64	20-35	33.82	430.82
	2/4/09	464.64	20-35	Dry	NC
	4/21/09	464.64	20-35	Dry	NC
	9/24/09	464.64	20-35	Dry	NC
	3/4/10	464.64	20-35	28.77	435.87
	7/20/10	464.64	20-35	24.57	440.07
	1/19/11	464.64	20-35	24.52	440.12
	4/6/11	464.64	20-35	19.98	444.66
	9/19/11	464.64	20-35	24.62	440.02
	11/4/11	**464.64**	**20-35**	**24.50**	**440.14**
MW-5B**	4/6/06	464.59	50-55	17.44	447.15
	7/27/06	464.59	50-55	24.09	440.50
	10/12/06	464.59	50-55	25.17	439.42
	1/3/07	464.59	50-55	22.44	442.15
	4/13/07	464.59	50-55	25.33	439.26
	7/16/07	464.59	50-55	36.50	428.09
	10/29/07	464.59	50-55	47.90	416.69
	2/1/08	464.59	50-55	33.25	431.34
	4/18/08	464.59	50-55	28.77	435.82
	7/28/08	464.59	50-55	44.76	419.83
	11/18/08	464.59	50-55	51.65	412.94
	2/4/09	464.59	50-55	47.63	416.96
	4/21/09	464.59	50-55	37.00	427.59
	9/24/09	464.59	50-55	39.73	424.86
	3/4/10	464.59	50-55	28.97	435.62
	7/19/10	464.59	50-55	25.40	439.19
	1/19/11	464.59	50-55	24.52	440.07
	4/6/11	464.59	50-55	20.05	444.54
	9/19/11	464.59	50-55	24.50	440.09
	11/4/11	**464.59**	**50-55**	**24.40**	**440.19**

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-6	11/14/01	464.13	20-50	33.88	430.25
	5/7/02	464.13	20-50	27.01	437.12
	9/11/02	464.13	20-50	27.03	437.10
	12/11/02	464.13	20-50	28.77	435.36
	3/14/03	464.13	20-50	23.46	440.67
	6/25/03	464.13	20-50	23.08	441.05
	9/16/03	464.13	20-50	25.77	438.36
	12/22/03	464.13	20-50	22.59	441.54
	3/10/04	464.13	20-50	18.65	445.48
	6/15/04	464.13	20-50	23.31	440.82
	9/17/04	464.13	20-50	26.56	437.57
	12/10/04	464.13	20-50	23.09	441.04
	3/2/05	464.13	20-50	18.04	446.09
	5/27/05	464.13	20-50	19.57	444.56
	7/21/05	464.13	20-50	21.60	442.53
	10/10/05	464.13	20-50	22.21	441.92
	1/9/06	464.13	20-50	18.99	445.14
	4/6/06	464.13	20-50	17.00	447.13
	7/27/06	464.13	20-50	23.45	440.68
	10/12/06	464.13	20-50	24.36	439.77
	1/3/07	464.13	20-50	22.03	442.10
	4/13/07	464.13	20-50	24.40	439.73
	7/16/07	464.13	20-50	NM	NC
	10/29/07	464.13	20-50	Dry	NC
	2/1/08	464.13	20-50	33.05	431.08
	4/18/08	464.13	20-50	28.20	435.93
	7/28/08	464.13	20-50	Dry	NC
	11/18/08	464.13	20-50	Dry	NC
	2/4/09	464.13	20-50	Dry	NC
	4/21/09	464.13	20-50	38.71	425.42
	9/24/09	464.13	20-50	38.26	425.87
	3/4/10	464.13	20-50	26.02	438.11
	7/19/10	464.13	20-50	24.65	439.48
	1/19/11	464.13	20-50	24.00	440.13
	4/6/11	464.13	20-50	21.76	442.37
	9/19/11	464.13	20-50	23.76	440.37
	11/4/11	**464.13**	**20-50**	**23.00**	**441.13**
MW-7A**	4/6/06	465.32	15-30	16.61	448.71
	7/27/06	465.32	15-30	23.40	441.92
	10/12/06	465.32	15-30	24.50	440.82
	1/3/07	465.32	15-30	21.80	443.52
	4/13/07	465.32	15-30	24.05	441.27
	7/16/07	465.32	15-30	Dry	NC
	10/29/07	465.32	15-30	Dry	NC
	2/1/08	465.32	15-30	Dry	NC
	4/18/08	465.32	15-30	28.16	437.16
	7/28/08	465.32	15-30	Dry	NC
	11/18/08	465.32	15-30	Dry	NC
	2/4/09	465.32	15-30	Dry	NC
	4/21/09	465.32	15-30	Dry	NC
	9/24/09	465.32	15-30	Dry	NC
	3/4/10	465.32	15-30	26.30	439.02
	7/19/10	465.32	15-30	24.78	440.54
	1/19/11	465.32	15-30	23.60	441.72
	4/6/11	465.32	15-30	19.35	445.97
	4/18/11	465.32	15-31	19.59	445.73
	5/9/11	465.32	15-32	21.15	444.17
	6/1/11	465.32	15-33	21.01	444.31
	6/15/11	465.32	15-34	21.45	443.87
	6/30/11	465.32	15-35	21.87	443.45
	9/19/11	465.32	15-30	23.96	441.36
	11/4/11	**465.32**	**15-30**	**23.45**	**441.87**

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-7B**	4/6/06	465.39	45-50	16.85	448.54
	7/27/06	465.39	45-50	23.72	441.67
	10/12/06	465.39	45-50	24.74	440.65
	1/3/07	465.39	45-50	22.18	443.21
	4/13/07	465.39	45-50	24.41	440.98
	7/16/07	465.39	45-50	36.40	428.99
	10/29/07	465.39	45-50	Dry	NC
	2/1/08	465.39	45-50	33.84	431.55
	4/18/08	465.39	45-50	28.52	436.87
	7/28/08	465.39	45-50	44.92	420.47
	11/18/08	465.39	45-50	Dry	NC
	2/4/09	465.39	45-50	46.65	418.74
	4/21/09	465.39	45-50	36.83	428.56
	9/24/09	465.39	45-50	39.26	426.13
	3/4/10	465.39	45-50	28.63	436.76
	7/19/10	465.39	45-50	25.05	440.34
	1/19/11	465.39	45-50	24.15	441.24
	4/6/11	465.39	45-50	21.78	443.61
	4/18/11	465.39	45-51	19.75	445.64
	5/9/11	465.39	45-52	20.40	444.99
	6/1/11	465.39	45-53	21.25	444.14
	6/15/11	465.39	45-54	21.45	443.94
	6/30/11	465.39	45-55	21.65	443.74
	9/19/11	465.39	45-50	24.10	441.29
	11/4/11	**465.39**	**45-50**	**24.10**	**441.29**
MW-7C**	4/6/06	465.39	65-70	17.18	448.21
	7/27/06	465.39	65-70	24.15	441.24
	10/12/06	465.39	65-70	24.74	440.65
	1/3/07	465.39	65-70	22.53	442.86
	4/13/07	465.39	65-70	24.73	440.66
	7/16/07	465.39	65-70	36.70	428.69
	10/29/07	465.39	65-70	48.25	417.14
	2/1/08	465.39	65-70	34.00	431.39
	4/18/08	465.39	65-70	28.75	436.64
	7/28/08	465.39	65-70	45.00	420.39
	11/18/08	465.39	65-70	49.62	415.77
	2/4/09	465.39	65-70	47.89	417.50
	4/21/09	465.39	65-70	36.98	428.41
	9/24/09	465.39	65-70	39.49	425.90
	3/4/10	465.39	65-70	26.66	438.73
	7/19/10	465.39	65-70	25.38	440.01
	1/19/11	465.39	65-70	24.50	440.89
	4/6/11	465.39	65-70	19.88	445.51
	9/19/11	465.39	65-70	23.50	441.89
	11/4/11	**465.39**	**65-70**	**24.40**	**440.99**
EW-1**	4/6/06	465.45	15-40	15.99	449.46
	7/27/06	465.45	15-40	23.85	441.60
	10/12/06	465.45	15-40	23.51	441.94
	1/3/07	465.45	15-40	21.45	444.00
	4/13/07	465.45	15-40	23.69	441.76
	10/29/07	465.45	15-40	NM	NC
	2/1/08	465.45	15-40	NM	NC
	4/18/08	465.45	15-40	27.83	437.62
	7/28/08	465.45	15-40	NM	NC
	11/18/08	465.45	15-40	Dry	NC
	2/4/09	465.45	15-40	Dry	NC
	4/21/09	465.45	15-40	Dry	NC
	9/24/09	465.45	15-40	Dry	NC
	3/4/10	465.45	15-40	27.87	NC
	7/20/10	465.45	15-40	24.35	441.10
	1/19/11	465.45	15-40	23.58	441.87
	4/6/11	465.45	15-40	18.85	446.60
	4/18/11	465.45	15-40	19.70	445.75
	5/9/11	465.45	15-40	19.69	445.76
	6/1/11	465.45	15-40	20.52	444.93
	6/15/11	465.45	15-40	21.11	444.34
	6/30/11	465.45	15-40	21.41	444.04
	9/19/11	465.45	15-40	22.35	443.10
	11/4/11	**465.45**	**15-40**	**23.35**	**442.10**

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
EW-2**	4/6/06	465.99	15-40	16.20	449.79
	7/27/06	465.99	15-40	23.10	442.89
	10/12/06	465.99	15-40	21.48	444.51
	1/3/07	465.99	15-40	21.66	444.33
	4/13/07	465.99	15-40	23.93	442.06
	10/29/07	465.99	15-40	Dry	NC
	2/1/08	465.99	15-40	NM	NC
	4/18/08	465.99	15-40	28.04	437.95
	7/28/08	465.99	15-40	NM	NC
	11/18/08	465.99	15-40	Dry	NC
	2/4/09	465.99	15-40	Dry	NC
	4/21/09	465.99	15-40	Dry	NC
	9/24/09	465.99	15-40	Dry	NC
	3/4/10	465.99	15-40	25.89	NC
	7/20/10	465.99	15-40	24.45	441.54
	1/19/11	465.99	15-40	23.72	442.27
	4/6/11	465.99	15-40	19.00	446.99
	4/18/11	465.99	15-40	19.19	446.80
	5/9/11	465.99	15-40	19.67	446.32
	6/1/11	465.99	15-40	20.71	445.28
	6/15/11	465.99	15-40	21.00	444.99
	6/30/11	465.99	15-40	21.31	444.68
	9/19/11	465.99	15-40	23.55	442.44
	11/4/11	**465.99**	**15-40**	**23.60**	**442.39**
EW-3 [a]	11/18/08	NC	25-30	Dry	NC
	2/4/09	NC	25-30	33.80	NC
	4/21/09	NC	25-30	Dry	NC
	9/24/09	NC	25-30	Dry	NC
	3/4/10	NC	25-30	28.02	NC
	7/20/10	NC	25-30	NM	NC
	1/19/11	NC	25-30	23.50	NC
	4/6/11	NC	25-30	18.30	NC
	4/18/11	NC	25-30	19.40	NC
	5/9/11	NC	25-30	19.67	NC
	6/1/11	NC	25-30	20.72	NC
	6/15/11	NC	25-30	20.92	NC
	6/30/11	NC	25-30	21.11	NC
	9/19/11	NC	25-30	23.25	NC
	11/4/11	**NC**	**25-30**	**23.30**	**NC**
MW-8A	7/28/08	NC	16-36	Dry	NC
	11/18/08	NC	16-36	35.40	NC
	2/4/09	NC	16-36	Dry	NC
	4/21/09	NC	16-36	Dry	NC
	9/24/09	NC	16-36	Dry	NC
	3/4/10	NC	16-36	26.33	NC
	7/20/10	NC	16-36	25.00	NC
	1/19/11	NC	16-36	24.30	NC
	4/6/11	NC	16-36	19.22	NC
	9/19/11	NC	16-36	24.05	NC
	11/4/11	**NC**	**16-36**	**24.10**	**NC**
MW-8B	7/28/08	NC	46-51	44.90	NC
	11/18/08	NC	46-51	49.85	NC
	2/4/09	NC	46-51	47.95	NC
	4/21/09	NC	46-51	38.75	NC
	9/24/09	NC	46-51	38.47	NC
	3/4/10	NC	46-51	28.24	NC
	7/20/10	NC	46-51	24.70	NC
	1/19/11	NC	46-51	24.05	NC
	4/6/11	NC	46-51	19.42	NC
	9/19/11	NC	46-51	23.80	NC
	11/4/11	**NC**	**46-51**	**23.50**	**NC**
MW-9A	7/28/08	NC	14-36	Dry	NC
	11/18/08	NC	14-36	48.97	NC
	2/4/09	NC	14-36	Dry	NC
	4/21/09	NC	14-36	Dry	NC
	9/24/09	NC	14-36	Dry	NC
	3/4/10	NC	14-36	27.86	NC
	7/20/10	NC	14-36	24.15	NC
	1/19/11	NC	14-36	23.40	NC
	4/6/11	NC	14-36	21.50	NC
	9/19/11	NC	14-36	23.25	NC
	11/4/11	**NC**	**14-36**	**23.50**	**NC**

Table 1
Historic Groundwater Elevation Data
160 Holmes Street, Livermore, California

Monitoring Well ID	Date	Top of Casing Elevation* (feet, msl)	Screen Interval (feet, bgs)	Depth to Groundwater (feet)	Groundwater Elevation (feet, msl)
MW-9B	7/28/08	NC	47-52	44.05	NC
	11/18/08	NC	47-52	38.28	NC
	2/4/09	NC	47-52	47.03	NC
	4/21/09	NC	47-52	35.94	NC
	9/24/09	NC	47-52	37.93	NC
	3/4/10	NC	47-52	27.68	NC
	7/20/10	NC	47-52	24.30	NC
	1/19/11	NC	47-52	23.55	NC
	4/6/11	NC	47-52	21.21	NC
	9/19/11	NC	47-52	23.12	NC
	11/4/11	**NC**	**47-52**	**23.35**	**NC**
EX-1***	11/14/01	465.30	30-55	33.41	431.89
	5/7/02	465.30	30-55	27.58	437.72
	9/11/02	465.30	30-55	NM	NC
	12/11/02	465.30	30-55	27.98	437.32
	3/14/03	465.30	30-55	23.02	442.28
	6/25/03	465.30	30-55	22.41	442.89
	9/16/03	465.30	30-55	24.65	440.65
	3/10/04	465.30	30-55	17.99	447.31
	6/15/04	465.30	30-55	22.48	442.82
	9/17/04	465.30	30-55	25.91	439.39
	12/10/04	465.30	30-55	NM	NC
	3/2/05	465.30	30-55	NM	NC
	5/27/05	465.30	30-55	18.68	446.62
	7/21/05	465.30	30-55	21.55	443.75
	10/10/05	465.30	30-55	22.73	442.57
	1/9/06	465.30	30-55	18.05	447.25

Notes:
MSL = mean sea level
bgs = below ground surface
NM = not measured
NC = not calculated
* = Well MW-1, 2, and 3 renamed MW-1A, 2A, and 3A
** = Well installed on 2/22/06-2/28/06
*** = Well destroyed on 2/22/06-2/28/06
(a) = Well EW-3 is 35 feet deep with a screen interval from 25 to 30 feet bgs.

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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*	8/11/00	170,000	57,000	6,400	7,600	4,200	9,700	320,000	--	--	--	--	--	--	--	--	--
	10/19/00	170,000	17,000	8,400	3,200	2,700	10,000	200,000	--	--	--	--	--	--	--	--	--
	2/22/01	82,000	11,000	5,100	1,000	13,000	8,700	190,000	--	--	--	--	--	--	--	--	--
	5/30/01	not sampled - well dry															
	11/14/01	not sampled - well dry															
	5/7/02	not sampled - well dry															
	9/11/02	130,000	--	7,700	1,100	--	1,500	<5000	--	--	--	--	--	--	--	--	--
	12/1/02	not sampled															
	3/14/03	180,000	3,800	7,100	3,200	4,300	6,000	220,000	--	--	--	--	--	--	--	--	--
	6/25/03	71,000	3,100	7,500	4,700	4,800	8,900	210,000	--	--	--	--	--	--	--	--	--
	9/16/03	37,000	3,600	4,600	220	3,600	930	150,000	--	--	--	--	--	--	--	--	--
	12/22/03	44,000	4,000	6,800	1,500	4,000	3,800	180,000	--	--	--	--	--	--	--	--	--
	3/10/04	72,000	3,100	6,000	11,000	3,900	10,000	260,000	--	--	--	--	--	--	--	--	--
	6/15/04	42,000	4,300	5,000	1,800	3,700	6,000	210,000	--	--	--	--	--	--	--	--	--
	9/17/04	24,000	2,900	2,800	<33	2,900	500	83,000	--	--	--	--	--	--	--	--	--
	12/10/04	31,000	2,700	4,600	190	4,400	2,800	200,000	--	--	--	--	--	--	--	--	--
	3/2/05	58,000	2,800	4,000	2,500	4,500	7,800	230,000	--	--	--	--	--	--	--	--	--
	5/27/05	79,000	4,600	4,300	6,200	5,100	13,000	240,000	--	--	--	--	--	--	--	--	--
	7/21/05	80,000	--	4,300	5,300	5,400	14,000	300,000	--	--	--	--	--	--	--	--	--
	10/10/05	58,000	--	4,300	240	5,600	8,300	170,000	--	--	--	--	--	--	--	--	--
	1/9/06	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	<2,500,000	<2,500	<2,500
	4/6/06	18,000	1,900	1,200	280	2,400	2,200	110,000	<2,500	<25,000	<2,500	<2,500	87,000	<250,000	<2,500,000	<2,500	<2,500
	7/27/06	24,000	2,400	2,100	350	3,400	5,300	130,000	<5000	<50,000	<5000	<5000	160,000	--	--	--	--
	10/12/06	19,000	1,700	1,000	26	2,000	1,000	68,000	<1,200	<12,000	<1,200	<1,200	84,000	<120,000	<1,200,000	--	--
	1/3/07	27,000	2,300	1,300	53	2,500	1,900	120,000	<1,700	<1,7000	<1,700	<1,700	110,000	<170,000	<1,700,000	<1,700	<1,700
	4/13/07	28,000	3,000	1,600	74	3,700	1,800	190,000	<5,000	<50,000	<5,000	<5,000	200,000	<500,000	<5,000,000	<5,000	<5,000
	7/16/07	not sampled															
	10/29/07	not sampled															
	2/1/08	not sampled															
	4/18/08	not sampled															
	7/28/08	not sampled															
	11/18/08	not sampled															
	2/4/09	not sampled															
	4/21/09	not sampled															
	9/24/09	not sampled															
	3/4/10	1,300	--	140	<5.0	26	6.0	16,000	--	--	--	--	--	--	--	--	--
	7/19/10	400	--	1.2	1.3	<0.5	0.76	880	--	--	--	--	--	--	--	--	--
	1/20/11	150	130	1.4	0.6	<0.5	1.4	300	<250	40,000	<250	<250	330	--	--	<250	<250
	4/8/11	200	180	2.0	1.9	<0.5	4.4	1,300	<120	24,000	<120	<120	2,300	--	--	<120	<120
	4/18/11	140	130	0.56	<0.5	<0.5	4.2	1,500	<50	11,000	<50	<50	1,200	--	--	<0.5	<50
	5/9/11	<50	<50	<0.5	<0.5	<0.5	<0.5	880	<50	12,000	<50	<50	1,000	--	--	<50	<50
	6/1/11	<50	52	<0.5	<0.5	<0.5	<0.5	350	<50	12,000	<50	<50	480	--	--	<50	<50
	6/15/11	<50	70	<0.5	<0.5	<0.5	<0.5	310	<100	9,000	<100	<100	330	--	--	<100	<100
	6/30/11	<50	54	<0.5	<0.5	<0.5	<0.5	150	<50	6,200	<50	<50	170	--	--	<50	<50
	9/20/11	96	200	<0.5	0.60	<0.5	0.55	140	<120	19,000	<120	<120	150	--	--	<120	<120
	11/8/11	**100**	**150**	**1.3**	**0.99**	**<0.5**	**1.1**	**110**	**<100**	**21,000**	**<100**	**<100**	**150**	**--**	**--**	**<100**	**<100**
MW-1B	3/13/06	<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	<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
	7/27/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/12/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<500	--	--
	1/3/07	<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
	4/13/07	<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
	7/16/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/29/07	<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
	2/1/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	4/18/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	7/29/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	11/18/08	not sampled															
	2/4/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/21/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/19/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	130	<0.5	<0.5	<0.5	<0.5	<5.0	<250	40,000	<250	<250	330	--	--	<250	<250
	4/8/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	4/18/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	5/9/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	6/1/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	6/15/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	6/30/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	9/20/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	11/8/11	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**<0.5**	**--**	**--**	**<0.5**	**<0.5**

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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- 2A*	8/11/00	4,500	1,900	220	52	160	170	3,000	--	--	--	--	--	--	--	--	--
	10/19/00	3,400	1,300	150	21	100	70	1,900	--	--	--	--	--	--	--	--	--
	2/22/01	7,600	880	25	<10	69	25	2,200	--	--	--	--	--	--	--	--	--
	5/30/01	not sampled - well dry															
	11/14/01	not sampled - well dry															
	5/7/02	400	86	5.4	<0.5	1.9	2.3	230	--	--	--	--	--	--	--	--	--
	9/11/02	260	--	1.3	<0.5	0.57	0.77	200	--	--	--	--	--	--	--	--	--
	12/1/02	250	120	7.9	1.6	13	9.9	180	--	--	--	--	--	--	--	--	--
	3/14/03	830	110	56	<0.5	<0.5	<1.0	1,200	--	--	--	--	--	--	--	--	--
	6/25/03	260	180	0.92	2.9	3.1	8.1	2,000	--	--	--	--	--	--	--	--	--
	9/16/03	420	260	3.6	3.4	5.2	2.4	1,300	--	--	--	--	--	--	--	--	--
	12/22/03	240	120	0.82	3.1	7.8	3.9	1,400	--	--	--	--	--	--	--	--	--
	3/10/04	280	210	9.4	4.2	14	11	1,400	--	--	--	--	--	--	--	--	--
	6/15/04	150	150	2.1	2.4	2.2	1.3	1,500	--	--	--	--	--	--	--	--	--
	9/17/04	61	70	<0.5	1.0	<0.5	<0.5	730	--	--	--	--	--	--	--	--	--
	12/10/04	84	110	<0.5	1.2	<0.5	1.5	1,300	--	--	--	--	--	--	--	--	--
	3/2/05	63	91	0.55	<0.5	0.63	0.51	1,000	--	--	--	--	--	--	--	--	--
	5/27/05	270	59	14	3.9	19	6.8	1,100	--	--	--	--	--	--	--	--	--
	7/21/05	280	--	8.6	2.5	17	2.5	1,500	--	--	--	--	--	--	--	--	--
	10/10/05	<50	--	<.5	<.5	<.5	<.5	680	--	--	--	--	--	--	--	--	--
	1/9/06	1,700	890	4.4	1.3	120	18	530	<10	330	<10	<10	590	<1,000	<10,000	<10	<10
	4/7/06	110	160	0.61	0.80	4.1	<0.5	270	<5.0	660	<5.0	<5.0	240	<500	<5,000	<5.0	<5.0
	7/27/06	<50	120	<0.5	0.84	<0.5	<0.5	87	<5.0	870	<5.0	<5.0	110	--	--	--	--
	10/12/06	<50	70	<0.5	<0.5	<0.5	<0.5	29	<5.0	480	<5.0	<5.0	30	<500	<5,000	--	--
	1/3/07	55	60	0.57	<0.5	<0.5	<0.5	8.5	<2.5	590	<2.5	<2.5	7.8	<250	<2,500	<2.5	<2.5
	4/13/07	86	130	<0.5	0.60	<0.5	<0.5	16	<5.0	740	<5.0	<5.0	16	<500	<5,000	<5.0	<5.0
	7/16/07	not sampled															
	10/29/07	not sampled															
	2/1/08	not sampled															
	4/18/08	not sampled															
	7/28/08	not sampled															
	11/18/08	not sampled															
	2/4/09	not sampled															
	4/21/09	not sampled															
	9/24/09	not sampled															
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/21/11	<50	<50	<0.5	<0.5	<0.5	<0.5	2.8	<5.0	<5.0	<5.0	<5.0	2.8	--	--	<5.0	<5.0
	4/8/11	<50	<50	<0.5	0.77	<0.5	6.2	<5.0	<0.5	15	<0.5	<0.5	3.3	--	--	<0.5	<0.5
	9/20/11	<50	<50	<0.5	0.77	<0.5	<0.5	<5.0	<0.5	7.9	<0.5	<0.5	2.8	--	--	<0.5	<0.5
	11/8/11	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**2.3**	**--**	**--**	**<0.5**	**<0.5**
MW- 3A*	8/11/00	59	260	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	10/19/00	<50	<65	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	2/22/01	<50	100	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	5/30/01	not sampled - well dry															
	11/14/01	not sampled - well dry															
	5/7/02	not sampled - well dry															
	9/11/02	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/1/02	not sampled															
	3/14/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	6/25/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/16/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/22/03	<50	69	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	3/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	6/15/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/17/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	7.6	--	--	--	--	--	--	--	--	--
	3/2/05	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	5/27/05	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/21/05	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	10/10/05	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/9/06	<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
	4/7/06	<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
	7/27/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/12/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<500	--	--
	1/3/07	<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
	4/13/07	<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
	7/16/07	not sampled															
	10/29/07	not sampled															
	2/1/08	not sampled															
	4/18/08	not sampled															
	7/28/08	not sampled															
	11/18/08	not sampled															
	2/4/09	not sampled															
	4/21/09	not sampled															
	9/24/09	not sampled															

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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- 3A* cont.	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/19/20	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/8/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/20/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	11/8/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-4**	11/14/01	510	90	4.0	<0.5	<0.5	<0.5	14	--	--	--	--	--	--	--	--	--
	5/7/02	150	<50	3.5	0.5	<0.5	<0.5	48	--	--	--	--	--	--	--	--	--
	9/11/02	<50	--	<0.5	<0.5	<0.5	<0.5	15	--	--	--	--	--	--	--	--	--
	12/1/02	<50	<50	<0.5	<0.5	<0.5	<0.5	24	--	--	--	--	--	--	--	--	--
	3/14/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	--
	6/25/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	--
	9/16/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/22/03	<50	69	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	3/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	37	--	--	--	--	--	--	--	--	--
	6/15/04	<50	<50	<0.5	<0.5	<0.5	<0.5	7.4	--	--	--	--	--	--	--	--	--
	9/17/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	3/2/05	<50	<50	<0.5	<0.5	<0.5	<0.5	14	--	--	--	--	--	--	--	--	--
	5/27/05	<50	<50	<0.5	<0.5	<0.5	<0.5	9.6	--	--	--	--	--	--	--	--	--
	7/21/05	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	10/10/05	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/9/06	<50	<50	<0.5	<0.5	<0.5	<0.5	0.86	<0.5	<5.0	<0.5	<5.0	0.86	<50	<500	<5.0	<5.0
MW-4A	3/13/06	<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	<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
	7/28/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	3.0	--	--	--	--
	10/13/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	2.0	<50	<500	--	--
	1/4/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	0.79	<50	<500	<0.5	<0.5
	4/16/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	0.51	<50	<500	<0.5	<0.5
	7/16/07	not sampled															
	10/29/07	not sampled															
	2/1/08	not sampled															
	4/18/08	not sampled															
	7/28/08	not sampled															
	11/18/08	not sampled															
	2/4/09	not sampled															
	4/21/09	not sampled															
	9/24/09	not sampled															
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/7/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	11/7/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-5**	11/14/01	<50	<66	<0.5	<0.5	<0.5	<0.5	8.2	--	--	--	--	--	--	--	--	--
	5/7/02	140	<50	<0.5	<0.5	<0.5	<0.5	110	--	--	--	--	--	--	--	--	--
	9/11/02	<50	--	<0.5	<0.5	<0.5	<0.5	6.3	--	--	--	--	--	--	--	--	--
	12/1/02	73	<50	<0.5	<0.5	<0.5	<0.5	160	--	--	--	--	--	--	--	--	--
	3/14/03	110	<50	<0.5	<0.5	<0.5	<0.5	170	--	--	--	--	--	--	--	--	--
	6/25/03	<50	<50	<0.5	<0.5	<0.5	<0.5	89	--	--	--	--	--	--	--	--	--
	9/16/03	630	<50	<0.5	3.5	<0.5	2.6	1,500	--	--	--	--	--	--	--	--	--
	12/22/03	<0.5	<50	<0.5	<0.5	<0.5	<0.5	630	--	--	--	--	--	--	--	--	--
	3/10/04	57	<50	<0.5	<0.5	<0.5	<0.5	1,100	--	--	--	--	--	--	--	--	--
	6/15/04	<50	<50	<0.5	<0.5	<0.5	<0.5	750	--	--	--	--	--	--	--	--	--
	9/17/04	<50	<50	<0.5	<0.5	<0.5	<0.5	780	--	--	--	--	--	--	--	--	--
	12/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	120	--	--	--	--	--	--	--	--	--
	3/2/05	<50	<50	<0.5	<0.5	<0.5	<0.5	320	--	--	--	--	--	--	--	--	--
	5/27/05	<50	<50	<0.5	<0.5	<0.5	<0.5	120	--	--	--	--	--	--	--	--	--
	7/21/05	<50	--	<0.5	<0.5	<0.5	<0.5	97	--	--	--	--	--	--	--	--	--
	10/10/05	<50	--	<0.5	<0.5	<0.5	<0.5	41	--	--	--	--	--	--	--	--	--
	1/9/06	<50	<50	<0.5	<0.5	<0.5	<0.5	37	<0.5	<5.0	<0.5	<5.0	<5.0	<50	<500	<0.5	<0.5
MW-5A	3/13/06	<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	<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
	7/28/06	<50	62	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/13/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	6.3	<0.5	<0.5	0.61	<50	<500	--	--
	1/4/07	<50	320	<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
	4/16/07	<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
	7/16/07	not sampled															
	10/29/07	not sampled															
	2/1/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.3	<50	<500	<0.5	<0.5

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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-5A cont.	4/18/08		not sampled														
	7/28/08		not sampled														
	11/18/08		not sampled														
	2/4/09		not sampled														
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/7/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	11/7/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-5B	3/13/06	<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	<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
	7/28/06	<50	<50	<0.5	<0.5	<0.5	<0.5	6.8	<0.5	6.3	<0.5	<0.5	0.61	--	--	--	--
	10/13/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	3.6	<50	<500	--	--
	1/4/07	<50	89	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	1.3	<50	<500	<0.5	<0.5
	4/16/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	1.5	<50	<500	<0.5	<0.5
	7/17/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	1.4	--	--	--	--
	10/29/07	<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
	2/1/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.9	<50	<500	<0.5	<0.5
	4/18/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.5	<50	<500	<0.5	<0.5
	7/29/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	11/18/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.2	<50	<500	<0.5	<0.5
	2/4/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/22/09	<50	--	<0.5	<0.5	<0.5	<0.5	48	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.3	<50	<500	<0.5	<0.5
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/19/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/6/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	11/7/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-6	11/14/01	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	5/7/02	<50	<67	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/11/02	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/1/02	<50	<50	<0.5	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	--
	3/14/03	<50	<50	<0.5	<0.5	<0.5	<1.0	<1.0	--	--	--	--	--	--	--	--	--
	6/25/03	<50	<50	<0.5	<0.5	<0.5	<1.0	<1.0	--	--	--	--	--	--	--	--	--
	9/16/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/22/03	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	3/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	6/15/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/17/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	12/10/04	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	3/2/05	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	5/27/05	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/21/05	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	10/10/05	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/9/06	<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
	4/6/06	<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
	7/28/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/13/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<500	--	--
	1/4/07	<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
	4/16/07	<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
	7/16/07		not sampled														
	10/29/07		not sampled														
	2/1/08	<50	<50	<0.5	<0.5	<0.5	0.91	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	4/18/08	<50	<50	<0.5	<0.5	<0.5	0.91	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	7/28/08		not sampled														
	11/18/08		not sampled														
	2/4/09		not sampled														
	4/22/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/19/20	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/6/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	11/7/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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-7A	3/13/06	6,200	1,800	140	21	200	560	6,900	<100	4,400	<100	<100	6,300	<10,000	<100,000	<100	<100
	4/7/06	5,300	1,700	130	26	330	420	5,900	<100	7,500	<100	<100	6,600	<10,000	<100,000	<100	<100
	7/28/06	2,200	470	28	18	60	0.85	240	<25	4,700	<25	<25	240	--	--	--	--
	10/12/06	6,500	2,400	83	38	300	160	980	<17	4,700	<10	<17	1200	<1,700	<17,000	--	--
***	11/21/06	1,400	--	25	17	65	<0.5	45	<10	1,400	<10	<10	42	<1,000	<10,000	<10	<10
	1/4/07	1,000	440	12	18	48	8.3	75	<5.0	1,100	<5.0	<5.0	73	<500	<5,000	<5.0	<5.0
	4/16/07	520	470	17	5.6	2.6	0.88	140	<12	2,500	<12	<12	170	<1,200	<12,000	<12	<12
	7/16/07		not sampled														
	10/29/07		not sampled														
	2/1/08		not sampled														
	4/18/08		not sampled														
	7/28/08		not sampled														
	11/18/08		not sampled														
	2/4/09		not sampled														
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	83	--	<0.5	0.81	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/19/10	680	--	<0.5	10	4.9	4.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	580	310	<0.5	7.3	7.2	1.5	<5.0	<2.5	490	<2.5	<2.5	5.8	--	--	<2.5	<2.5
	4/11/11	140	<50	<0.5	1.7	<0.5	<0.5	<5.0	<2.5	540	<2.5	<2.5	5.8	--	--	<2.5	<2.5
	4/18/11	91	90	<0.5	0.94	<0.5	<0.5	8.5	400	400	<2.5	<2.5	5.8	--	--	<2.5	<2.5
	5/9/11	<50	69	<0.5	<0.5	<0.5	<0.5	<5.0	<1.7	350	<1.7	<1.7	5.9	--	--	<1.7	<1.7
	6/1/11	58	77	<0.5	0.76	0.79	0.97	5.2	<1.7	250	<1.7	<1.7	5.5	--	--	<1.7	<1.7
	6/15/11	<50	80	<0.5	<0.5	<0.5	<0.5	<5.0	<1.0	190	<1.0	<1.0	3.8	--	--	<1.0	<1.0
	6/30/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	81	<0.5	<0.5	2.5	--	--	<0.5	<0.5
	9/19/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	4.4	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	11/7/11	**<50**	**<50**	**<0.5**	**0.64**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**3.3**	**<0.5**	**<0.5**	**0.67**	**--**	**--**	**<0.5**	**<0.5**
MW-7B	3/13/06	230	<50	1.8	4.7	<0.5	2.2	1,500	<50	7,300	<50	<50	1,300	<5,000	<50,000	<50	<50
	4/7/06	81	<50	1.9	1.6	1.1	0.58	1,000	<50	9,200	<50	<50	930	<5,000	<50,000	<50	<50
	7/28/06	150	<50	<0.5	1.9	<0.5	<0.5	1,500	<50	16,000	<50	<50	1,900	--	--	--	--
	10/12/06	110	<50	<0.5	1.3	<0.5	<0.5	900	<17	15,000	<17	<17	860	<1700	<17,000	--	--
***	11/21/06	61	--	<0.5	0.76	<0.5	<0.5	740	<50	10,000	<50	<50	680	<5,000	<50,000	<50	<50
	1/4/07	91	<50	<0.5	2.1	<0.5	<0.5	200	<50	11,000	<50	<50	180	<5,000	<50,000	<50	<50
	4/16/07	94	<50	<0.5	2.6	<0.5	<0.5	35	<50	10,000	<50	<50	<50	<5,000	<50,000	<50	<50
	7/17/07	<50	<50	0.61	0.63	<0.5	<0.5	13	<17	4,000	<17	<17	<17	--	--	--	--
	10/29/07		not sampled														
	2/1/08	420	<50	0.77	17	<0.5	0.97	45	<25	4,000	<25	<25	49	<2,500	<25,000	<25	<25
	4/18/08	650	100	3.4	15	8.3	<0.5	150	<25	3,800	<25	<25	140	<2,500	<25,000	<25	<25
	7/28/08	<50	<50	<0.5	0.56	<0.5	<0.5	17	<5.0	760	<5.0	<5.0	22	<500	<5,000	<5.0	<5.0
	11/18/08		not sampled														
	2/4/09	620	--	<0.5	23	<0.5	2.7	<5.0	--	--	--	--	--	--	--	--	--
	4/21/09	170	--	2.1	5.8	<0.5	0.78	190	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	1.8	<0.5	<0.5	210	<5.0	470	<5.0	<5.0	220	<500	<5,000	<5.0	<5.0
	3/4/10	140	--	<0.5	2.1	<0.5	<0.5	25	--	--	--	--	--	--	--	--	--
	7/19/10	74	--	<0.5	1.3	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	190	69	<0.5	4.1	<0.5	<0.5	<5.0	<25.0	4,400	<25.0	<25.0	<25.0	--	--	<25.0	<25.0
	4/11/11	110	<50	<0.5	2.7	<0.5	<0.5	<5.0	<17	2,900	<17	<17	<17	--	--	<17	<17
	4/18/11	160	<50	<0.5	4.3	<0.5	0.6	<5.0	<17	3,300	<17	<17	<17	--	--	<17	<17
	5/9/11	79	<50	<0.5	2.0	<0.5	<0.5	<5.0	<17	3,000	<17	<17	<17	--	--	<17	<17
	6/1/11	72	<50	<0.5	1.9	<0.5	<0.5	<5.0	<50	3,100	<50	<50	<50	--	--	<50	<50
	6/15/11	100	<50	<0.5	2.2	<0.5	<0.5	<5.0	<50	2,700	<50	<50	<50	--	--	<50	<50
	6/30/11	100	<50	<0.5	2.4	<0.5	<0.5	<5.0	<25	2900	<25	<25	<25	--	--	<25	<25
	9/19/11	<50	56	<0.5	1.1	<0.5	<0.5	<5.0	<17	3,300	<17	<17	<17	--	--	<17	<17
	11/8/11	**98**	**<50**	**<0.5**	**2.6**	**<0.5**	**<0.5**	**<5.0**	**<12**	**1,600**	**<12**	**<12**	**<12**	**--**	**--**	**<12**	**<12**
MW-7C	3/13/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	0.60	<50	<500	<0.5	<0.5
	4/7/06	<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
	7/28/06	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/13/06	89	<50	<0.5	1.4	<0.5	<0.5	900	<17	12,000	<17	<17	820	<1700	<17,000	--	--
***	11/21/06	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	24	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	1/4/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	24	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	4/16/07	<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
	7/17/07	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
	10/29/07	<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
	2/1/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	4/18/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	7/28/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	11/18/08	97	<50	<0.5	<0.5	<0.5	<0.5	<90	<1.0	<4.0	<1.0	<1.0	<1.0	<100	<1,000	<1.0	<1.0
	2/4/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/22/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/19/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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-7C cont.	1/20/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/7/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/20/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	--	--	<0.5	<0.5
	11/8/11	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**<0.5**	**--**	**--**	**<0.5**	**<0.5**
MW-8A	7/28/08		not sampled														
	11/18/08	67	<50	<0.5	2.6	<0.5	1.6	<5.0	<0.5	<2.0	<0.5	<0.5	4.9	<50	<500	<0.5	<0.5
	2/4/09		not sampled														
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/7/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	5.3	--	--	--	--	--	--	--	--	--
	11/7/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-8B	7/28/08	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	2.5	<50	<500	<0.5	<0.5
	11/18/08	<50	120	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	5.1	<50	<500	<0.5	<0.5
	2/4/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/22/09	50	--	<0.5	<0.5	<0.5	<0.5	1300	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	<0.5	<50	<500	<0.5	<0.5
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/7/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	9/19/11	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	11/7/11	**<50**	**--**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-9A	7/28/08		not sampled														
	11/18/08		not sampled														
	2/4/09		not sampled														
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	74	<0.5	<0.5	1.1	<50	<500	<0.5	<0.5
	4/7/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	65	<0.5	<0.5	0.74	--	--	<0.5	<0.5
	9/19/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	120	<0.5	<0.5	1.6	--	--	<0.5	<0.5
	11/7/11	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**2.9**	**<0.5**	**<0.5**	**<0.5**	**--**	**--**	**<0.5**	**<0.5**
MW-9B	7/29/08	<50	63	<0.5	<0.5	<0.5	<0.5	100	<10	2,800	<10	<10	160	<1,000	<10,000	<10	<10
	11/18/08	<50	1,000	<0.5	<0.5	<0.5	<0.5	7.0	<0.5	4.6	<0.5	<0.5	7.5	<50	<500	<0.5	<0.5
	2/4/09	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	4/22/09	<50	--	<0.5	<0.5	<0.5	<0.5	470	--	--	--	--	--	--	--	--	--
	9/24/09	<50	--	<0.5	<0.5	<0.5	<0.5	5.4	<0.5	<2.0	<0.5	<0.5	7.2	<50	<500	<0.5	<0.5
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/20/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	8.9	<0.5	<0.5	0.65	<50	<500	<0.5	<0.5
	4/7/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	22	<0.5	<0.5	1.2	--	--	<0.5	<0.5
	9/19/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.2	--	--	<0.5	<0.5
	117/11	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**1.7**	**--**	**--**	**<0.5**	**<0.5**
EX-1**	11/14/01	13,000	2,000	180	1,000	330	3,200	2,200	--	--	--	--	--	--	--	--	--
	5/7/02	7,700	560	320	<25	66	150	6,200	--	--	--	--	--	--	--	--	--
	9/11/02	2,800	NA	32	<13	14	<13	2,500	--	--	--	--	--	--	--	--	--
	12/1/02	3,000	100	81	<0.5	44	<1.0	4,800	--	--	--	--	--	--	--	--	--
	3/14/03	750	50	<0.5	<0.5	7.7	13	1,200	--	--	--	--	--	--	--	--	--
	6/25/03	120	<50	3.2	3.7	4.2	7.6	260	--	--	--	--	--	--	--	--	--
	9/16/03	170	<50	0.5	1.5	<0.5	0.9	1,600	--	--	--	--	--	--	--	--	--
	3/10/04		not sampled														
	6/15/04		not sampled														
	9/17/04		not sampled														
	12/10/04		not sampled														
	3/2/05		not sampled														
	5/27/05		not sampled														
	7/21/05	<50	--	<0.5	<0.5	<0.5	<0.5	610	--	--	--	--	--	--	--	--	--
	10/10/05	<50	--	<0.5	<0.5	<0.5	<0.5	31	--	--	--	--	--	--	--	--	--
	1/9/06	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	210	120	5.0	4.1	7.5	12	3,400	<50	<100	<50	<50	2,300	<5,000	<50,000	<50	<50
	4/7/06	1,900	190	66	170	110	380	7,900	<100	<1000	<100	<100	6,400	<10,000	<100,000	<100	<100
	7/27/06	280	100	7.4	5.5	12	28	8,400	<500	<5,000	<500	<500	12,000	--	--	--	--
	10/12/06	2,100	130	86	19	100	310	2,400	<50	1,400	<50	<50	2,800	<5,000	180,000	--	--
	1/4/07	1,600	150	56	27	110	240	5,000	<50	2,900	<50	<50	4,900	<5,000	<50,000	<50	<50

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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
EW-1 cont.	4/13/07		not sampled														
	7/16/07		not sampled														
	10/29/07		not sampled														
	2/1/08		not sampled														
	4/18/08		not sampled														
	7/28/08		not sampled														
	11/18/08		not sampled														
	2/4/09		not sampled														
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	4,400	--	460	<25	380	<25	31,000	--	--	--	--	--	--	--	--	--
	7/20/10	400	--	4.4	6.6	1.8	4.4	590	--	--	--	--	--	--	--	--	--
	1/20/11	570	190	21	6.4	14	57	3,500	<50	15,000	<50	<50	3,300	--	--	<50	<50
	4/8/11	410	220	11	4.2	3.1	43	2,400	<50	8,200	<50	<50	3,300	--	--	<50	<50
	4/18/11	200	130	<0.5	1.7	1.1	3.0	4,400	<50	14,000	<50	<50	3,600	--	--	<50	<50
	5/9/11	62	<50	1.2	1.4	<0.5	<0.5	520	<25	4,800	<25	<25	390	--	--	<25	<25
	6/2/11	83	<50	1.3	2.1	<0.5	0.6	180	<100	9,600	<100	<100	240	--	--	<100	<100
	6/15/11	60	<50	<0.5	1.8	<0.5	<0.5	97	<100	6,300	<100	<100	100	--	--	<100	<100
	6/30/11	74	<50	<0.5	2.0	<0.5	<0.5	200	<50	5,700	<50	<50	200	--	--	<50	<50
	9/20/11	63	52	<0.5	2.1	<0.5	<0.5	210	<50	11,000	<50	<50	190	--	--	<50	<50
	11/8/11	**78**	**<50**	**<0.5**	**1.8**	**<0.5**	**<0.5**	**76**	**<50**	**7,600**	**<50**	**<50**	**97**	**--**	**--**	**<50**	**<50**
EW-2	3/13/06	<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
	4/7/06	470	160	15	2.5	24	13	2,000	<50	<500	<50	<50	1,800	<5,000	<50,000	<50	<50
	7/27/06	260	350	2.2	1.7	6.1	3.0	8,700	<500	<5,000	<500	<500	12,000	--	--	--	--
	10/12/06	110	<50	2.0	1.0	3.1	3.9	620	<12	<120	<12	<12	680	<1,200	<12,000	--	--
	1/4/07	<500	<50	5.3	<5.0	16	7.1	4,500	<50	<500	<50	<50	4,200	<5,000	<50,000	<50	<50
	4/13/07		not sampled														
	7/16/07		not sampled														
	10/29/07		not sampled														
	2/1/08		not sampled														
	4/18/08		not sampled														
	7/28/08		not sampled														
	11/18/08		not sampled														
	2/4/09		not sampled														
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	7/20/10	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	--	--
	1/21/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	2.8	<0.5	<0.5	2.1	--	--	<0.5	<0.5
	4/11/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	2.1	<0.5	<0.5	0.65	--	--	<0.5	<0.5
	4/18/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	0.7	--	--	<0.5	<0.5
	5/9/11	<50	<50	<0.5	<0.5	<0.5	<0.5	15	<0.5	2.8	<0.5	<0.5	12	--	--	<0.5	<0.5
	6/2/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	12	<0.5	<0.5	6.2	--	--	<0.5	<0.5
	6/15/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	2.3	--	--	<0.5	<0.5
	6/30/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	2.4	--	--	<0.5	<0.5
	9/20/11	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<2.0	<0.5	<0.5	1.3	--	--	<0.5	<0.5
	11/8/11	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	**<50**	**<2.0**	**<50**	**<50**	**1.0**	**--**	**--**	**<50**	**<50**
EW-3 [(a)]	11/18/08		not sampled														
	2/4/09	<10,000	--	<100	<100	<100	<100	420,000	--	--	--	--	--	--	--	--	--
	4/21/09		not sampled														
	9/24/09		not sampled														
	3/4/10	140,000	--	240	900	320	28,000	340,000	--	--	--	--	--	--	--	--	--
	7/20/10	23,000	--	240	940	760	3,100	150,000	--	--	--	--	--	--	--	--	--
	1/21/11	15,000	5,200	230	93	1,100	1,900	150,000	<2,500	72,000	<2,500	<2,500	150,000	--	--	<2,500	<2,500
	4/11/11	8,400	590	110	37	690	820	68,000	<2,500	67,000	<2,500	<2,500	79,000	--	--	<2,500	<2,500
	4/18/11	7,300	1,300	81	100	350	870	85,000	<1,700	50,000	<1,700	<1,700	72,000	--	--	<1,700	<1,700
	5/9/11	5,400	2,200	56	<50	160	350	79,000	<1,000	40,000	<1,000	<1,000	62,000	--	--	<1,000	<1,000
	6/1/11	4,800	3,700	53	<25	170	300	50,000	<1,000	43,000	<1,000	<1,000	76,000	--	--	<1,000	<1,000
	6/15/11	8,200	2,200	66	<50	270	360	93,000	<2,500	47,000	<2,500	<2,500	85,000	--	--	<2,500	<2,500
	6/30/11	8,000	1,900	64	<50	260	260	100,000	<2,500	51,000	<2,500	<2,500	100,000	--	--	<2,500	<2,500
	9/20/11	<5,000"	1,700	<50"	64	74	100	80,000	<2,500	91,000	<2,500	<2,500	78,000	--	--	<2,500	<2,500
	11/8/11	**<6,000"**	**860**	**<50"**	**<50**	**60**	**130**	**82,000**	**<2,500**	**49,000**	**<2,500**	**<2,500**	**67,000**	**--**	**--**	**<2,500**	**<2,500**
"Grab" Groundwater Samples																	
Exxon1	2/26/99	100,000	--	6,100	16,000	2,500	11,000	60,000	--	--	--	--	--	--	--	--	--
B1	2/2/01	650,000	13,000	6,300	10,000	<2,500	12,000	290,000	--	--	--	--	--	--	--	--	--
B2	2/2/01	56	<0.5	<0.5	<0.5	<0.5	<0.5	47	--	--	--	--	--	--	--	--	--
B3	2/2/01	6,200	--	<50	<50	<50	<50	3,800	--	--	--	--	--	--	--	--	--
B4	2/2/01	12,000	--	<50	<50	<50	<50	6,000	--	--	--	--	--	--	--	--	--
B5	2/2/01	<25,000	960	<250	<250	<250	<250	16,000	--	--	--	--	--	--	--	--	--

Table 2
Historic Groundwater Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Date Collected	Total Petroleum Hydrocarbons (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
B-1-A	11/9/01	<50	230	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	28	--	--	--	--
B-2-A	11/9/01	25,000	6,200	900	<50	2,000	2,600	--	<1,700	<17,000	<1,700	<1,700	80,000	--	--	--	--
B-3-A	11/9/01	42,000	14,000	530	140	2,400	7,800	--	<500	<5,000	<500	<500	19,000	--	--	--	--
MB-1-A	11/10/01	21,000	4,300	970	<25	3,300	1200	--	<2,500	<25,000	<2,500	<2,500	100,000	--	--	--	--
MB-1-B	11/10/01	470	210	7.8	0.97	31	48	--	<25	<250	<25	<25	1,500	--	--	--	--
MB-1-C	11/10/01	990	--	17	1.3	89	160	--	<25	<250	<25	<25	1,200	--	--	--	--
MB-2-A	11/9/01	<50	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
MB-2-B	11/10/01	<50	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
MB-3-A	11/10/01	40,000	41,000	120	130	1,700	2,800	--	<50	2,500	<50	<50	<4,500	--	--	--	--
MB-3-B	11/13/01	1,400	210	0.93	9.3	14	27	--	<50	6,200	<50	<50	190	--	--	--	--
MB-3-C	11/13/01	930	260	1.7	3.8	33	100	--	<100	16,000	<100	<100	330	--	--	--	--
DB-1-A	11/9/01	160	--	<0.5	<0.5	<0.5	<0.5	--	<1.7	<17	<1.7	<1.7	86	--	--	--	--
DB-2-A	11/10/01	<50	<50	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
DB-3-A	11/13/01	<50	51	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
DB-4-A	11/13/01	<50	57	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
DB-5-A	11/10/01	<50	910	<0.5	<0.5	<0.5	<0.5	--	<0.5	<5.0	<0.5	<0.5	<0.5	--	--	--	--
HP-1-A	11/13/01	<50	--	<0.5	<0.5	<0.5	0.80	--	<50	24	<50	<50	12	--	--	--	--
GP-1	1/10/07	270	--	<0.5	<0.5	2.6	0.85	61	--	--	--	--	--	--	--	--	--
GP-2	1/10/07	2,000	--	61	46	93	280	2,600	--	--	--	--	--	--	--	--	--
GP-3	1/10/07	11,000	--	38	27	1,100	980	37,000	--	--	--	--	--	--	--	--	--
GP-4	1/10/07	20,000	--	820	260	1,400	3,200	35,000	--	--	--	--	--	--	--	--	--
GP-5	1/10/07	4,100	--	64	6.6	13	550	780	--	--	--	--	--	--	--	--	--
GP-6A	1/11/07	11,000	--	360	150	1,500	480	6,100	--	--	--	--	--	--	--	--	--
GP-8	1/10/07	61,000	--	2,800	490	2,600	4,400	190,000	--	--	--	--	--	--	--	--	--
GP-9	1/10/07	100,000	--	5,600	3,400	3,500	24,000	260,000	--	--	--	--	--	--	--	--	--
GP-10	1/10/07	44,000	--	2,400	590	3,600	3,300	92,000	--	--	--	--	--	--	--	--	--
GP-11	1/11/07	550	--	1.4	1.3	2.1	36	110	--	--	--	--	--	--	--	--	--
GP-12	1/11/07	15,000	--	68	20	1,800	94	6,600	--	--	--	--	--	--	--	--	--
GP-13	1/11/07	88,000	--	5,100	<50	5,500	7,400	87,000	--	--	--	--	--	--	--	--	--
GP-14	1/11/07	210,000	--	11,000	26,000	4,600	21,000	1,500,000	--	--	--	--	--	--	--	--	--
GP-16	1/11/07	160	--	5.2	3.2	18	7.5	210	--	--	--	--	--	--	--	--	--
GP-17	1/11/07	460	--	7.7	4.8	8.0	7.4	790	--	--	--	--	--	--	--	--	--
GP-18	1/11/07	35,000	--	250	72	2,800	380	13,000	--	--	--	--	--	--	--	--	--
GP-19	1/11/07	430	--	8.9	1.6	24	31	430	--	--	--	--	--	--	--	--	--
GP-21	7/9/08	<50	--	<0.5	<0.5	0.73	3.3	9.2	<0.5	4.5	<0.5	<0.5	7.9	--	--	--	--
GP-22	7/8/08	<50	--	<0.5	<0.5	<0.5	0.55	8.3	<0.5	31	<0.5	<0.5	8.7	--	--	--	--
GP-23	7/7/08	220	--	7.1	9.1	7.0	30	61	<2.5	<10	<2.5	<2.5	76	--	--	--	--
GP-24	7/7/08	800	--	4.3	0.89	39	180	1,100	<50	<200	<50	<50	1,300	--	--	--	--
GP-25	7/8/08	210	--	4.9	18	7.2	19	63	<2.5	<10	<2.5	<2.5	69	--	--	--	--
GP-26	7/8/08	<50	--	1.6	<0.5	2.6	5.1	<50	<0.5	2.2	<0.5	<0.5	24	--	--	--	--

Notes:
Samples analyzed for TPHg and TPHd by EPA Method 8015Bm, BTEX by EPA Method 8021B, MTBE by EPA Method 8021B and/or 8260B, and the fuel oxygenates TBA, DIPE, ETBE, TAME, EDB, 1,2-DCA, ethanol, and methanol by EPA Method 8260.
µg/L = micrograms per liter
-- = not analyzed
EDB = 1,2-Dibromoether
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 MW-1 renamed MW-1A, well MW-2 renamed MW-2A, Well MW-3 renamed MW-3A in February 2006.
** = Well destroyed in February 2006.
*** = Anomalous data observed in MW-7C from October 12, 2006 sample. Therfore, wells MW-7A, MW-7B, and MW-7C were resampled on November 21, 2006.
(a) = Well EW-3 is 35 feet deep with a screen interval from 25 to 30 feet bgs.
" = High concentrations of MTBE caused very high reporting limits, both TPHg and benzene were estimated just below the listed reporting limits by laboratory.

Table 3
Historic Soil Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Sample Depth	Sample Date	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Fuel Oxygenates				
										TAME	TBA	DIPE	ETBE	MTBE
T1-West	NA	4/5/99	<20	<1.0	<1.2	<1.2	<1.2	<1.2	24	--	--	--	--	--
T2-West	NA	4/5/99	<100	--	<6.2	<6.2	<6.2	<6.2	47	--	--	--	--	--
T3-West	NA	4/5/99	<200	--	<12	<12	<12	<12	41	--	--	--	--	--
T4-West	NA	4/5/99	<200	--	<12	<12	<12	<12	100	--	--	--	--	--
T1-East	NA	5/6/99	17	<1.0	<0.62	<0.62	<0.62	<0.62	7.7	--	--	--	--	--
T2-East	NA	5/6/99	31	--	<0.62	<0.62	<0.62	<0.62	28	--	--	--	--	--
T3-East	NA	5/6/99	<50	--	<3.1	<3.1	<3.1	<3.1	41	--	--	--	--	--
T4-East	NA	5/6/99	14	--	<0.62	<0.62	<0.62	<0.62	20	--	--	--	--	--
Dispenser 1	NA	5/20/99	49	--	0.015	0.084	0.033	0.041	<0.0050	--	--	--	--	--
Dispenser 2	NA	5/20/99	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--
Dispenser 3	NA	5/20/99	6,500	--	<31	81	120	940	<31	--	--	--	--	--
Dispenser 4	NA	5/20/99	--	--	--	--	--	--	--	--	--	--	--	--
Dispenser 5	NA	5/20/99	32	--	0.040	0.62	0.29	3.0	<0.0050	--	--	--	--	--
Dispenser 6	NA	5/20/99	<1.0	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--
Diesel-D	NA	5/20/99	160	1,300	0.032	0.20	0.089	15	<0.62	--	--	--	--	--
MW-1	15	7/26/00	<10	--	<0.62	<0.62	<0.62	<0.62	0.93	--	--	--	--	--
MW-1	19	7/26/00	800	--	<6.2	36	18	100	21	--	--	--	--	--
MW-2	15	7/26/00	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--
MW-2	20	7/26/00	1.1	--	0.0092	0.013	0.053	0.13	0.11	--	--	--	--	--
MW-3	15	7/26/00	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--
MW-3	20	7/26/00	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--
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	--	--	--	--	--
GP-1	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-1	24	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-1	28	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-2	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-2	24	1/10/07	51	--	<0.050	<0.050	0.13	0.20	<0.50	--	--	--	--	--
GP-3	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-3	24	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-3	28	1/10/07	100	--	<0.050	0.40	2.1	3.2	2.6	--	--	--	--	--
GP-4	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-4	16	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	
GP-4	28	1/10/07	13	--	0.021	0.096	0.24	0.32	4.4	--	--	--	--	--
GP-5	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-5	20	1/10/07	5.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-5	28	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-6	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.090	--	--	--	--	--
GP-6	18	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-6	24	1/10/07	<1.0	--	<0.005	<0.005	<0.005	0.013	0.11	--	--	--	--	--
GP-6	28	1/10/07	23	--	0.0057	0.021	0.052	0.16	0.056	--	--	--	--	--
GP-6A	4	1/11/07	11	--	<0.005	<0.005	0.0081	<0.005	<0.10	--	--	--	--	--
GP-6A	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	0.011	<0.10	--	--	--	--	--
GP-6A	16	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-6A	20	1/11/07	1.6	--	<0.005	<0.005	0.0052	0.0065	0.066	--	--	--	--	--
GP-6A	24	1/11/07	2.0	--	<0.005	0.013	0.0062	0.015	0.44	--	--	--	--	--
GP-6A	28	1/11/07	17	--	<0.010	<0.010	0.40	0.028	0.34	--	--	--	--	--

Table 3
Historic Soil Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Sample Depth	Sample Date	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Fuel Oxygenates				
										TAME	TBA	DIPE	ETBE	MTBE
GP-7	4	1/11/07	2.0	--	<0.005	0.014	0.0080	0.092	0.086	--	--	--	--	--
GP-7	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-7	14	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.062	--	--	--	--	--
GP-8	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-8	24	1/10/07	30	--	0.030	0.19	0.46	2.4	9.6	--	--	--	--	--
GP-9	8	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-9	12	1/10/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-9	24	1/10/07	110	--	0.27	1.2	1.6	9.5	22	--	--	--	--	--
GP-10	21	1/10/07	35	--	0.033	0.35	0.56	3.6	1.5	--	--	--	--	--
GP-10	24	1/10/07	2.2	--	0.0081	0.011	0.023	0.12	3.9	--	--	--	--	--
GP-11	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-11	24	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-11	28	1/11/07	3.7	--	<0.005	<0.005	<0.005	<0.005	0.057	--	--	--	--	--
GP-12	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.072	--	--	--	--	--
GP-12	24	1/11/07	15	--	<0.005	<0.005	0.13	0.14	0.092	--	--	--	--	--
GP-12	28	1/11/07	11	--	0.0061	<0.005	0.47	0.014	0.36	--	--	--	--	--
GP-13	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-13	24	1/11/07	9.1	--	<0.005	<0.005	<0.005	0.014	<0.05	--	--	--	--	--
GP-13	28	1/11/07	100	--	0.17	0.39	2.6	6.7	8.9	--	--	--	--	--
GP-14	8	1/11/07	6.4	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-14	12	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-14	16	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-14	24	1/11/07	320	--	0.43	14	7.0	40	50	--	--	--	--	--
GP-14	28	1/11/07	120	--	0.47	3.3	2.0	11	140	--	--	--	--	--
GP-15	12	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.078	--	--	--	--	--
GP-15	19	1/11/07	1.5	--	<0.005	0.012	0.026	0.054	0.49	--	--	--	--	--
GP-15	24	1/11/07	1.6	--	<0.005	0.0077	0.015	0.11	0.40	--	--	--	--	--
GP-15	28	1/11/07	6.7	--	0.047	0.24	0.13	0.72	9.5	--	--	--	--	--
GP-16	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.061	--	--	--	--	--
GP-16	24	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.10	--	--	--	--	--
GP-16	28	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-17	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-17	24	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-17	28	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-18	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-18	16	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	0.070	--	--	--	--	--
GP-18	24	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-18	28	1/11/07	110	--	<0.010	0.16	0.37	1.3	0.20	--	--	--	--	--
GP-19	8	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-19	21	1/11/07	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
GP-19	24	1/11/07	5.8	--	<0.005	0.0072	0.12	0.23	0.074	--	--	--	--	--
GP-21	32	7/9/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.050	4.6	<0.050	<0.050	<0.050
GP-21	36	7/9/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.010	1.1	<0.010	<0.010	<0.010
GP-21	40	7/9/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.010	0.72	<0.010	<0.010	<0.010
GP-21	44	7/9/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-21	48	7/9/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-21	52	7/9/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-22	32	7/8/08	1.2	--	<0.005	<0.005	0.0059	<0.005	<0.05	<0.025	2.9	<0.025	<0.025	0.051
GP-22	36	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.050	3.6	<0.050	<0.050	<0.050
GP-22	40	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.010	1.3	<0.010	<0.010	<0.010
GP-22	44	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-22	47	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-23	32	7/7/08	56	--	0.093	0.089	0.73	0.61	7.0	<0.33	<3.3	<0.33	<0.33	8.5
GP-23	36	7/7/08	<1.0	--	<0.005	<0.005	0.010	0.0067	0.081	<0.050	3.0	<0.050	<0.050	0.063
GP-23	40	7/7/08	<1.0	--	<0.005	<0.005	0.0087	<0.005	<0.05	<0.005	0.34	<0.005	<0.005	0.010
GP-23	44	7/7/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.010
GP-23	50	7/7/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-24	32	7/7/08	<1.0	--	<0.005	<0.005	0.015	<0.005	0.12	<0.010	1.2	<0.010	<0.010	0.23
GP-24	36	7/7/08	<1.0	--	<0.005	<0.005	0.016	<0.005	<0.05	<0.025	1.7	<0.025	<0.025	<0.025
GP-24	40	7/7/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.010	0.91	<0.010	<0.010	0.088
GP-24	44	7/7/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005
GP-24	48	7/7/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	<0.005

Table 3
Historic Soil Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Sample Depth	Sample Date	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Fuel Oxygenates				
										TAME	TBA	DIPE	ETBE	MTBE
GP-25	32	7/8/08	4.5	--	0.18	0.015	0.18	<0.005	3.3	<0.25	<2.5	<0.25	<0.25	2.8
GP-25	36	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.010	0.85	<0.010	<0.010	0.85
GP-25	40	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.014
GP-25	44	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.012
GP-25	50	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.015
GP-26	32	7/8/08	3.1	--	0.0074	0.015	0.082	0.012	4.6	<0.33	<3.3	<0.33	<0.33	5.1
GP-26	36	7/8/08	3.4	--	0.023	0.0087	0.053	0.010	1.7	<0.33	<3.3	<0.33	<0.33	2.0
GP-26	40	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.013
GP-26	44	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.0061
GP-26	48	7/8/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.005	<0.005	0.010
MW-8B	28	7/16/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--
MW-8B	32	7/16/08	<1.0	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--	--	--

Notes:
All results are in milligrams per kilogram (mg/kg)
-- = not analyzed
NA = not available
TPHg was analyzed by EPA Method 8015CM
BTEX and MTBE were analyzed by EPA Method 8021B
MTBE, TAME, ETBE, TBA, and DIPE were analyzed by EPA Method 8260B
Refusal met in borings GP-20 and GP-27, therfore no samples collected
Data compiled from other consultants was not subject to Allterra's standard of quality control

TPHg: Total Petroleum Hydrocarbons as gasoline
MTBE = methyl tertiary butyl ether
TAME = tert-amyl methyl ether
TBA = tert-butyl alcohol
DIPE = di-isopropyl ether
ETBE = ethyl tert-butyl ether

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Table 4
Historic Soil Vapor Analytical Data
160 Holmes Street, Livermore, California

Sample ID	Test Hour	Date	Total Petroleum Hydrocarbons as (mg/m^3)	Aromatic Volatile Organic Compounds (mg/m^3)				Oxygenated Volatile Organic Compounds (mg/m^3)
			Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE
MW-1	0	4/24/03	4,000	23	280	60	207	210
MW-1	7	4/24/03	5,100	39	480	120	480	440
EW-2	0	4/11/06	41	0.97	0.39	0.6	2.4	96
EW-2	3	4/11/06	<25	<0.25	<0.25	<0.25	<0.25	<2.5
EW-2	6	4/11/06	<25	<0.25	<0.25	<0.25	<0.25	<2.5
EW-1	0	4/12/06	<25	<0.25	<0.25	<0.25	<0.25	7.0
EW-1	6	4/12/06	<25	<0.25	<0.25	<0.25	0.51	4.9

Notes:
Sampes analyzed for TPHg by EPA Method 8015CM, BTEX and MTBE by EPA Method 8021B
mg/m^3 = milligrams per cubic meter
MTBE = methyl tertiary butyl ether

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Table 5

Dissolved Phase Contaminant Mass Removal Data

160 Holmes Street, Livermore, California

Extraction Batch Number	Date*	Extraction Well	Influent Concentration			Gallons Processed		Estimated Extraction Flow Rate (gpm)	Mass Removed (pounds)					
									Batch Amount			Cumulative Total		
			TPHg	Benzene	MTBE	Batch Amount	Cumulative Total		TPHg	Benzene	MTBE	TPHg	Benzene	MTBE
1	9/8/06	EW-1	1,600	110	11,000	5,560	5,560	10	0.074	0.0051	0.51	0.074	0.005	0.51
2	9/29/06	EW-1	1,800	120	13,000	5,575	11,135	10	0.083	0.0056	0.60	0.157	0.011	1.11
3	11/21/06	EW-2	1,100	55	2,600	5,000	16,135	14	0.046	0.0023	0.11	0.203	0.013	1.22
4	12/14/06	EW-1	4,800	270	17,000	5,721	21,856	12	0.220	0.0128	0.81	0.423	0.026	2.03
5	1/16/07	EW-1	3,000	230	16,000	5,506	27,362	12	0.137	0.0105	0.73	0.560	0.036	2.76
6	2/7/07	EW-1	2,900	240	15,000	5,425	32,787	10	0.131	0.0108	0.68	0.691	0.047	3.44
7	3/13/07	EW-1	4,900	230	19,000	6,000	38,787	12	0.244	0.0115	0.95	0.936	0.059	4.39
8	3/29/07	EW-1	3,400	250	19,000	6,000	44,787	14	0.170	0.0125	0.95	1.105	0.071	5.34
9	4/17/07	EW-1	2,200	160	16,000	5,505	50,292	14	0.101	0.0073	0.73	1.206	0.078	6.07
10	5/24/07	EW-1	130	10	1,200	6,000	56,292	13	0.006	0.0005	0.06	1.112	0.071	5.40

Date	Influent Concentration (average from Monthly Samples)			Gallons Processed		Mass Removed (pounds)					
						Quarter/ Month Total			Cumulative Total		
	TPHg	Benzene	MTBE	Quarterly/ Monthly	Total	TPHg	Benzene	MTBE	TPHg	Benzene	MTBE
April 2010	42,750 1,900*	395 19*	242,500 3,500*	7,023 (EW-3) 3,738 (EW-1)	10,761	2.50 0.06*	0.02 0.0006*	14.19 0.11*	2.51	0.021	14.30
May 2010	29,667	370	196,667	11,479	22,240	2.85	0.04	18.87	5.36	0.06	33.17
June/July 2010	22,750	345	145,000	7,814	30,054	1.48	0.02	9.46	6.84	0.08	42.63
7/20/10	400	4.4	590	2400 (EW-1)		0.0080	0.000088	0.012			
10/28/10	180	3.7	3,400	2400 (EW-1)	37,254	0.0036	0.000074	0.068	6.844	0.08116	42.64
11/4/10	790	20	6,900	2400 (EW-1)		0.016	0.000400	0.14			
11/11/10	20,000	310	280,000	4.0 (EW-3)	37,258	0.00067	0.000010	0.0093	6.845	0.08117	42.65

Notes:
All concnetrations listed in micrograms per liter (µg/L)
All masses listed in pounds (lb)
* = Concentrations and masses removed were calculated using extraction and lab data from EW-1 on April 27, 2010

Table 6
Vapor Phase Contaminant Mass Removal Data
160 Holmes Street, Livermore, California

Date	Average Influent Concentrations			Cubic Feet Processed		Mass Removed (pounds)					
						Monthly Total			Cumulative Total		
	TPHg	Benzene	MTBE	Quarter (or Month)	Total	TPHg	Benzene	MTBE	TPHg	Benzene	MTBE
9/27/07	64,000	547	6,967	23,580	23,580	94	0.80	10	94	0.80	10
April 2010	962	2.4	306	41,544	65,124	2.76	0.0069	0.88	96.76	0.8069	10.8770
May 2010	175	0.6	83	67,116	132,240	0.73	0.0025	0.35	97.49	0.0025	0.3500
June 2010	310	0.2	111	132,606	264,846	2.57	0.0017	0.92	100.06	0.8086	11.7970

Notes:
All concentrations listed in micrograms per liter (ug/L)
All masses listed in pounds (lb)
TPHg = total petroleum hydrocarbons as gasoline
MTBE = methyl tertiary butyl ether
If multiple samples were collected the averaged concentration was used to calculate mass removed

Table 7
Petroleum Constituent Percent Reduction
160 Holmes Street, Livermore, California

Sample ID	Total Petroleum Hydrocarbons as						Aromatic Volatile Organic Compounds			Oxygenated Volatile Organic Compounds		
	Gasoline			Diesel			Benzene			MTBE		
	Max	Current	Percent Reduction	Max	Current	Percent Reduction	Max	Current	Percent Reduction	Max	Current	Percent Reduction
*MW-1A	######	100	99.94	57,000	150	99.91	8,400	1.3	98.69	240,000	150	99.96
MW-2A	7,600	<50	99.34	7,600	<50	97.37	220	<0.5	99.77	3,100	2.3	99.84
MW-7A	6,500	<50	99.23	6,500	<50	97.91	140	<0.5	99.64	6,900	0.67	99.93
MW-7B	230	98	57.39	230	<50	50.00	3.0	<0.5	85.29	1,500	<5.0	99.76
*EW-1	4,400	78	98.86	4,400	<50	77.27	460	<0.5	99.89	12,000	<0.5	99.19
EW-2	470	<50	89.36	470	<50	85.71	5.0	<0.5	90.57	8,700	1.0	99.99
*EW-3	######	<6,000	95.71	140,000	860	83.46	240	<50	79.17	420,000	82,000	80.48

Notes:
All concentrations reported in micrograms per liter (µg/L)
All percent reductions are based on the historic maximum concentrations relative to current concentrations (4th Quarter 2011)
* = Source area wells

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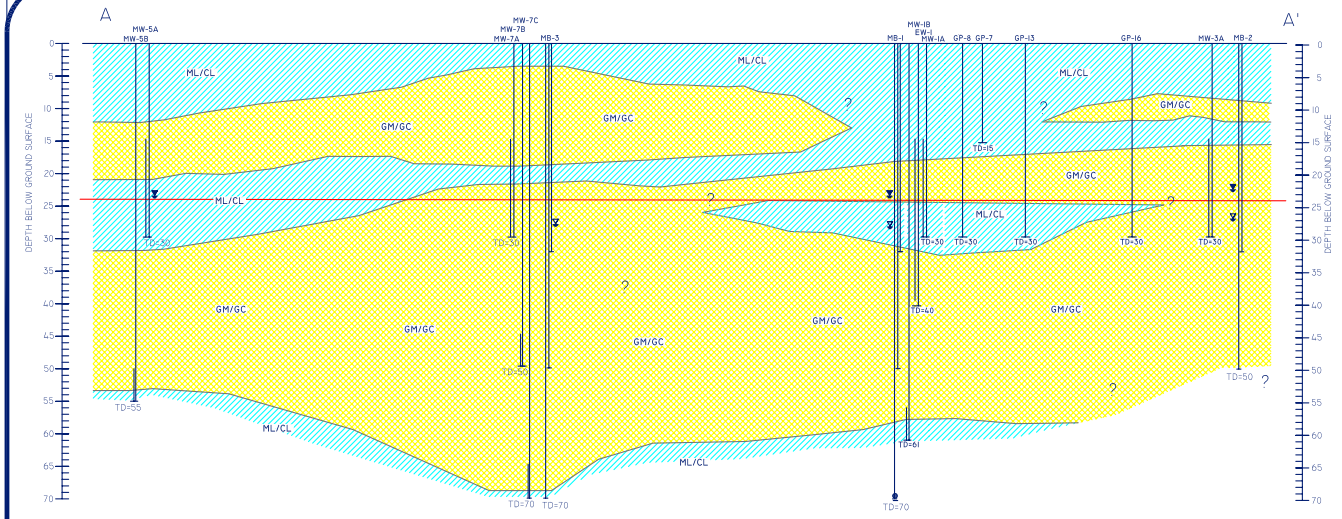
APPENDIX A
Historical Site Figures



VERTICAL SCALE
0 10 20 30

HORIZONTAL SCALE
0 20 40 60

PREDOMINATELY COARSE GRAIN MATERIAL

PREDOMINATELY FINE GRAIN MATERIAL

MW-1 BORING DESIGNATION

GROUNDWATER ELEV.

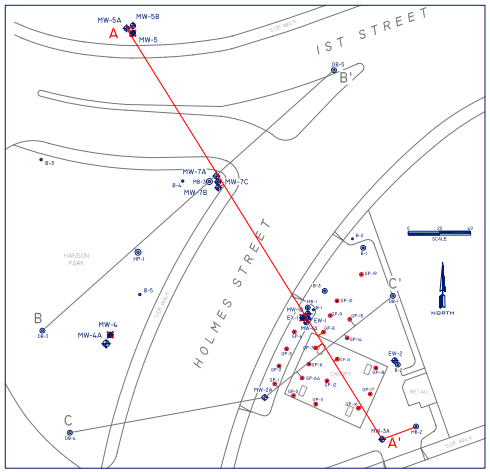
? UNKNOWN BOUNDARY

STATIC GROUNDWATER

SCREENED INTERVAL — INITIAL GROUNDWATER

TD=30 BORING DEPTH

CROSS SECTION LOCATION DETAIL



FNAME

REVDATE

USER

General Notes

STAMP

160 HOLMES STREET
SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

PREPARED BY: ALLTERRA

No.	Revision/Issue	Date
0	DRAFT/REVIEW	6/3

Firm Name and Address
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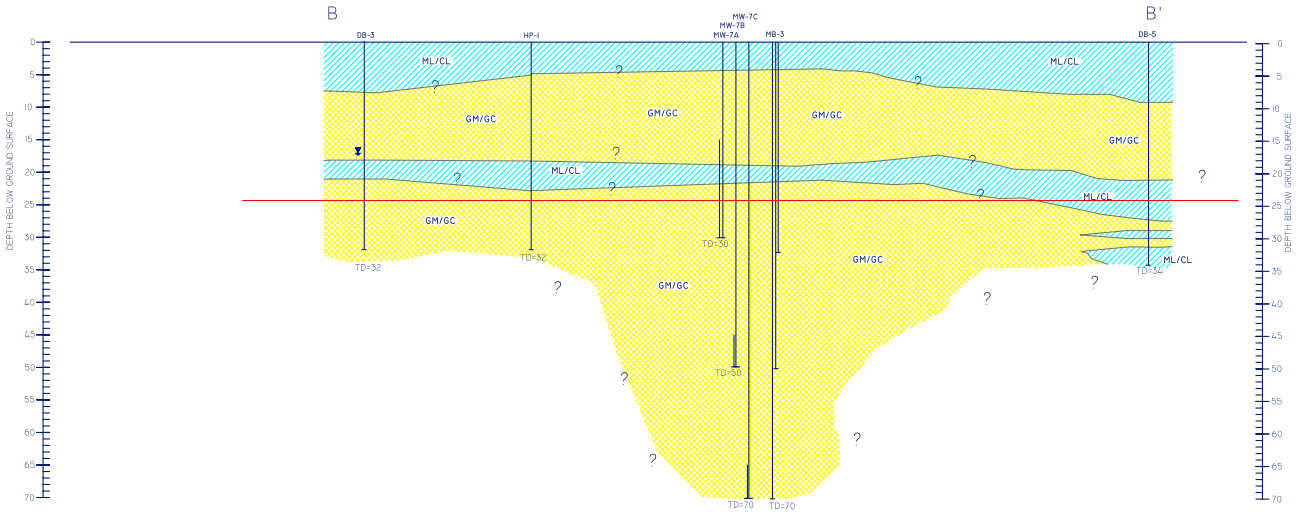
WWW.ALLTERRAENV.COM

Sheet Name and Address
GEOLOGIC CROSS SECTION A-A'

DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 4
Date: 6-3-07	
Scale: SEE DRAWING	



VERTICAL SCALE
0 10 20 30

HORIZONTAL SCALE
0 20 40 60

PREDOMINATELY COARSE GRAIN MATERIAL

PREDOMINATELY FINE GRAIN MATERIAL

MW-1 BORING DESIGNATION

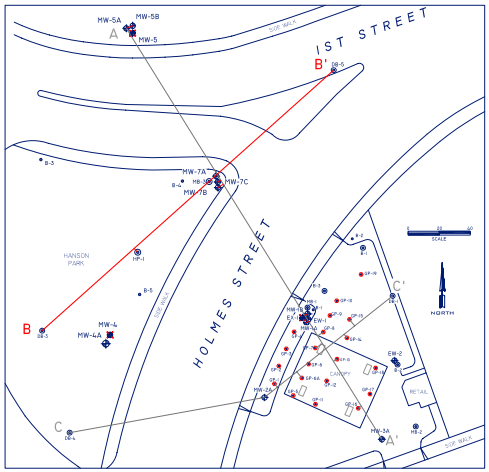
GROUNDWATER ELEV. (STATIC GROUNDWATER)

? UNKNOWN BOUNDARY

SCREENED INTERVAL (INITIAL GROUNDWATER)

TD=30 BORING DEPTH

CROSS SECTION LOCATION DETAIL



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SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

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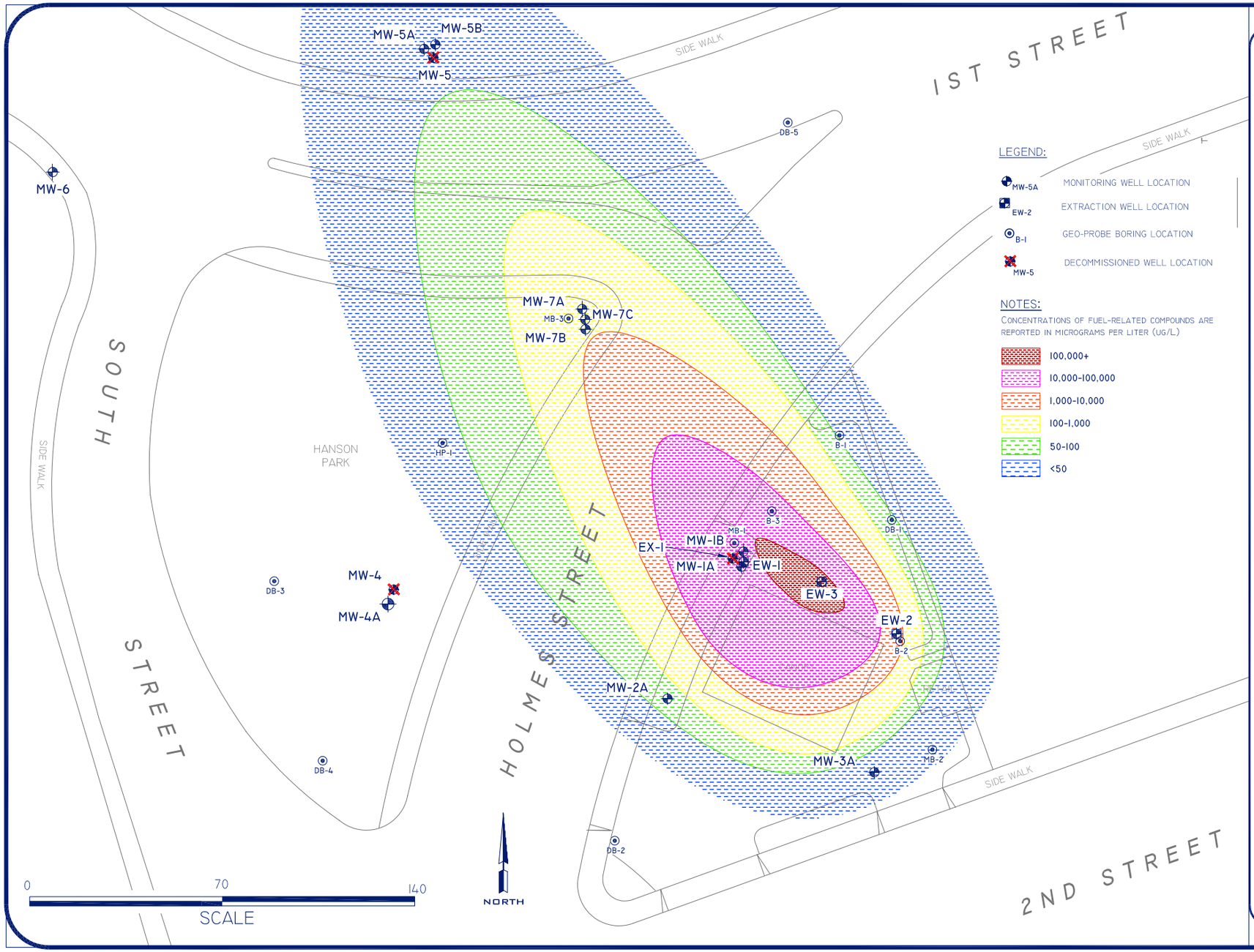
Sheet Name and Address
GEOLOGIC CROSS SECTION B-B'

DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 5
Date: 6-3-07	
Scale: SEE DRAWING	



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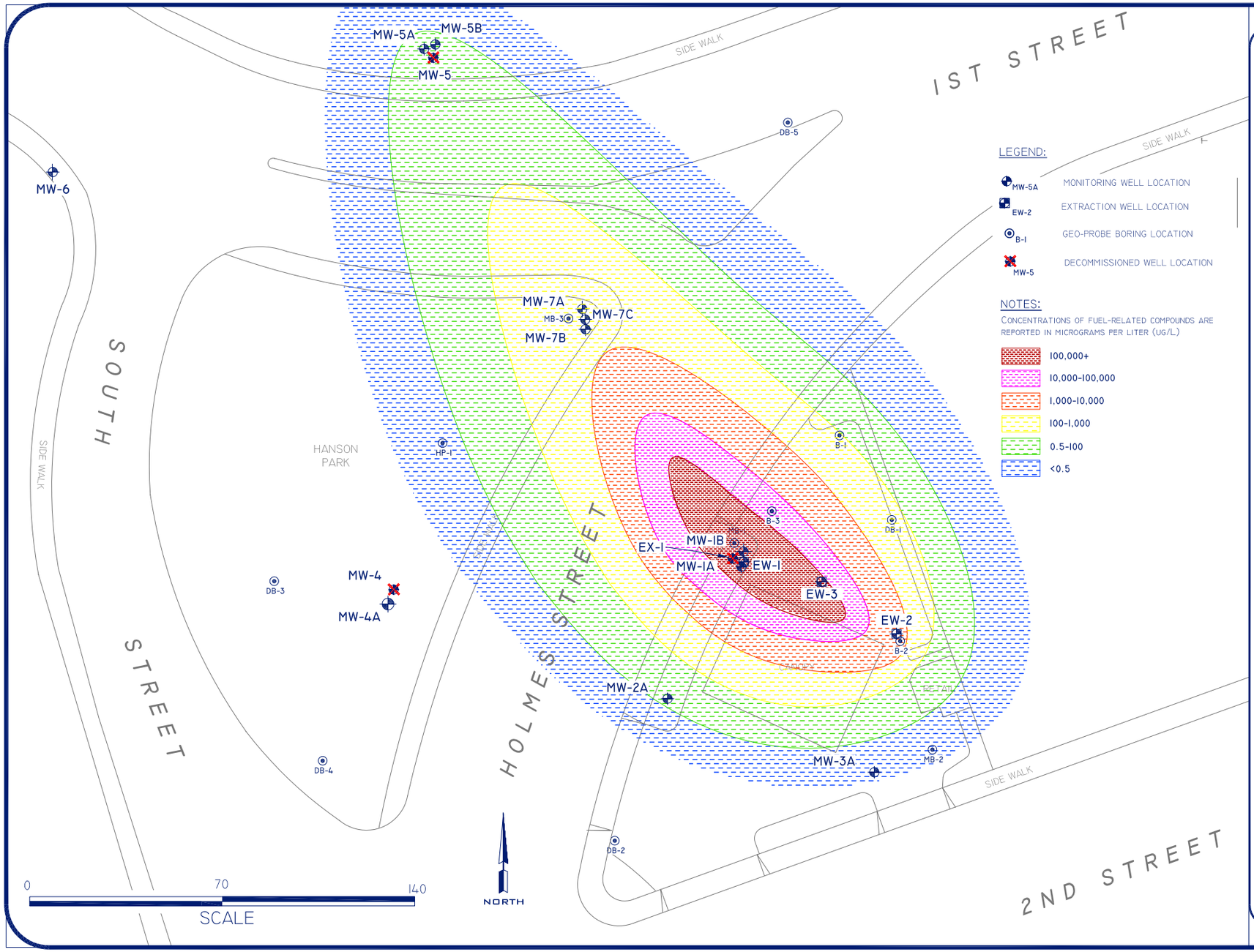
Sheet Name and Address
ESTIMATED TPHG PLUME

DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 6
Date: 6-3-07	
Scale: SEE DRAWING	

FNAME
REVDATE
USER



FNAME
REVDATE
USER

General Notes

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160 HOLMES STREET
SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

PREPARED BY:
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No.	Revision/Issue	Date
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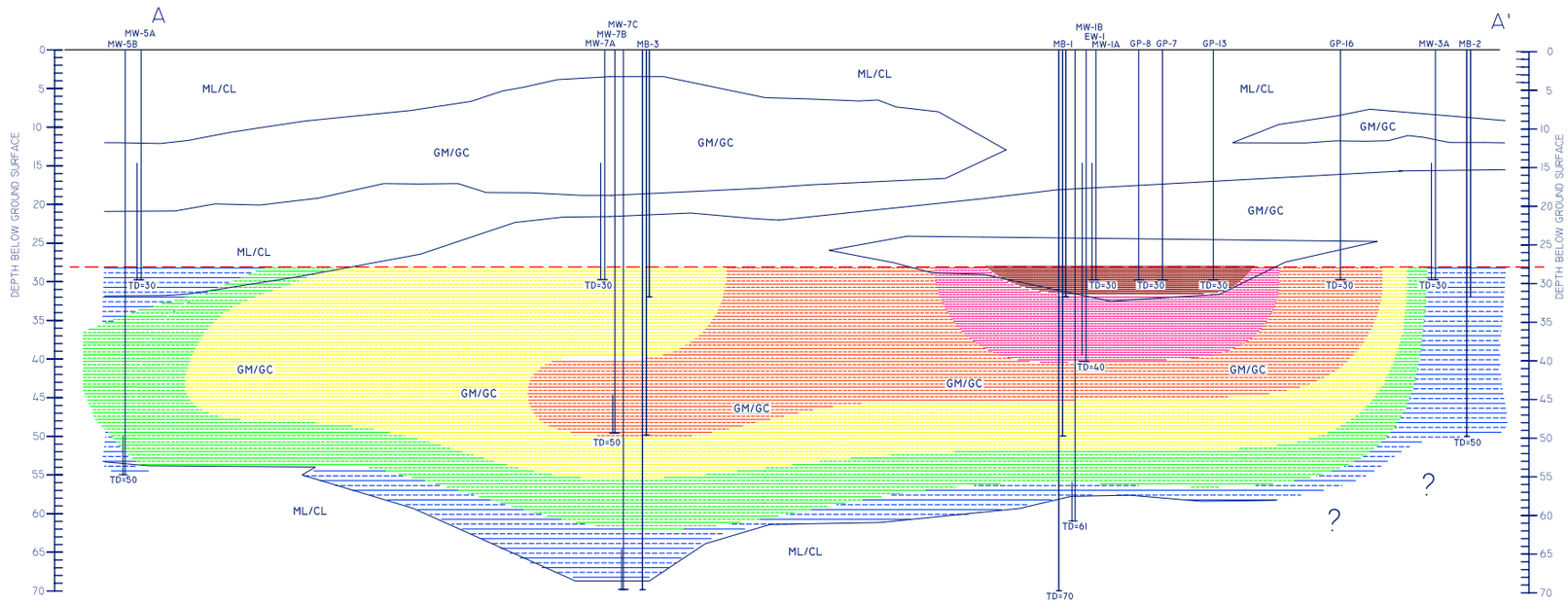
Sheet Name and Address
ESTIMATED MTBE PLUME

DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 7
Date: 6-3-07	
Scale: SEE DRAWING	



VERTICAL SCALE

0 10 20 30

HORZONTAL SCALE

0 20 40 60

ML/CL PREDOMINATELY FINE GRAIN MATERIAL

GM/GC PREDOMINATELY COARSE GRAIN MATERIAL

MW-1 BORING DESIGNATION

GROUNDWATER ELEV.

? UNKNOWN BOUNDARY

STATIC GROUNDWATER

SCREENED INTERVAL INITIAL GROUNDWATER

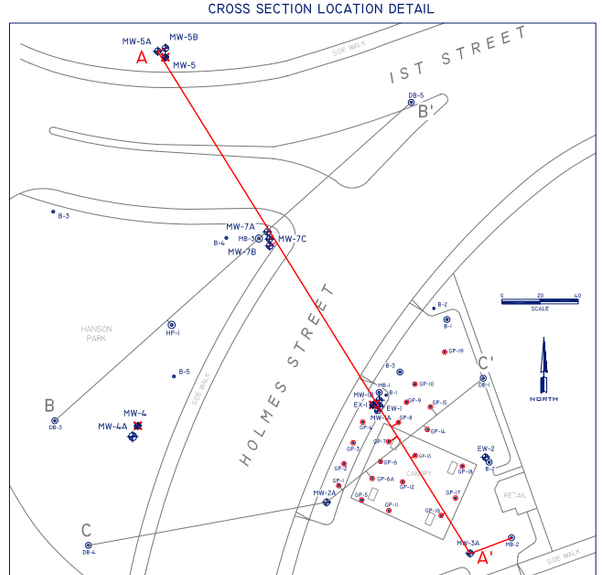
TD=30 BORING DEPTH

NOTES:

CONCENTRATIONS OF FUEL-RELATED COMPOUNDS ARE REPORTED IN MICROGRAMS PER LITER (UG/L)

- 100,000+
- 10,000-100,000
- 1,000-10,000
- 100-1,000
- 0.5-100
- <0.5

CROSS SECTION LOCATION DETAIL



General Notes

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160 HOLMES STREET, LIVERMORE, CALIFORNIA SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

PREPARED BY: ALLTERRA

No.	Revision/Issue	Date
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Sheet Name and Address

CROSS SECTION A-A'
MTBE PLUME

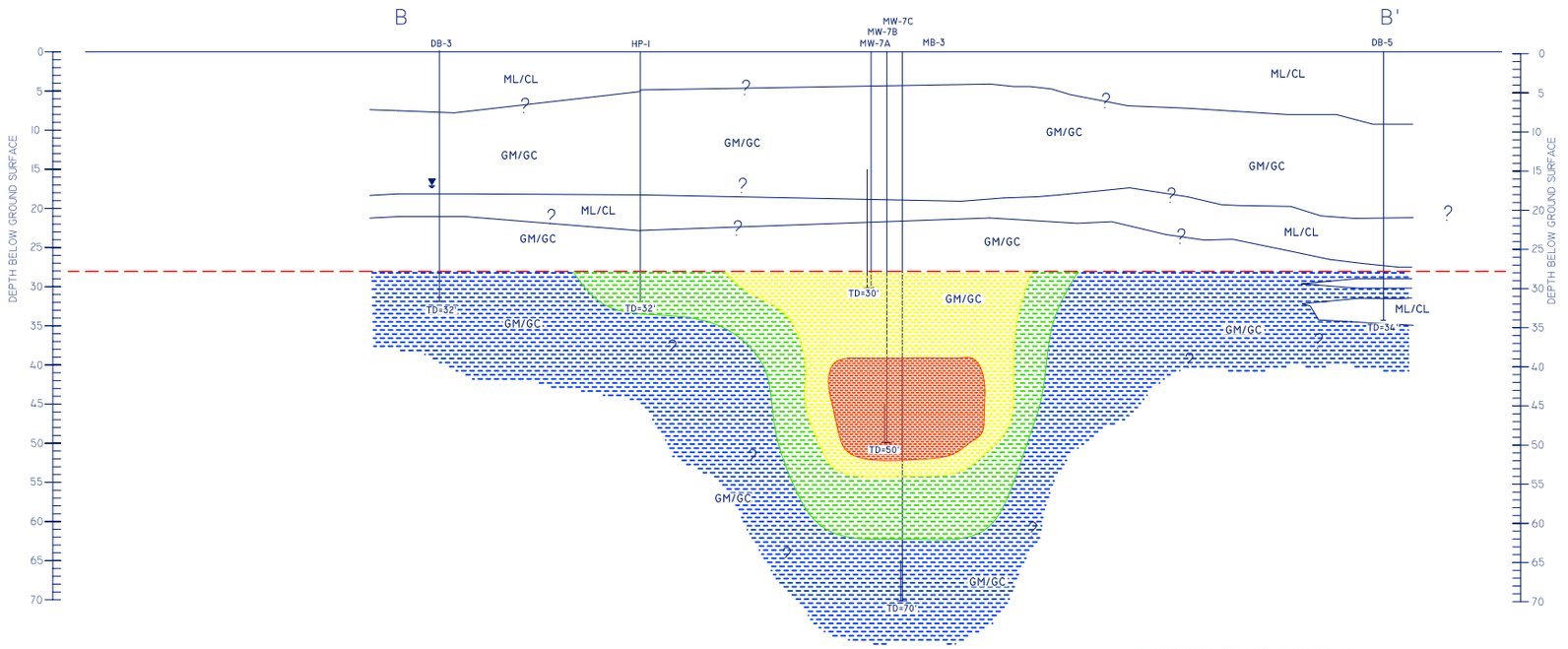
DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 8
Date: 6-3-07	
Scale: SEE DRAWING	

FNAME

REVDATE

USER



VERTICAL SCALE
0 10 20 30

HORZONTAL SCALE
0 20 40 60

ML/CL PREDOMINATELY FINE GRAIN MATERIAL

GM/GC PREDOMINATELY COARSE GRAIN MATERIAL

NOTES:

CONCENTRATIONS OF FUEL-RELATED COMPOUNDS ARE REPORTED IN MICROGRAMS PER LITER (UG/L)

- 100,000+
- 10,000-100,000
- 1,000-10,000
- 100-1,000
- 0.5-100
- ND

MW-1 BORING DESIGNATION

GROUNDWATER ELEV.

? UNKNOWN BOUNDARY

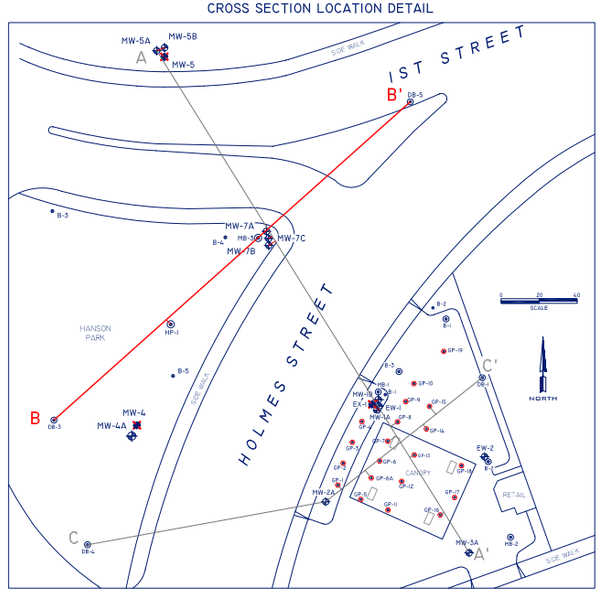
STATIC GROUNDWATER

SCREENED INTERVAL

INITIAL GROUNDWATER

TD=30 BORING DEPTH

CROSS SECTION LOCATION DETAIL



FNAME

REVDATE

USER

General Notes

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160 HOLMES STREET SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

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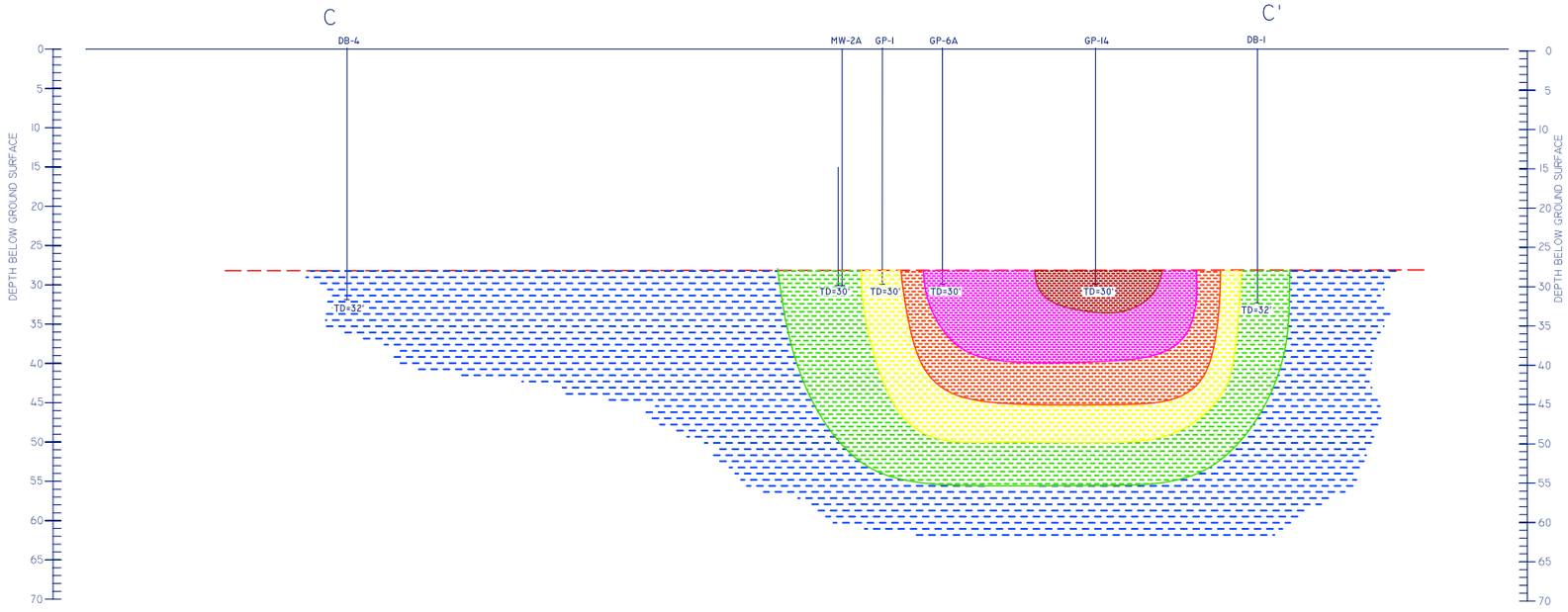
Sheet Name and Address
CROSS SECTION B-B'
MTBE PLUME

DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 9
Date: 6-3-07	
Scale: SEE DRAWING	



VERTICAL SCALE

0 10 20 30

HORZONTAL SCALE

0 20 40 60

NOTES:

CONCENTRATIONS OF FUEL-RELATED COMPOUNDS ARE REPORTED IN MICROGRAMS PER LITER (UG/L)

- 100,000+
- 10,000-100,000
- 1,000-10,000
- 100-1,000
- 0.5-100
- <0.5

MW-1 — BORING DESIGNATION

GROUNDWATER ELEV.

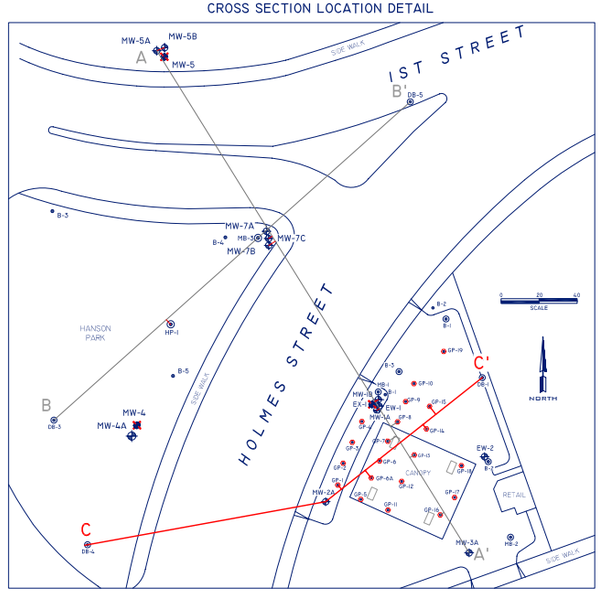
? — UNKNOWN BOUNDARY

STATIC GROUNDWATER

SCREENED INTERVAL — INITIAL GROUNDWATER

TD=30 — BORING DEPTH

CROSS SECTION LOCATION DETAIL



General Notes

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160 HOLMES STREET SOIL AND GROUNDWATER INVESTIGATION AND REMEDIATION PROJECT

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Sheet Name and Address

CROSS SECTION C-C'
MTBE PLUME

DRAFT
CORRECTIVE ACTION PLAN

Project	Sheet
015-01-026	FIGURE 10
Date: 6-3-07	
Scale: SEE DRAWING	

FNAME
REVDATE
USER

APPENDIX B
SWRCB Water Quality Orders

SWRCB - UST Water Quality Orders

No.	WQ Order No.	USTCF Claim No.	Petitioner	City	Remediation Processes	CCS Format*	Post Remediation Cont. Conc. (ppb) TPHg	Benzene	MTBE[2]	Closure Considerations
1	WQO 98-03		Kenneth and Jean Fortenbery	Watsonville	UST Removal, SGI	No	7.2 ppm	ND	27ppb	Petroleum Conc. Have degraded; No threat to human health
2	WQO 98-04		Matthew Walker	Napa	UST, Source Removal, SGI	No	ND	29	ND	UST's out of use for decades; Pet. Hyd. Have degraded
3	WQO 98-08		Texaco Refining and Marketing, Inc.	Coachella	UST, Source Removal; SGI; SVE	No	24,400 ppb	38 ppb	<1 ppb	Zero cont. line <190 feet downgradient, after 19 years
4	WQO 98-09		Waddell Brothers Trust	Calimesa	UST removal; Deep Soil Borings	No	20,500 ppm	289 ppm	112 ppm	Soil only case; Closure delayed pending corrective action
5	WQO 98-10		Margo Hayes	Goleta	UST removal; SGI	No	64,000	86	ND	GW meets Basin Plan Conc. Within 40' of source
6	WQO 98-12		Unocal Corporation, Gilroy	Gilroy	UST Removal; SGI; Source Rem; SVE	No	58,000ppb	1,300 ppb	ND	GW Meets Basin Plan Obj. within 50' of source
7	WQO 98-13		Landis Incorporated	Ojai	UST Removal; Srce Rem; GW Tr., SVE/AS	No	28,600 ppb	4,080 ppb	311 ppb	GW Meets Basin Plan Obj. within 200' of source
8	WQO 99-10		Unocal Corporation	Stockton	UST Removal; SGI, Srce Rem; SVE	No	80,000 ppb	2,400 ppb	10 ppb	GW Meets Basin Plan Obj. within 150' offsite, plume is stable
9	WQO 99-04		Fallbrook Public Utility District	Fallbrook	UST Removal; Srce Rem; SGI, GW Tr.	No	1,600	590	67	No TPHg or B in pumped GW; Shallow GW is of inferior quality
10	WQO 2003-0001		Michael O'Donoghue Trust	Buena Park	UST Removal; Srce Rem; SGI	No	98,000 ppb	5,800 ppb	120 ppb	Basin Plan WQO' will likely be reached within several decades
11	WQO 2003-0011		Sui Lau and Yut Bing Leung Lau	Santa Barbara	UST Rem.; Srce Rem - Auger holes; SVE, ORC	No	COC: DCA down to 0.88 ppb Nov '02			DCA may originate offsite; Concentrations are diminishing
12	WQO 2004-0018		UST Petition of Ernest Panosian	Goleta	UST Removal; Srce Removal; SGI;	No	2,900	150	(3,900 ppb)	MTBE is from Upgradient Site; B, EDC & TPHg likely to remain >WQOs
13	WQO 2005-0002		Lois Green and Patricia Kelly	Eureka	No USTs Found; Srce Rem.; SGI, ORC Injection	No	730 ppb	18 ppb	3.5 ppb	SWI Complete; WQ Obj. reached within Reasonable time
14	WQO 2005-0008		Dan Thomas	Ukiah	UST Rem., SGI, Srce Rem.,	No	1,800	ND	NA[3]	Natural Biodeg. Occurring; WQOs will be met in Reas. Time
15	WQO 2005-0011		Purves Family Trust	Fillmore	UST Rem., SGI; SVE, Air Sparging	No	ND	ND	NA[3]	Site Remediation effected cleanup; Site Concept. Model trumps RBCA
16	WQO 2008-0003		Shell Oil Products US	Simi Valley	SGI, SVE Pilot Test	No	ND	ND	<5ppb	Site is paved; low levels of MTBE in soil only
17	WQO 2009-0016		Mass Transit Properties LLC	Ventura	UST Rem., SGI, Srce Rem.; ORC Layer, GW Mon	No	Low Lovel TPHd only - 6,540 ppm			Low likelihood of TPHd migration; no water Degradation
18	WQO 10-0006		Negri Co. LLC (Jerry Yost)	Occidental	UST Removal; SGI; Natural Attenuation	Yes	<50		110 ppb	WQO's will be reached in approx 20 years
19	WQO 10-0006		Rocco's Freestone Corners	Sebastopol	UST Removal; SGI; Ozone injection; QM	Yes	90	10	NA[3]	GW Plume <120' from source; WQO's reached in reasonable time
20	WQO 10-0006		Bethel Island Municipal Improvement District	Bethel Island	UST Removal; SGI	Yes	ND	0.73 ppb	5.4 ppb	Residual contaminant mass limited to UST vicinity - <10' radius
21	RES 2010-0006		Payne Property	Auburn	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
22	RES 2010-0006		Texaco (Rowdy Randy's)	Auburn	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
23	RES 2010-0006		Petroleum Tank Line	W. Sacramento	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
24	RES 2010-0006		Westlake Stn & Marine (Former)	Lakeport	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
25	RES 2010-0006		Gold Eagle Market #1	Brownsville	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
26	RES 2010-0006		Railroad Flat General Store	Railroad Flat	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
27	RES 2010-0006		Sierra Energy	Ione	No Information Provided[1]	Yes	No Information Provided[1]			Closed Per H&S Code Section 25299.2; Rescinds RWQCB Orders
28	WQO 2010-0007		Peter Van Alyea	Healdsburg	UST Removal; Srce Rem.; SGI; GW Tr; SRS	Yes	140	<0.5	14	TPHg/MTBE Trending downward; paved site - no GW infiltration
29	WQO 2010-0007		Juanita Giovannoni	Healdsburg	UST Removal; Srce Rem; SGI; Ltd GW Tr	Yes	120	<0.5	1.2	Cont. Conc. Trending downward; WQO's achieved in 5 - 20 years
30	WQO 10-0008		New Performance	San Lorenzo	UST Removal; SGI; GW Mon.	Yes	1,790	<10	<10	BTEX declined to or below WQO's; TPHg trending down to WQO
31	WQO 10-0008		Chevron 20-5929	Santa Barbara	UST Removal; SGI; DPE	Yes	<WQO	<WQO	<WQO	Pet Hyd compounds below WQO's' >10' of unsat. Soil overlies Srce
32	WQO 10-0010		American Auto Wreckers	Hayward	UST Removal; SGI; Ph 1 ESA	Yes	<50 ppb	1.8 ppb	60	Shallow GW not a source of Drinking water; WQO's met in Reas. Time
33	WQO 10-0011		Former Desert Petroleum (Gasco) Station	Sacramento	UST Removal; SGI; GW Treatment w/oxygen	Yes	22,000	170	<7.0	Plume <30' from source; Muni Water Supply used; WQO's in 100 yrs
34	WQO 10-0013		Sacramento Valley Crane Service	Sacramento	UST Removal; Srce Rem.; SVE; SRS	Yes	<50	0.82	350	WQO' achieved for all TPH except MTBE; WQO's reached in reas. time
35	WQO 10-0013		Navtej Riar	Sacramento	UST Removal; SGI; SVE; SRS	Yes	<50	<0.3	6.1	Cont. Conc. Trending downward; WQO's achieved in reas. Time
36	WQO 10-0013		Sam Arman	Sacramento	UST Removal; Source Rem; SRS; Risk Assess.	Yes	<50	<0.5	<1	Cont. Conc. Trending downward; WQO's achieved in reas. Time
37	WQO 10-0013		John Ralich	Orangevale	UST Removal; Srce Rem; SRS; Risk Assess.	Yes	NA	<0.5	<1	Only PCE & Chloroform from nearby Dry Cleaner is present
38	WQO 10-0013		Delta River Unified School District	Walnut Grove	UST Removal; SRS	Yes	<50	<5	<5	TPHd most problematic, but is near WQO of 56 ppb; WQO met in 5 yrs
39	WQO 10-0013		Olympian JV	No Data Available - Report could not be accessed in SWRCB Site						
40	WQO 10-0013		Geremia Pools, Inc. (Ramona Street)	Sacramento	UST Removal; Srce Rem; SVE; SRS	Yes	1,300	40	NA	Cont. Conc. Trending downward; WQO's achieved in 5 - 10 years
41	WQ 2011-0006	191	Stilson Cleaners	Sacramento	UST Removal; Product Skimming; Risk Eval	Yes	100 ppb	<0.5 ppb	NA	Stoddard Solvent (Dry Cleaner) Case; No WQO for Solvent; no Impact to GW
42	WQ 2011-0006	3594	Lawrence Mayflower Moving	Sacramento	UST Removal; Srce Rem.; AS/SVE;SRS; HHRA	Yes	1,000 ppb	36 ppb	<1.0 ppb	Residual Petroleum Hydrocarbons do not pose Sig, Risk to Human Health Safety and the Environment
43	WQ 2011-0006	5011	Shell #204-6678-9102	Sacramento	4 of 7 USTs Removed; Srce Rem; GW Tr.; SRS	Yes	<50 ppb	NA	23 ppb	WQOs to be reached in 3 Yrs; No Sig Risks to HH S & Env.
44	WQ 2011-0006	7199	Harry Boyanjian Abandoned Service Station	Carmichael	UST Rem; SGI; Srce Rem; SVE	Yes	<50 ppb	<0.5 ppb	<0.5 ppb	Residual conc below WQOs, Site paved with concrete
45	WQ 2011-0006	8705	Speedy Tire	Sacramento	UST Rem.; SGI; SRS; Srce Rem;	Yes	2,400 ppb	5.7 ppb	270 ppb	No SVE or GW Tr.; WQOs will be reached in 25 Yrs; GW no health risk
46	WQ 2011-0006	10944	Gold Rush Recycling	Carmichael	UST Rem; SGI; Srce Rem during UST Rem	Yes	1,500 ppb	<0.5 ppb	<1 ppb	1,2 DCA (PCE) residual at 500 ppb; WQO for DCA reached within 55 years PCE likely from nearby Dry Cleaners; Corrective Action underway at that site
47	WQ 2011-0006	13794	Orbit Gas & Mini Store	Orangevale	4 of 5 USTs Rem; Srce Rem; SVE; DPE; SRS	Yes	<50 ppb	<0.5	<0.5 ppb	WQOs have been achieved; No sig. health, safety or Env. Risks
48	WQ 2011-0006	14725	Curtis Roofing Company	Sacramento	UST Rem.; SGI; SRS; No Srce Rem or GW Tr	Yes	<50 ppb	<0.3 ppb	32 ppb	Latest TPHd=97 ppb; WQOs met within 10 Yrs; No Sig. Risks
49	WQ 2011-0006	15803	Geremia Pools, Inc. (65th Street)	Sacramento	UST Rem; Srce Rem.; SGI; SRS; HHRA; SVE	Yes	<50 ppb	<0.5 ppb	69 ppb	WQOs fot MTBE & 1,2 DCA by 2013; No significant residual risk
50	WQ 2011-0006	16639	Worthington Chevrolet	Sacramento	UST Rem; Srce Rem; SGI; SVE; Ozone Sparg	Yes	<50 ppb	<0.5 ppb	2.7 ppb	WQOs have been achieved; No sig. health, safety or Env. Risks
51	WQ 2011-0010		Kelly Gate Associates	Cloverdale	UST Rem; AGST Rem; SGI; Srce Rem Onsite	No	ND	ND	ND	Complex Case - UST Case & Non-UST Case; Site Cleanup meets 92-49 Req
52	WQ 2011-0011	1631	Phil's Market (Former)	Windsor	UST Rem; Srce Rem' SGI;	Yes/Mod	190 ppb	<0.5 ppb	<0.5 ppb	TPHg & 1,2 DCA decreasing; WQOs achieved in reasonable time
53	WQ 2011-0011	559	Tipple Motors	Ferndale	UST Rem; Srce Rem; SGI; AS/SVE; DPE	Yes	2.000 ppb	800 ppb	NR	WQOs met in decades - hundreds of yrs; Basin Plan WQOs met in Reas Tm
54	WQ 2011-0011	15477	Anderson Excavating	Cloverdale	UST Rem; Srce Rem; SGI	Yes	<50 ppb	<1 ppb	ND	Remaining Residual cont is sequestered in clay rich soil & bedrock
55	WQ 2011-0015	37785	Former Chevron Station #9-0667	Garberville	UST Rem; Corr Action Plan submitted	Yes	2,800 ppb	6 ppb	<0.5 ppb	Resid Cont's expected to reach WQOs in decades to 100s of years
56	WQ 2011-0015	7661	Beacon Station #3556	Morro Bay	UST Rem/Repl; OverExc; SVE; In-Situ Biorem	Yes	MW-1 At Sol lvls (Raoultt's Law)			Plume is stable, confined to site; shallow GW not a threat to HH, S or Env

Notes:

* State Water Board Case Closure Summary (CCS) Format Used?

[1] These six Sites were included in SWRCB Resolution No. 2010-006; no detail was provided

[2] MTBE Analyzed by EPA Method 8260

[3] NA : Not Analyzed

UST Underground Storage Tank

Srce Rem.Source Removal

SGI Soil and Groundwater Investigation

SVE Soil Vapor Extraction

DPE Dual Phase Soil and Groundwater Extraction

SRS Sensitive Receptor Survey

HHRAHuman Health Risk Assessment