



Stantec Consulting Services Inc.
3017 Kilgore Road Suite 100, Rancho Cordova CA 95670
(916) 861-0400

RECEIVED

By Alameda County Environmental Health at 9:04 am, Jul 21, 2014

July 18, 2014

Mr. Jerry Wickham
Alameda County Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

RE: **Enclosed Site Closure Request**
7-Eleven Store #32266
1339 North Vasco Road
Livermore, CA 94551
Stantec Project #:185750084.300.0506

Dear Mr. Wickham:

Stantec Consulting Services Inc. has been designated as Limited Agent of 7-Eleven, Inc. (7-Eleven) for the purposes of executing and delivering instruments and documents on behalf of 7-Eleven (see attached Limited Authorization form).

We declare, under penalty of perjury, that the information and/or recommendations contained in the attached *Site Closure Request* are true and correct to best of our knowledge.

Should you have any questions regarding this site, please contact the undersigned at (916) 384-0706.

Sincerely,
Stantec Consulting Services Inc.

Danielle Manning
Associate Scientist
Project Manager

Amanda Magee, P.G.
Associate Geologist

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LIMITED AUTHORIZATION

KNOW ALL MEN BY THESE PRESENTS:

That 7-ELEVEN, INC. ("7-Eleven"), a Texas corporation, acting by and through Doug Rosencrans, Vice President, does hereby nominate, constitute and appoint STANTEC CONSULTING SERVICES INC. a Delaware corporation formerly known as Stantec Consulting Corporation, as Limited Agent ("Agent") of 7-Eleven, for purposes of executing and delivering instruments and documents as more particularly described below, and does hereby grant, delegate and invest said Agent with power and authority to execute and deliver for, in the name of, and on behalf of 7-Eleven, and in connection with that certain Amended and Restated Agreement by and between 7-Eleven and Agent dated as of January 1, 2010 (as amended, the "Agreement"), the instruments and documents listed in Attachment I hereto.

Agent may exercise the power and authority herein granted, delegated and invested, in any particular and appropriate transaction or matter, as an agent of 7-Eleven. Any instruments and documents executed and delivered by Agent under this Limited Authorization shall be acts of 7-Eleven and may be relied upon by third parties dealing with 7-Eleven, such acts being hereby ratified and confirmed by virtue hereof. Agent shall deliver all instruments and documents executed and delivered by Agent under this Limited Authorization to 7-Eleven promptly following such execution and delivery.

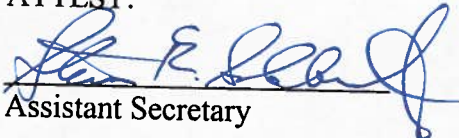
Any and all acts of Agent hereunder shall comply with all applicable federal, state and local laws, regulations, rules and ordinances and with all applicable orders of any courts of competent jurisdiction.

This Limited Authorization shall expire upon the expiration or earlier termination of the Agreement, except as otherwise provided therein, or may be terminated at any time for any reason by 7-Eleven.

APPROVED AND EXECUTED this 10th day of January, 2012, to be effective as of the date hereof.

7-ELEVEN, INC.

ATTEST:


Assistant Secretary

By: 
Name: Doug Rosencrans
Title: Vice President

STATE OF TEXAS §
 §
COUNTY OF DALLAS §

BEFORE ME, the undersigned, a Notary Public in and for the County and State aforesaid, on this day personally appeared Doug Rosencrans and Steven R. Seldowitz, Vice President and Assistant Secretary, respectively, of 7-Eleven, Inc., known to me to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that the same was the act of the said corporation, a Texas corporation, and that they executed the same as the act of such corporation for the purposes and consideration therein expressed and in the capacities therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 10th day of January, 2012.

Karen Pennell
NOTARY PUBLIC

My Commission Expires:
5-1-2013



ATTACHMENT I

Such permits, reports, applications and other documentation issued by any federal, state or local governmental authority and such other standard form documentation provided by 7-Eleven or third parties to be completed in connection with Agent's performance of environmental consulting services pursuant to the Agreement, including, without limitation, the following:

- a. Waste Manifests;
- b. Waste Characterization Forms;
- c. Bills of Lading;
- d. Waste Disposal Agreements;
- e. Registration and Notification Forms for underground storage tanks;
- f. Incident Reports;
- g. Discharge Notification Forms;
- h. Tank Closure Reports;
- i. Permit Applications, Notices and other documents relating to the investigation, monitoring or remediation work performed under the Agreement;
- j. Reports to state environmental agencies regarding investigation, monitoring or remediation work performed under the Agreement; and
- k. Applications to any state underground storage tank insurance or reimbursement fund;

Provided, however, that in each case, the foregoing authorization shall not extend to any permits, reports, applications or other documentation that contain: (i) any language, the effect of which is to require 7-Eleven to indemnify, defend and/or hold harmless any third party for any act or omission of any kind; or (ii) any statement of any kind, including, without limitation, any representation or warranty, which Agent does not personally know to be true and correct, including, without limitation, any representation concerning the legal existence or financial condition of 7-Eleven.



Stantec Consulting Services Inc.

3017 Kilgore Road, Suite 100, Rancho Cordova CA 95670-6150
(916) 861-0400

July 18, 2014
File: 185750084

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

**Reference: Site Closure Request
7-Eleven Store #32266
1339 North Vasco Road
Livermore, California**

Dear Mr. Wickham,

This report was prepared by Stantec Consulting Services Inc. (Stantec) on behalf of 7-Eleven, Inc. (7-Eleven), to request site closure pursuant to the Low-Threat Underground Storage Tank Case Closure Policy (LTCP) for 7-Eleven store #32266, located at 1339 North Vasco Road, in Livermore, California (Figures 1 and 2).

Background

In January 2005, two single-wall steel, fiberglass-jacketed underground storage tanks (USTs) (one 10,000-gallon and one 15,000-gallon) were replaced with new double-wall fiberglass USTs. A total of 27 soil samples were collected during the UST replacement activities. Total petroleum hydrocarbons as gasoline (TPHg) were not detected above laboratory reporting limits in any of the soil samples collected during the UST replacement activities. The maximum concentrations of tert-butyl alcohol (TBA) and methyl tertiary butyl ether (MtBE) detected were 2.6 milligrams per kilogram (mg/kg) and 2.4 mg/kg, respectively, in UST excavation sample T1-2-12. Total lead was detected in each of the samples at concentrations ranging from 4.98 mg/kg to 28.4 mg/kg.

Three water samples were also collected during the 2005 UST replacement. MtBE, benzene, and TPHg were detected at concentrations of 180 micrograms per liter ($\mu\text{g/L}$), 25 $\mu\text{g/L}$, and 3,400 $\mu\text{g/L}$, respectively, in UST excavation water sample W1. MtBE was detected in Baker tank samples BT-1 and BT-2 at concentrations of 340 $\mu\text{g/L}$ and 400 $\mu\text{g/L}$, respectively. Based on the results of the water samples collected, a UST Unauthorized Release report was completed and submitted to the Livermore-Pleasanton Fire Department and the California Regional Water Quality Control Board (CRWQCB).

On December 4, 2008, a Stantec technician collected soil samples in native soil from beneath four of the six dispensers (D1-5.0, D2-5.0, D3-5.0, and D4-5.0) during fuel system upgrade activities at the



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site. TPHg, benzene, toluene, ethyl benzene and total xylenes (BTEX) were not detected above laboratory reporting limits in the dispenser soil samples collected, with the exception of dispenser sample D2-5.0. MtBE and TBA were detected exclusively in soil sample D1-5.0 at concentrations of 0.024 mg/kg and 0.0076 mg/kg, respectively.

In a letter dated November 20, 2009, Alameda County Environmental Health Services (ACEHS) requested the submittal of a work plan to investigate potential soil and groundwater contamination at the site based on ACEHS review of the historical site data. Stantec submitted the *Work Plan for Additional Soil and Groundwater Assessment* to the ACEHS on February 1, 2010. The work plan was subsequently approved by ACEHS in a letter dated March 22, 2010.

On April 20, 2010, Stantec supervised WDC Exploration and Wells (WDC) of Richmond, California, during the advancement of three direct-push soil borings (GP-1 through GP-3) for soil and groundwater sample collection. MtBE was reported in soil boring GP-3 at 10 and 15 feet below ground surface (bgs) at concentrations of 0.023 mg/kg and 1.1 mg/kg, respectively. TBA was exclusively detected in soil boring GP-3 at 15 feet bgs at a concentration of 0.0076 mg/kg. No other petroleum hydrocarbons or additives were detected at concentrations above laboratory reporting limits in soil samples submitted for analysis. Grab groundwater samples GP-2W and GP-3W contained MtBE concentrations of 2.9 µg/L and 380 µg/L, respectively. TPHg and BTEX were not detected at concentrations above laboratory reporting limits in grab groundwater samples GP-1W through GP-3W. On May 17, 2010, Stantec submitted the results of the assessment activities to ACEHS in a report titled *Additional Soil and Groundwater Assessment*.

In a letter dated July 14, 2010, ACEHS requested the submittal of a work plan to further assess the extent of soil and groundwater contamination, the hydraulic gradient, and to identify potential receptors within a 2,000-foot radius of the subject site. On September 29, 2010, Stantec submitted the *Work Plan for Additional Site Assessment and Results of Detailed Well Survey* to the ACEHS. The work plan was subsequently approved by ACEHS in a letter dated October 25, 2010.

Between February 23 and 24, 2011, Stantec supervised WDC during the installation of three groundwater monitoring wells (MW-1, MW-2, and MW-3). On March 25, 2011, Stantec submitted the *Additional Site Assessment Report* to ACEHS. Soil samples collected from borings MW-1 and MW-2 did not contain petroleum hydrocarbon concentrations above laboratory reporting limits. MtBE and TBA were reported at concentrations ranging from 0.0082 mg/kg to 0.33 mg/kg in soil samples collected from boring MW-3.

In a letter dated August 29, 2011, ACEHS requested the submittal of a work plan for downgradient plume delineation. On October 25, 2011, Stantec submitted the *Work Plan for Additional Assessment*. In a letter dated November 21, 2012, ACEHS requested a revised work plan to address their technical comments. The *Revised Work Plan for Additional Assessment* was submitted on March 5, 2012 and approved by ACEHS on March 26, 2012.



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Between July 10 and 12, 2012, Stantec supervised the advancement of four direct push soil borings (GP-4 through GP-7). On July 20, 2012, Stantec submitted the *Additional Site Assessment Report* to ACEHS. BTEX and TPHg were not detected above laboratory reporting limits in any of the submitted soil samples; MtBE was detected solely in soil samples collected from soil boring GP-5 with a maximum concentration of 0.056 mg/kg. TPHg and MtBE were detected in grab groundwater samples collected from soil boring GP-4 and GP-5 at maximum concentrations of 95 µg/L and 350 µg/L, respectively.

In an email dated July 24, 2012, ACEHS approved the locations of proposed monitoring wells MW-4 and MW-5 as proposed in Stantec's July 20, 2012 *Additional Site Assessment Report*. Between September 4 and 7, 2012, Stantec supervised the installation of one offsite groundwater monitoring well (MW-4). Proposed groundwater monitoring well MW-5 was not installed at that time due to the presence of marked and unmarked utilities in the permitted area of the City of Livermore right-of-way. On October 5, 2012, Stantec submitted the *Additional Site Assessment Report*.

In a letter dated November 6, 2012, ACEHS requested the submittal of a work plan for the installation of monitoring well MW-5 after the first quarter 2013 groundwater monitoring and sampling event. On April 4, 2013, Stantec submitted the *Work Plan for Monitoring Well Installation*, which was conditionally approved by ACEHS on April 22, 2013.

On June 17 and 18, 2013, Stantec supervised as National Exploration Wells and Pumps of Richmond, California, installed groundwater monitoring well MW-5; on July 18, 2013, Stantec submitted the *Additional Site Assessment Report* to ACEHS. Soil samples collected during the advancement of MW-5 did not contain petroleum hydrocarbon concentrations above laboratory reporting limits. In a letter dated August 19, 2013, ACEHS requested that MW-5 be included in the quarterly groundwater monitoring schedule, and requested analysis of ethylene dibromide (EDB) and 1,2-dichloroethane (1,2 DCA) during the following sampling event. These analyses were conducted during the third quarter 2013 sampling event. EDB and 1,2 DCA were not detected at concentrations above laboratory reporting limits; as such, groundwater analyses for EDB and 1,2 DCA were discontinued, per the ACEHS August 19, 2013 letter.

Groundwater monitoring wells MW-1 through MW-5 continue to be sampled on a quarterly basis. Summaries of soil and groundwater analytical results are included in Tables 1 and 2, respectively. A summary of soil borings and well construction details is presented in Table 3.

Site Closure Request

The State Water Resources Control Board (SWRCB) adopted the Low-Threat Underground Storage Tank Case Closure Policy (LTCP) on May 1, 2012. The SWRCB provided notification that the LTCP had become effective on August 17, 2012 as outlined in their August 24, 2012 announcement. The announcement also provided a checklist to be used by regulatory agencies and responsible



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parties to evaluate the applicability of the LTCP to UST sites; this checklist is included in Attachment A.

The LTCP is applicable to all petroleum UST sites subject to Chapter 6.7 of Division 20 of the Health and Safety Code as well as Chapter 16 of Division 3 of Title 23 of the California Code of Regulations. The LTCP states that UST cases are appropriate for closure pursuant to Health and Safety Code section 25296.10 if they meet the general and media-specific criteria outlined in the LTCP, and provided that site-specific conditions are not demonstrated to increase the risk associated with the residual petroleum constituents.

With the absence of attributes of site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents, the site meets the requirements for case closure outlined in the LTCP as described below:

General Criteria

- a. *The unauthorized release is located within the service area of a public water system.*
The site is located within the service area of Livermore Municipal Water.
- b. *The unauthorized release consists only of petroleum.*
The release at the site was gasoline from the former USTs and associated equipment.
- c. *The unauthorized release has been stopped.*
The USTs were replaced in 2005, and the dispensers and associated equipment were upgraded in 2008.
- d. *Free product has been removed to the maximum extent practicable.*
Investigations at the site have not indicated the presence of free product.
- e. *A conceptual site model that assesses the nature, extent, and mobility of the release has been developed.*
The nature, extent, and mobility of the release have been defined. While a Conceptual Site Model summary report has not been produced, data and analysis supporting the conclusion of a Conceptual Site Model can be found in reports submitted to ACEHS.
- f. *Secondary source has been removed to the extent practicable.*
The source of the release was removed during UST upgrades in 2005. Based on absence of free product and the limited soil impacts observed during the UST replacement, no additional excavation was performed at that time. Since the USTs were immediately replaced, it was not cost-effective to perform additional soil excavation after the analytical results were received. In addition, based on the low concentrations of petroleum hydrocarbons and MtBE in the groundwater, and the limited nature of the



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dissolved plume, an active remediation system does not appear to be a cost-effective corrective action.

- g. *Soil and groundwater have been tested for MtBE and results reported in accordance with Health and Safety Code section 252926.15.*
All soil and groundwater samples have been analyzed for MtBE and reported to the CRWQCB since the UST replacement in 2005. Summaries of soil and groundwater analytical results are presented in Tables 1 and 2, respectively.
- h. *Nuisance as defined by Water Code section 13050 does not exist at the site. Water Code section 13050 defines "nuisance" as anything which meets all of the following requirements:*
- a. *Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.*
Petroleum-impacted soil likely remains onsite, however based on the location of these impacts (beneath the current USTs), the impacted soil will not be encountered by occupants of the property.
 - b. *Affects at the same time an entire community or neighborhoods, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.*
The impact is limited to the 7-Eleven property and the downgradient right-of-way.
 - c. *Occurs during, or as a result of, the treatment or disposal of wastes.*
No treatment or disposal of wastes is currently being conducted at the site.

Media-Specific Criteria - Groundwater

The media-specific criteria for groundwater of the LTCP requires that "the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent" and it must "meet all of the additional characteristics" of one of the five established classes of sites.

Review of historical groundwater data collected from groundwater monitoring wells indicates that the hydrocarbon impacts to groundwater are well defined. The TPHg plume geometry from the second quarter 2014 is depicted with an isoconcentration map on Figure 3. A summary of groundwater flow directions and gradients is presented in Table 4 and Figure 4. Downgradient well MW-5 has not contained detectable concentrations of petroleum hydrocarbons or MtBE since it was installed. While MtBE continues to be detected in monitoring wells MW-3 and MW-4, decay rate calculations (included in Attachment B) indicate that MtBE concentrations will reach water quality objectives (5.0 µg/L) in a maximum of 10 years.



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The contaminant plume at the site meets the characteristics of the second class of sites listed in the LTCP. Specifically:

- *The contaminant plume that exceeds water quality objectives is less than 250 feet in length.* Based on the most recent groundwater data, the dissolved MtBE plume is approximately 160 feet in length (Figure 3).
- *There is no free product.* Free product has never been observed at the site.
- *The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.* No surface water bodies are within 1,000 feet of the site. Stantec's September 29, 2010 *Work Plan and Results of Well Survey* and July 20, 2012 *Additional Site Assessment* detailed searches of water supply wells within 2,000 feet of the site. Results from these well searches revealed four wells within 1,000 feet of the site.
 - 5874 Scenic Avenue: According to the well log, this well was installed on April 17, 1962 for Charles Ellington. No use description was noted on the well log. It is presumed, based on the previous use of the area, that the well was a private water supply well for irrigation or drinking water. Currently, the address of 5874 Scenic Avenue is not linked to any building, however it is estimated that the address lies on the south side of Scenic Avenue, approximately 300 feet west of the 7-Eleven site. Historic aerial photographs show a structure (possibly a residence) where that address may have been. The surrounding areas were undeveloped and agricultural. That area is now occupied by a single-family housing tract, which was constructed in the 1990s. North of Scenic Avenue is a shopping center constructed in the early 2000s. No evidence of this well was observed during the reconnaissance. Based on this information, it is likely that the well was destroyed during the development of the housing tract; however if the well is still present, it is no longer used as a water supply well.
 - Vasco Road and Scenic Avenue: According to the well log, this was a cathodic protection well installed on March 12, 1975 for Pacific Gas and Electric (PG&E). Cathodic protection wells are not used as water supply wells. The well was installed in Scenic Avenue, 220 feet west of the intersection of Vasco Road. No evidence of the cathodic protection well was present during the site reconnaissance; however it is likely that the road has been re-paved since it was installed.
 - 1443 Vasco Road: This well is was identified as Zone 7 Water Agency well #2S/2E-35G2, with a total depth of 88 feet. The location of this site is directly north of the 7-Eleven site. Currently, that address is occupied by Vasco Quick Lube, and no indication of a drinking water well was observed in the area. The Zone 7 Water Agency has no additional information regarding this well. It is likely that the well was



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destroyed during the development of the commercial buildings; however, if the well is still present, it is no longer used as a water supply well.

- o 1289 Vasco Road: This well was identified as Zone 7 Water Agency well #2S/2E-35G1, and was reported as “not in use.” The location of this address is approximately 150 feet south of the site. The Zone 7 Water Agency has no additional information regarding this well, and no indication of a drinking water well has been observed in the area.
- *The dissolved concentration of benzene is less than 3,000 µg/L, and the dissolved concentration of MTBE is less than 1,000 µg/L.* Benzene has not been detected above laboratory reporting limits in any of the groundwater samples collected at this site. The MtBE concentration in the sample collected from the historically highest impacted well MW-3 during the most recent groundwater sampling event (second quarter 2013) was 1,000 µg/L. MtBE concentrations in samples collected from MW-3 have not exceeded 1,000 µg/L for the past four consecutive sampling events. In addition, the decay calculations included in Attachment B indicate that the concentrations will likely continue to decline given the overall trends.

Media-Specific Criteria – Petroleum Vapor Intrusion to Indoor Air

The site is an active retail gasoline station and is exempt from this media-specific criteria:

Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.

Media-Specific Criteria – Direct Contact and Outdoor Air Exposure

Petroleum constituents in soil are less than those listed in Table 1 of the LTCP for residential properties. Specifically:

- The maximum benzene and ethylbenzene concentrations reported in soil samples collected from the site were 0.21 mg/kg and 0.26 mg/kg, respectively, in sample D2-5.0, collected from five feet below the dispenser island during upgrade activities in December 2008. These concentrations are below the maximum concentrations of 1.9 mg/kg and 21 mg/kg for benzene and ethylbenzene, respectively, as identified in the LTCP.



Reference: Site Closure Request

7-Eleven Store #32266
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- None of the soil samples were analyzed for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the relative concentrations of naphthalene and benzene in gasoline. Gasoline mixtures contain approximately 3% benzene and 0.25% naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of ten. Based on this estimation, it is highly unlikely that naphthalene concentrations in the soil, if any, exceed the maximum concentration of 9.7 mg/kg identified in the LTCP.
- Since the release at the site was limited to gasoline, PAHs have not been analyzed in samples collected from the site.

Summary and Conclusions

Based on historic soil and groundwater data collected at the site since the system upgrades in December 2008, the site is eligible for case closure as detailed in the LTCP.

The dissolved MtBE plume is stable and defined, and meets the characteristics set in the LTCP. In addition, decay rate calculations indicate that concentrations will be below water quality objectives in approximately 10 years.

Exposure to petroleum vapors in indoor air is comparatively insignificant relative to exposures from normal retail gasoline station operations.

Direct contact with impacted soil and inhalation of petroleum hydrocarbon vapors pose no significant risk of adversely affecting human health, based on the thresholds listed in the LTCP.



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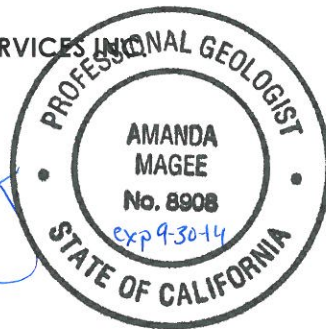
Reference: Site Closure Request
7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Should you have any questions regarding this site, please contact Danielle Manning, Project Manager, at (916) 384-0706.

Regards,

STANTEC CONSULTING SERVICES


Amanda Magee, P.G.
Associate Geologist

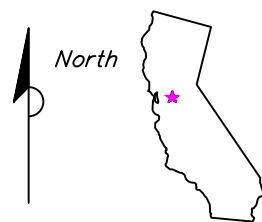
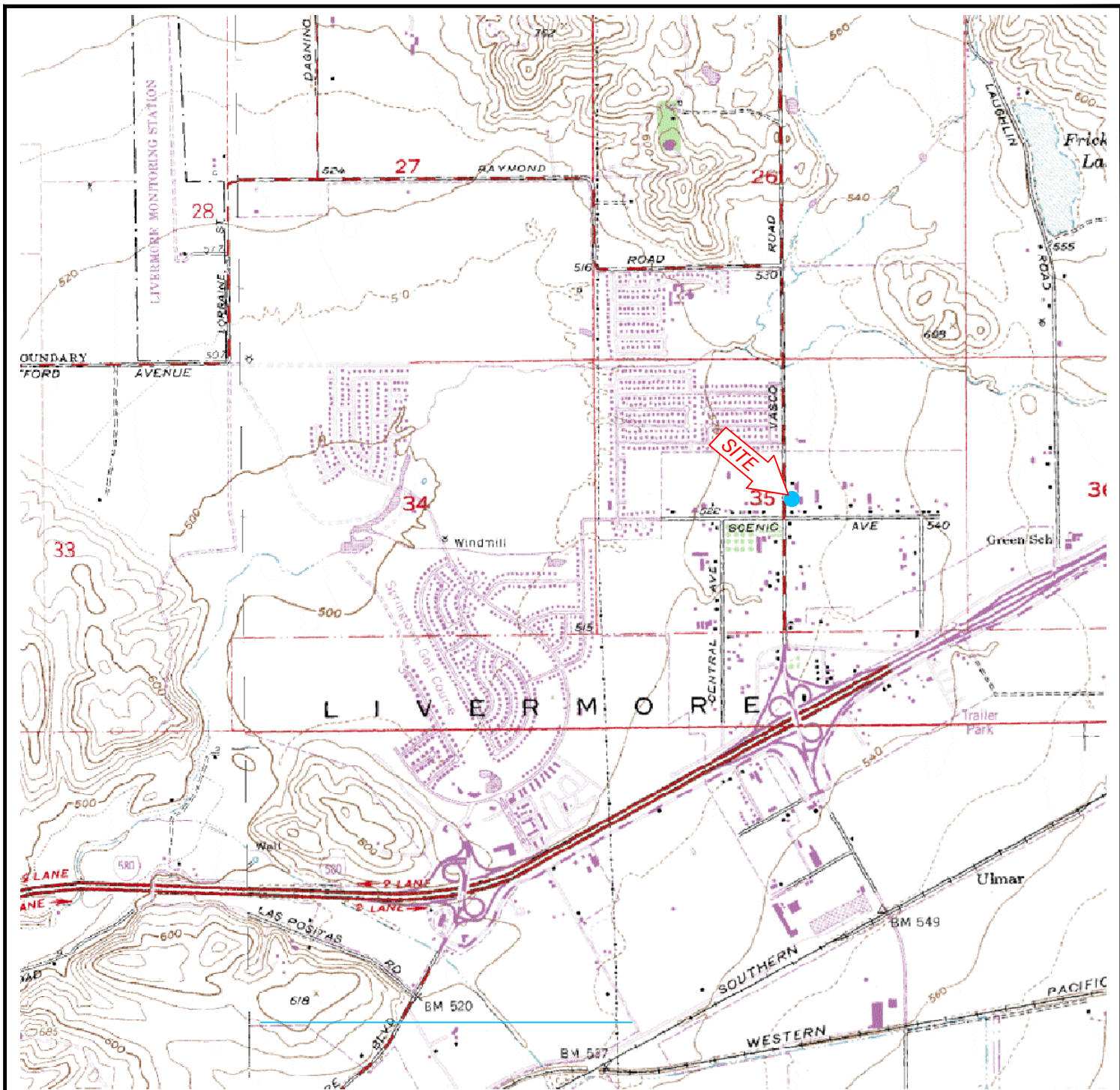



Danielle Manning
Associate Scientist
Project Manager

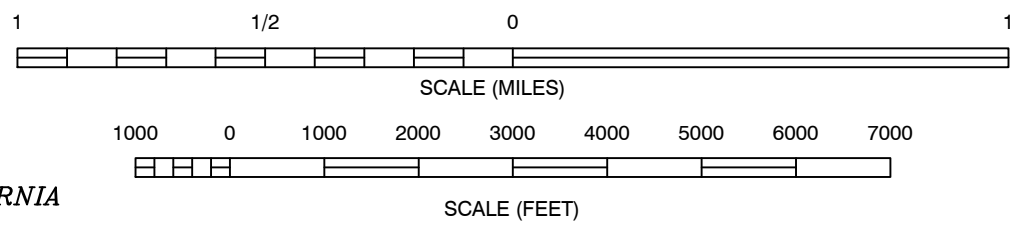
Attachments: Figures
Tables
Attachment A – Low Treat Closure Policy Checklist
Attachment B – Decay Rate Calculations

c. CRWQCB - San Francisco Bay Region (via GeoTracker)
Mr. Jose Rios, 7-Eleven, Inc. c/o Mr. John Wainwright, Stantec



Figures

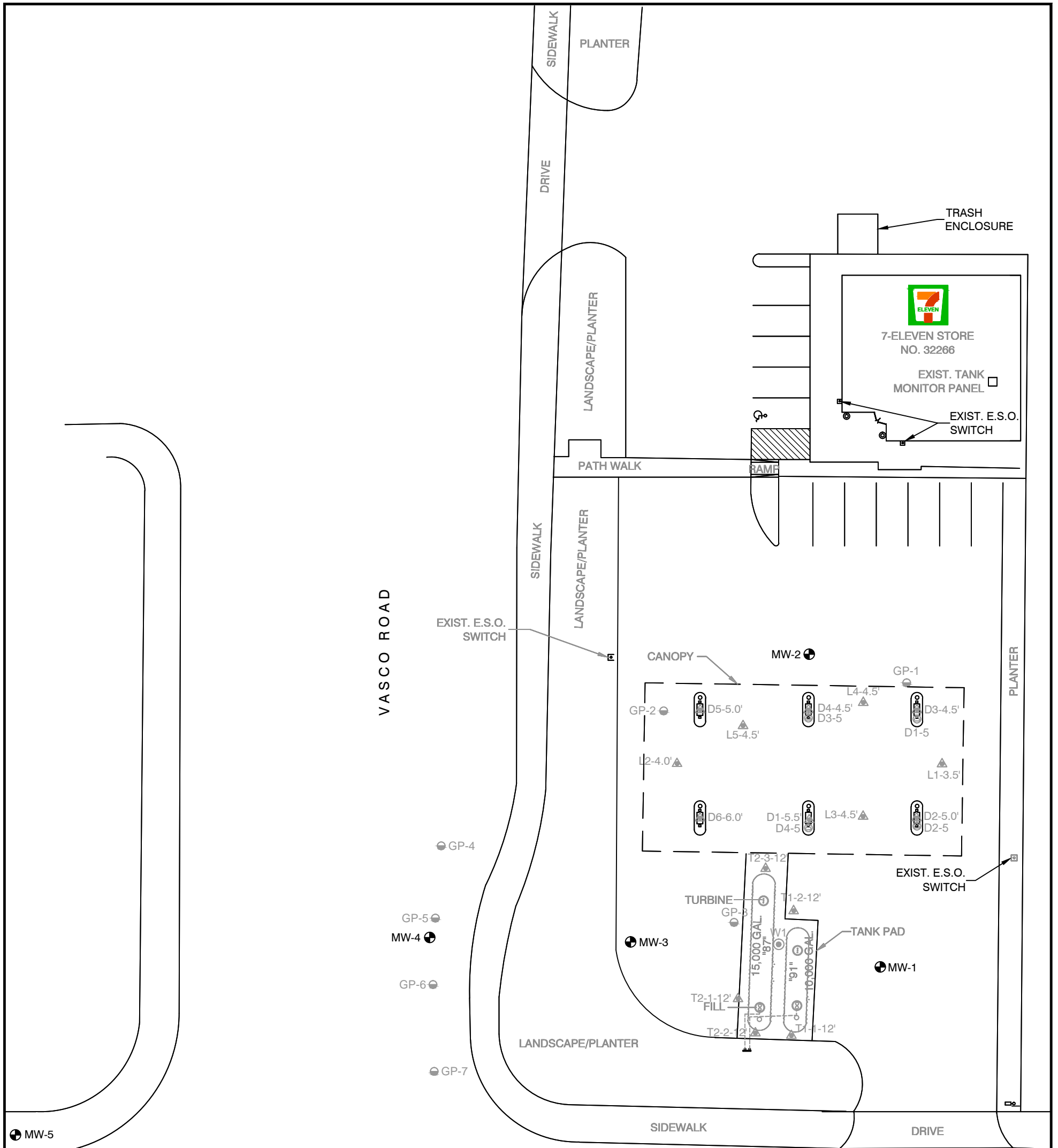


CALIFORNIA



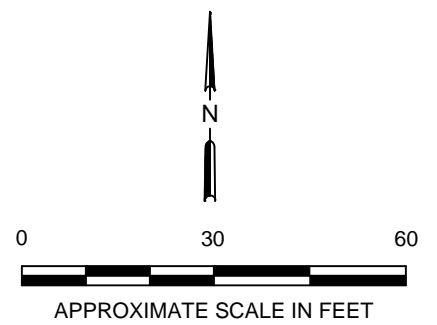
REFERENCE: USGS 7.5 MINUTE QUADRANGLE, LIVERMORE, CALIFORNIA

	FOR:  STORE NO. 32266 1339 NORTH VASCO ROAD LIVERMORE, CALIFORNIA	SITE LOCATION MAP		1
	JOB NUMBER: 185750084			



LEGEND:

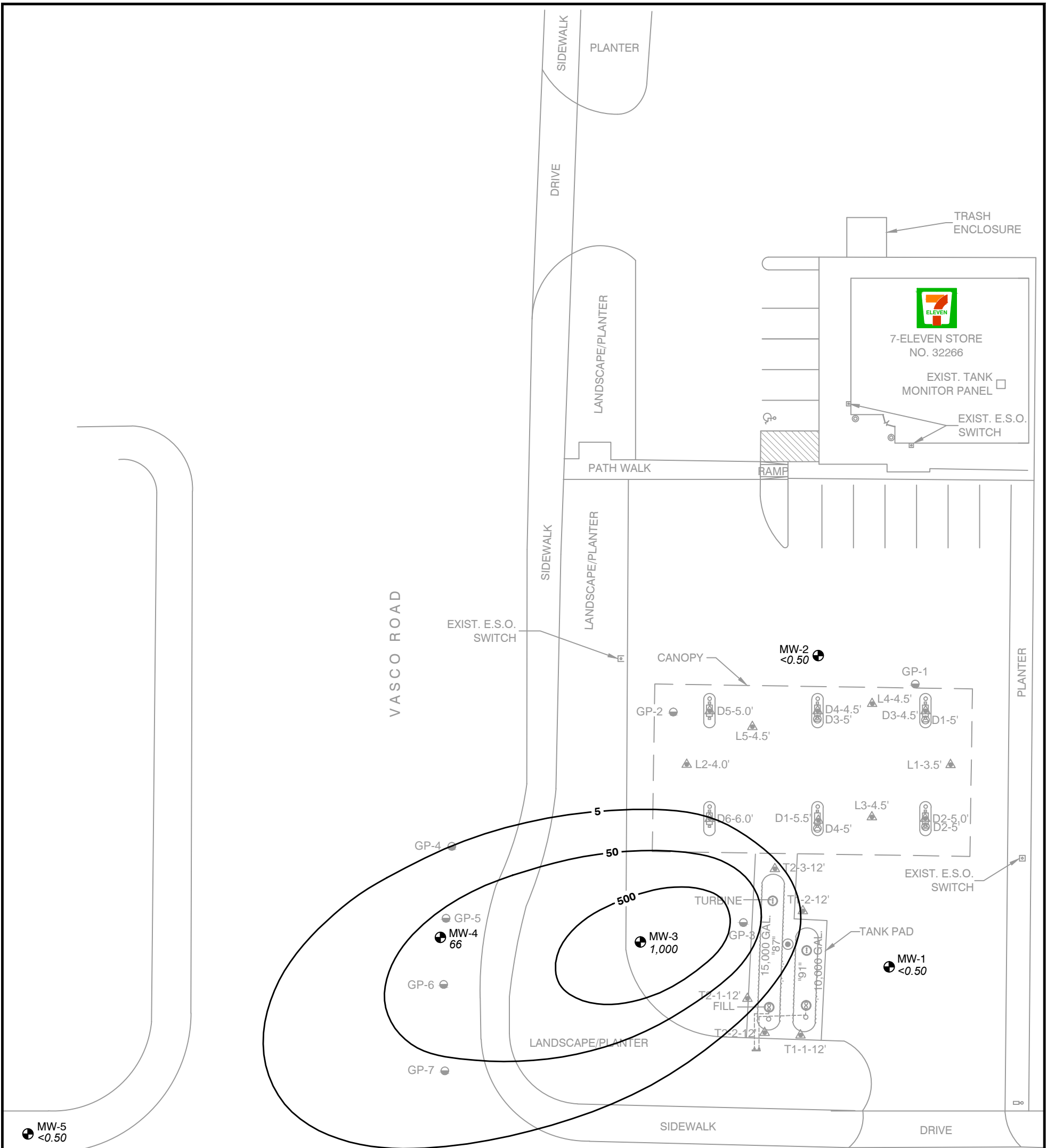
- MW-1 ● GROUNDWATER MONITORING WELL
- W1 ● UST EXCAVATION WATER SAMPLE LOCATION
- GP-1 ● GEOPROBE SAMPLE LOCATION
- L5-4.5' ▲ 2005 SOIL SAMPLE LOCATION
- D1-5 ● 2008 SOIL SAMPLE LOCATION



REFERENCE: THIS FIGURE IS BASED ON AN AERIAL SURVEY PROVIDED BY STANTEC CONSULTING SURVEYING GROUP

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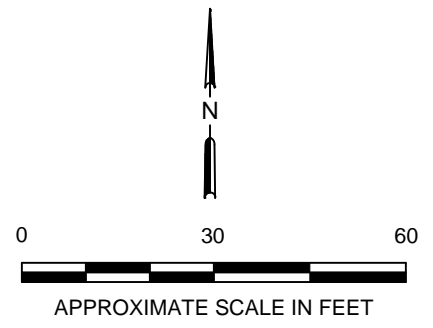
	FOR: STORE NO. 32266 1339 NORTH VASCO ROAD LIVERMORE, CALIFORNIA	SITE PLAN		FIGURE: 2
	JOB NUMBER: 185750084	DRAWN BY: STA	CHECKED BY: ASM	APPROVED BY: ASM



LEGEND:

- MW-1 ● GROUNDWATER MONITORING WELL
- W1 ● UST EXCAVATION WATER SAMPLE LOCATION
- GP-1 ● GEOPROBE SAMPLE LOCATION
- L5-4.5' ▲ 2008 SOIL SAMPLE LOCATION
- D1-5 ● 2005 SOIL SAMPLE LOCATION
- 500 — MtBE CONCENTRATION CONTOUR
- 1,000 — MtBE CONCENTRATION
- MtBE METHYL TERTIARY BUTYL ETHER (µg/L)
- µg/L MICROGRAMS PER LITER

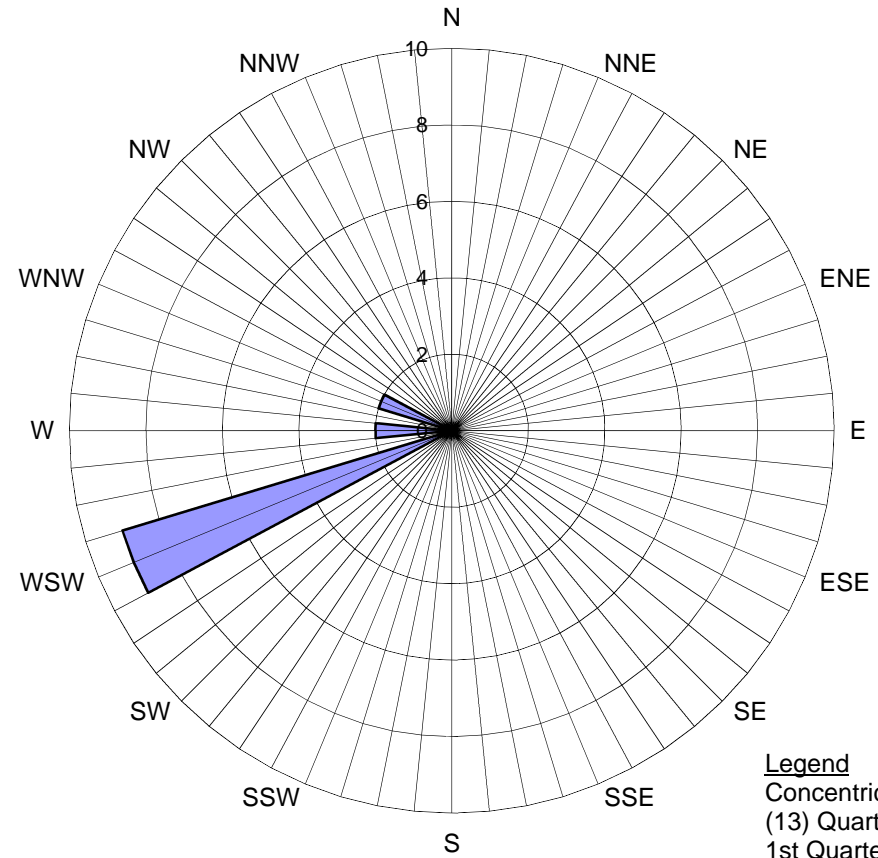
SCENIC AVE.



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	FOR: STORE NO. 32266 1339 NORTH VASCO ROAD LIVERMORE, CALIFORNIA	MtBE ISOCONCENTRATION MAP APRIL 16, 2014		FIGURE: 3
	JOB NUMBER: 185750084	DRAWN BY: STA	CHECKED BY: ASM	APPROVED BY: ASM

Figure 4
Groundwater Flow Direction Rose Diagram
7-Eleven #32266
1339 North Vasco Road, Livermore, California



Legend
 Concentric Circles represent
 (13) Quarterly Monitoring Events
 1st Quarter 2011 through 2nd Quarter 2014

■ Groundwater Flow Direction

Tables

Table 1
Historical Soil Sample Analytical Results

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sample I.D.	Date Sampled	Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Xylenes (mg/kg)	TPHg (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	EtBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	EDB (mg/kg)	EDC (mg/kg)	EtOH (mg/kg)	Total Lead (mg/kg)	Notes
Dispenser Samples																	
D1-5.5	01/28/05	5.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	6.71	
D2-5.0	01/28/05	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.039	<0.0050	<0.0050	<0.0050	0.016	<0.0050	<0.0050	0.010	6.57	
D3-4.5	01/28/05	4.5	0.026	0.086	0.010	0.055	<1.0	0.14	<0.0050	<0.0050	<0.0050	0.0064	<0.0050	<0.0050	0.27	28.4	J
D4-4.5	01/28/05	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.012	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	6.01	
D5-5.0	01/28/05	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	5.53	
D6-6.0	01/28/05	6.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.018	<0.0050	<0.0050	<0.0050	0.049	<0.0050	<0.0050	<0.010	4.98	
D1-5.0	12/04/08	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.024	<0.0050	<0.0050	<0.0050	0.0076	--	--	--	--	a, c
D2-5.0	12/04/08	5.0	0.21	0.59	0.26	1.4	12	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	b, c
D3-5.0	12/04/08	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	a, c
D4-5.0	12/04/08	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	b, c
Line Samples																	
L1-3.5	01/28/05	3.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	5.51	
L2-4.0	01/28/05	4.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	11.2	
L3-4.5	01/28/05	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	7.14	
L4-4.5	02/09/05	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	6.61	
L5-4.5	02/09/05	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	6.49	
UST Excavation Samples																	
T1-1-12	01/28/05	12	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.034	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	5.82	
T1-2-12	01/28/05	12	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	2.4	<0.0050	<0.0050	0.0068	2.6	<0.0050	<0.0050	<0.025	6.49	
T2-1-12	01/28/05	12	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.016	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	6.65	
T2-2-12	01/28/05	12	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	7.50	
T2-3-12	01/28/05	12	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.18	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	5.66	
Soil Boring Soil Samples																	
GP-1-5	04/20/10	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-1-10	04/20/10	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-1-15	04/20/10	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-2-10	04/20/10	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-2-15	04/20/10	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-3-5	04/20/10	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-3-10	04/20/10	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.023	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	
GP-3-15	04/20/10	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	1.1	<0.0050	<0.0050	<0.0050	0.0076	--	--	--	--	J

Table 1
Historical Soil Sample Analytical Results

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sample I.D.	Date Sampled	Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Xylenes (mg/kg)	TPHg (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	EtBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	EDB (mg/kg)	EDC (mg/kg)	EtOH (mg/kg)	Total Lead (mg/kg)	Notes
GP-4-5	07/10/12	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-4-10	07/10/12	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-4-15	07/10/12	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-4-20	07/10/12	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-4-25	07/10/12	25	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-5-5	07/10/12	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-5-10	07/10/12	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-5-15	07/10/12	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.024	--	--	--	--	--	--	--	--	
GP-5-20	07/10/12	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.056	--	--	--	--	--	--	--	--	
GP-5-25	07/10/12	25	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.024	--	--	--	--	--	--	--	--	
GP-6-5	07/11/12	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-6-10	07/11/12	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-6-15	07/11/12	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-6-20	07/11/12	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-6-25	07/11/12	25	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-7-5	07/12/12	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-7-10	07/12/12	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-7-15	07/12/12	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
GP-7-20	07/12/12	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
Monitoring Wells																	
MW-1-10	02/23/11	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--
MW-1-20	02/23/11	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--
MW-2-10	02/24/11	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--
MW-2-20	02/24/11	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--
MW-3-10	02/23/11	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.33	<0.0050	<0.0050	<0.0050	0.0082	--	--	--	--	J
MW-3-20	02/23/11	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.22	<0.0050	<0.0050	<0.0050	0.053	--	--	--	--	J
MW-3-25	02/23/11	25	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.084	<0.0050	<0.0050	<0.0050	0.010	--	--	--	--	J
MW-4@10'	09/07/12	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
MW-4@15'	09/07/12	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.010	--	--	--	--	--	--	--	--	
MW-4@19.5	09/07/12	19.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	0.016	--	--	--	--	--	--	--	--	
MW-5-5	09/12/12	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	g
MW5-5	06/18/13	5.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
MW5-8	06/18/13	8.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
MW5-14	06/18/13	14.0	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	
MW5-18.5	06/18/13	18.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	--	

Table 1
Historical Soil Sample Analytical Results

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sample I.D.	Date Sampled	Sample Depth (ft bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Xylenes (mg/kg)	TPHg (mg/kg)	MtBE (mg/kg)	DIPE (mg/kg)	EtBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	EDB (mg/kg)	EDC (mg/kg)	EtOH (mg/kg)	Total Lead (mg/kg)	Notes
Stockpile Soil Samples																	
SP1 (ABCD)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.75	
SP1 (EFGH)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	2.66	
SP1 (IJKL)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.30	
SP1 (MNOP)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	4.40	
SP2 (ABCD)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.80	
SP2 (EFGH)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.01	
SP2 (IJKL)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.24	
SP2 (MNOP)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	5.15	
SP2 (QRST)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	2.75	
SP2 (UVWX)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.17	
SP3 (ABCD)	01/28/05	--	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	3.14	
SP1(ABCD)	12/04/08	---	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	4.4	b,c
SP1(ABCD)	04/20/10	---	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	6.8	e
SP1(ABCD)	02/24/11	---	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	7.6	
SP1(ABCD)	09/07/12	---	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	6.1	f
SP1 (A,B,C,D)	06/18/13	---	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	--	--	--	--	--	--	--	6.5	

Explanation:

TPHg, BTEX, MtBE, DIPE, EtBE, TAME, TBA, EDB, EDC, EtOH by 8260
ft bgs = Feet Below Ground Surface
mg/kg = milligrams per kilogram or parts-per-million
< = Not detected above laboratory reporting limit
UST = Underground Storage Tank

TPHg = Total petroleum hydrocarbons as gasoline
MtBE = Methyl tertiary butyl ether
DIPE = Diisopropyl ether
EtBE = Ethyl tert-butyl ether
TAME = Tertiary-amyl methyl ether
-- = not analyzed

TBA = Tert-butyl alcohol
EDB = 1,2 Dibromoethane
EDC = 1,2 Dichloroethane
EtOH = Ethanol
Total Lead analysis by 6010B

Notes:

- a = Matrix Spike/Matrix Spike Duplicate results for the analytes tert-butanol and toluene were outside of control limits. This may indicate a bias for the sample that was spiked.
Since the LCS recoveries were within control limits, no data are flagged.
- b = Matrix Spike/Matrix Spike Duplicate results for the analyte MtBE were affected by the analyte concentrations already present in the un-spiked sample.
- c = composite soil profile samples
- d = Note that dispenser sample names/designations differ in location from dispenser samples collected in 2005.
- J = TBA results may be biased slightly high and is flagged with a 'J'. A fraction of MtBE (up to 5%) converts to TBA during the analysis of soil samples.
This conversion effect is considered to be mathematically significant in samples that contain MtBE/TBA in ratios of over 3:1.
- e = Matrix Spike/Matrix Spike Duplicate results for the analytes Ethylbenzene, P + M Xylene, O-Xylene, and Toluene were outside of control limits. This may indicate a bias for the sample that was spiked.
Since the LCS recoveries were within control limits, no data are flagged.
- f = Matrix Spike/Matrix Spike Duplicate results for the analyte ethylbenzene were affected by the analyte concentrations already present in the un-spiked sample.
- g = proposed well not installed at that time

Table 2
Historical Water and/or Groundwater Sample Analytical Results

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sample I.D. (TOC)	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)	TPHg (µg/L)	MiBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes	Dissolved Oxygen (mg/L)	DTW (feet)	SPT (feet)	WTE (feet)
UST Excavation Groundwater Sample																				
W1	01/28/05	25	290	62	520	3,400	180	15	<1.5	<1.5	<1.5	<1.5	<1.5	2,600	2,600		--	--	--	--
Baker Tank Samples																				
BT-1	02/04/05	<0.50	<0.50	<0.50	0.70	<50	340	--	--	--	--	--	--	--	--		--	--	--	--
BT-2	02/04/05	<0.90	<0.90	<0.90	<0.90	<90	400	--	--	--	--	--	--	--	--		--	--	--	--
Grab Groundwater Samples																				
GP-1W	04/20/10	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		--	--	--	--
GP-2W	04/20/10	<0.50	<0.50	<0.50	<0.50	<50	2.9	<5.0	<0.50	<0.50	<0.50	--	--	--	--		--	--	--	--
GP-3W	04/20/10	<0.50	<0.50	<0.50	<0.50	<50	380	<5.0	<0.50	<0.50	0.71	--	--	--	--		--	--	--	--
GP-4W	07/10/12	<0.50	<0.50	<0.50	<0.50	75	13	--	--	--	--	--	--	--	--	c	--	--	--	--
GP-5W	07/11/12	<0.50	<0.50	<0.50	<0.50	95	350	--	--	--	--	--	--	--	--		--	--	--	--
GP-7W	07/12/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	--	--	--	--	--	--	--	--		--	--	--	--
Monitoring Well Samples																				
MW-1																				
530.22	03/16/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		2.04	8.07	0.00	522.15
	05/26/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--	a	0.35	7.88	0.00	522.34
	08/09/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--	a	0.71	8.30	0.00	521.92
	10/17/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.5	8.27	0.00	521.95
	01/20/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--	a	0.8	8.51	0.00	521.71
	04/05/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.44	8.22	0.00	522.00
	07/24/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.28	8.36	0.00	521.86
	09/21/12	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	8.40	0.00	521.82
	10/25/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.73	8.46	0.00	521.76
	01/16/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.92	8.34	0.00	521.88
	04/11/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		1.08	8.28	0.00	521.94
	07/18/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	<0.50	<0.50		0.76	8.46	0.00	521.76
	10/30/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.26	8.36	0.00	521.86
	01/30/14	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.41	8.46	0.00	521.76
	04/16/14	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.19	8.31	0.00	521.91

Table 2
Historical Water and/or Groundwater Sample Analytical Results

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sample I.D. (TOC)	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)	TPHg (µg/L)	MtBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	Methanol (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes	Dissolved Oxygen (mg/L)	DTW (feet)	SPT (feet)	WTE (feet)	
MW-2 530.55	03/16/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		1.63	8.31	0.00	522.24	
	05/26/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.46	8.37	0.00	522.18	
	08/09/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--	α	0.60	8.82	0.00	521.73	
	10/17/11	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--		1.2	8.74	0.00	521.81	
	01/20/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	--	--	--	α	0.7	8.96	0.00	521.59	
	04/05/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	--	--	--		0.51	8.88	0.00	521.67
	07/24/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	--	--	--		0.30	9.04	0.00	521.51
	09/21/12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	8.83	0.00	521.72
	10/25/12	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	--	--	--		0.76	8.74	0.00	521.81
	01/16/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	--	--	--		0.78	8.71	0.00	521.84
	04/11/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	--	--	--		1.04	8.78	0.00	521.77
	07/18/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	<5.0	<0.50	<0.50		0.94	8.86	0.00	521.69
	10/30/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	<5.0	--	--		1.07	8.78	0.00	521.77
	01/30/14	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	<5.0	--	--		1.35	8.89	0.00	521.66
04/16/14	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	--	<5.0	--	--		1.28	8.71	0.00	521.84	
MW-3 530.74	03/16/11	<0.50	<0.50	<0.50	<0.50	<50	5,600	170	<0.50	<0.50	10	--	--	--	--		2.54	9.11	0.00	521.63	
	05/26/11	<0.50	<0.50	<0.50	<0.50	<50	3,200	180	<0.50	<0.50	5.4	--	--	--	--		0.32	9.15	0.00	521.59	
	08/09/11	<0.50	<0.50	<0.50	<0.50	<50	1,700	78	<0.50	<0.50	2.8	--	--	--	--		0.42	9.36	0.00	521.38	
	10/17/11	<0.50	<0.50	<0.50	<0.50	<50	1,900	85	<0.50	<0.50	2.9	--	--	--	--	b	0.6	9.37	0.00	521.37	
	01/20/12	<0.50	<0.50	<0.50	<0.50	<50	1,100	58	<0.50	<0.50	2.2	--	--	--	--		0.5	9.57	0.00	521.17	
	04/05/12	<2.5	<2.5	<2.5	<2.5	<250	2,000	57	<2.5	<2.5	3.3	--	--	--	--	b	0.47	9.44	0.00	521.30	
	07/24/12	<0.50	<0.50	<0.50	<0.50	<50	2,000	50	<0.50	<0.50	3.9	--	--	--	--	b	0.36	9.65	0.00	521.09	
	09/21/12	<1.5	<1.5	<1.5	<1.5	<150	760	32	<1.5	<1.5	1.5	--	--	--	--	b	--	9.55	0.00	521.19	
	10/25/12	<1.5	<1.5	<1.5	<1.5	<150	670	25	<1.5	<1.5	<1.5	--	--	--	--	b	0.75	9.50	0.00	521.24	
	01/16/13	<1.5	<1.5	<1.5	<1.5	<150	1,200	30	<1.5	<1.5	2.4	--	--	--	--	b	0.73	9.23	0.00	521.51	
	04/11/13	<2.5	<2.5	<2.5	<2.5	<250	1,700	27	<2.5	<2.5	<2.5	--	--	--	--	b	0.81	9.44	0.00	521.30	
	07/18/13	<1.5	<1.5	<1.5	<1.5	<150	880	15	<1.5	<1.5	1.7	--	<15	<1.5	<1.5	b	0.82	9.61	0.00	521.13	
	10/30/13	<0.90	<0.90	<0.90	<0.90	<90	410	12	<0.90	<0.90	<0.90	--	<9.0	--	--	b	1.05	9.47	0.00	521.27	
	01/30/14	<0.90	<0.90	<0.90	<0.90	<90	450	15	<0.90	<0.90	<0.90	--	<9.0	--	--	b	1.17	9.42	0.00	521.32	
04/16/14	<0.90	<0.90	<0.90	<0.90	<90	1,000	17	<0.90	<0.90	1.7	--	<9.0	--	--		0.97	9.43	0.00	521.31		

Table 2
Historical Water and/or Groundwater Sample Analytical Results

7-Eleven Store #32266
 1339 North Vasco Road
 Livermore, California

Sample I.D. (TOC)	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)	TPHg (µg/L)	MtBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	EtBE (µg/L)	TAME (µg/L)	Methanol (ug/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes	Dissolved Oxygen (mg/L)	DTW (feet)	SPT (feet)	WTE (feet)
MW-4 529.93	09/21/12	<0.50	<0.50	<0.50	<0.50	<50	400	<5.0	<0.50	<0.50	0.69	--	--	--	--		--	9.01	0.00	520.92
	10/25/12	<0.50	<0.50	<0.50	<0.50	<50	270	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.79	9.01	0.00	520.92
	01/16/13	<0.50	<0.50	<0.50	<0.50	<50	47	<5.0	<0.50	<0.50	<0.50	--	--	--	--		0.87	8.86	0.00	521.07
	04/11/13	<0.50	<0.50	<0.50	<0.50	<50	290	<5.0	<0.50	<0.50	<0.50	--	--	--	--		1.07	8.80	0.00	521.13
	07/18/13	<0.50	<0.50	<0.50	<0.50	<50	150	<5.0	<0.50	<0.50	<0.50	--	<5.0	<0.50	<0.50		1.20	9.02	0.00	520.91
	10/30/13	<0.50	<0.50	<0.50	<0.50	<50	58	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		0.98	8.99	0.00	520.94
	01/30/14	<0.50	<0.50	<0.50	<0.50	<50	49	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.37	9.05	0.00	520.88
	04/16/14	<0.50	<0.50	<0.50	<0.50	<50	66	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.03	8.93	0.00	521.00
MW-5 529.27	07/18/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	<0.50	<0.50		1.94	9.13	0.00	520.14
	10/30/13	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		0.94	9.10	0.00	520.17
	01/30/14	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.32	9.17	0.00	520.10
	04/16/14	<0.50	<0.50	<0.50	<0.50	<50	<0.50	<5.0	<0.50	<0.50	<0.50	--	<5.0	--	--		1.48	9.02	0.00	520.25

Explanation:
 BTEX, TPHg, MtBE, DIPE, EtBE, TAME, and TBA by 8260B
 TPHg = Total petroleum hydrocarbons as gasoline
 MtBE = Methyl tertiary butyl ether
 DIPE = Disopropyl ether
 EtBE = Ethyl tert-butyl ether
 TAME = Tertiary-amyl methyl ether
 TBA = Tert-butyl alcohol
 EDB = 1,2 Dibromoethane
 1,2-DCA = 1,2 Dichloroethane
 EtOH = Ethanol
 TOC = Top of casing elevation in feet above mean sea level
 UST = Underground Storage Tank
 ug/L = micrograms per Liter or parts-per-billion
 mg/L = milligrams per liter
 < = Not detected above laboratory reporting limit
 -- = Not sampled/not measured

Notes
 a = Matrix Spike/Matrix Spike Duplicate for the analyte MtBE were affected by the analyte concentrations already present in the un-spike sample.
 b = Tert-Butanol (Tert-butyl alcohol) results may be biased slightly high. A fraction of MtBE (typically less than 1%) converts to Tert-Butanol during the analysis of water samples that contain MtBE/Tert-Butanol in ratios of over 20:1.
 c = Analyzed by EPA Method 8260B using bottles that contained headspace bubbles greater than 1/4 inch in diameter.

Table 3
Soil Boring Details
 7-Eleven Store #32266
 1339 North Vasco Road
 Livermore, California

Well I.D.	Drill Date	Boring Depth (feet bgs)	Well Diameter (inches)	Screen		Screen Length (feet)	Comments
				Top (feet bgs)	Bottom (feet bgs)		
Soil Borings							
GP-1	04/20/10	20	--	--	--	--	
GP-2	04/20/10	25	--	--	--	--	
GP-3	04/20/10	30	--	--	--	--	
GP-4	07/10/12	25	--	--	--	--	Off-site soil boring
GP-5	07/10/12	25	--	--	--	--	Off-site soil boring
GP-6	07/11/12	25	--	--	--	--	Off-site soil boring
GP-7	07/12/12	25	--	--	--	--	Off-site soil boring
Monitoring Wells							
MW-1	02/23/11	20	2	5	20	15	
MW-2	02/24/11	20	2	5	20	15	
MW-3	02/23/11	25	2	5	20	15	
MW-4	09/07/12	20	2	5	20	15	Off-site monitoring well
MW-5	06/18/13	20.25	2	5	20	15	Off-site monitoring well
Explanation							
bgs = Below ground surface							
-- = Data Not Available/Not Applicable							

Table 4
Groundwater Gradient and Flow Direction

7-Eleven Store # 32266
 1339 North Vasco Road
 Livermore, California

Well No.	Monitoring Date	DTW (ft bgs)	Groundwater Gradient (feet per foot)	Groundwater Flow Direction															
				N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
MW-1	03/16/11	8.07	0.008												1				
	05/26/11	7.88	0.010												1				
	08/09/11	8.30	0.008													1			
	10/17/11	8.27	0.008												1				
	01/20/12	8.51	0.009													1			
	04/05/12	8.22	0.010														1		
	07/24/12	8.36	0.012														1		
	10/25/12	8.46	0.007												1				
	04/11/13	8.28	0.005												1				
	07/18/13	8.46	0.006												1				
	10/30/13	8.36	0.006												1				
	01/30/14	8.46	0.006												1				
	04/16/14	8.31	0.007												1				
Average Values		8.30	0.008	0	0	0	0	0	0	0	0	0	0	0	9	2	2	0	0
Minumum Values		7.88	0.005																
Maximum Values		8.51	0.012																

Explanation

TOC = Top of Casing (elevation in feet above mean sea level)

DTW = Depth to water below grade surface as measured from TOC

Number of Events **13** Events

Attachment A

Low Threat Closure Policy Checklist

Site Name: 7-Eleven Store #32266
 Site Address: 1339 N. Vasco Road, Livermore, CA

Site meets the criteria of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.¹

<p><u>General Criteria</u> General criteria that must be satisfied by all candidate sites:</p> <p>Is the unauthorized release located within the service area of a public water system?</p> <p>Does the unauthorized release consist only of petroleum?</p> <p>Has the unauthorized (“primary”) release from the UST system been stopped?</p> <p>Has free product been removed to the maximum extent practicable?</p> <p>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</p> <p>Has secondary source been removed to the extent practicable?</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</p> <p>Does nuisance as defined by Water Code section 13050 exist at the site?</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>1. Groundwater: To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</p> <p>If YES, check applicable class: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>

¹ Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

Site Name:
 Site Address:

<p>For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.</p> <p>Is the site an active commercial petroleum fueling facility? Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.</p> <p>a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p>b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).</p> <p>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?</p> <p>b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

Attachment B

Decay Rate Calculations

Point Decay Rate Constant & Timeframe to Achieve MtBE Water Quality Objective in Well MW-3 Based on Data Since 2011

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sampling Date	MtBE (µg/L)	In MtBE (µg/L)	Elapsed time since 03/16/11 (years)
03/16/11	5,600	8.63	0.00
05/26/11	3,200	8.07	0.19
08/09/11	1,700	7.44	0.40
10/17/11	1,900	7.55	0.59
01/20/12	1,100	7.00	0.85
04/05/12	2,000	7.60	1.06
07/24/12	2,000	7.60	1.36
09/21/12	760	6.63	1.52
10/25/12	670	6.51	1.61
01/16/13	1,200	7.09	1.84
04/11/13	1,700	7.44	2.07
07/18/13	880	6.78	2.34
10/30/13	410	6.02	2.63
01/30/14	450	6.11	2.88
04/16/14	1,000	6.91	3.09

Mean Last 4 Events 620

Formula

$$t = -[\ln(C_{CL}/C_o)] / k_{point}$$

where:

t = Time to achieve cleanup levels, years

C_{CL} = Cleanup level for contaminant of concern, µg/L

C_o = Initial concentration of contaminant of concern, µg/L

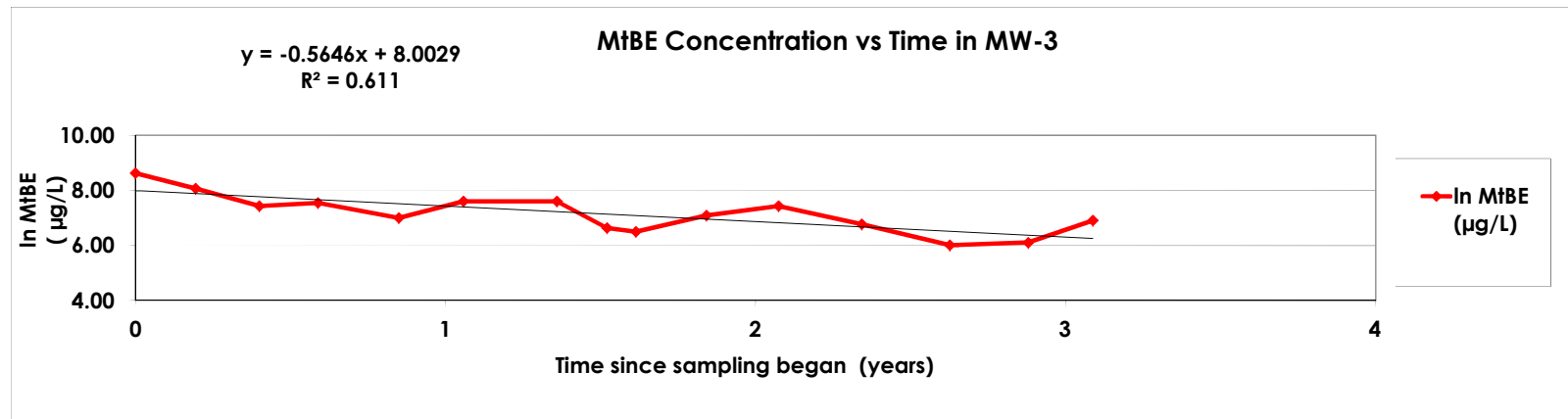
k_{point} = First-order decay rate constant at one monitoring point, years⁻¹

= slope of the line, y

Solutions

C _{CL}	⇒	5	Water Quality Objective (µg/L)
C _o	⇒	620	Mean Concentration Last 4 Sampling Events (µg/L)
k _{point}	⇒	0.565	First Order Decay Rate (years ⁻¹)
Time to reach cleanup level			8.5 years

C _{CL}	⇒	5	Water Quality Objective (µg/L)
C _o	⇒	1,000	Maximum Concentration Last 4 Sampling Events (µg/L)
k _{point}	⇒	0.565	First Order Decay Rate (years ⁻¹)
Time to reach cleanup level			9.4 years



Point Decay Rate Constant & Timeframe to Achieve MtBE Water Quality Objective in Well MW-4 Based on Data Since 2012

7-Eleven Store #32266
1339 North Vasco Road
Livermore, California

Sampling Date	MtBE (µg/L)	ln MtBE (µg/L)	Elapsed time since 09/21/12 (years)
09/21/12	400	5.99	0.00
10/25/12	270	5.60	0.09
01/16/13	47	3.85	0.32
04/11/13	290	5.67	0.55
07/18/13	150	5.01	0.82
10/30/13	58	4.06	1.11
01/30/14	49	3.89	1.36
04/16/14	66	4.19	1.57

Mean Last 4 Events 58

Formula

$$t = -[\ln(C_{CL}/C_o)] / k_{point}$$

where:

t = Time to achieve cleanup levels, years

C_{CL} = Cleanup level for contaminant of concern, µg/L

C_o = Initial concentration of contaminant of concern, µg/L

k_{point} = First-order decay rate constant at one monitoring point, years⁻¹
= slope of the line, y

Solutions

C _{CL}	⇒	5	Water Quality Objective (µg/L)
C _o	⇒	58	Mean Concentration Last 4 Sampling Events (µg/L)
k _{point}	⇒	1.04	First Order Decay Rate (years ⁻¹)
Time to reach cleanup level			2.4 years

C _{CL}	⇒	5	Water Quality Objective (µg/L)
C _o	⇒	66	Maximum Concentration Last 4 Sampling Events (µg/L)
k _{point}	⇒	1.04	First Order Decay Rate (years ⁻¹)
Time to reach cleanup level			2.5 years

