

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Los Angeles Regional Water Quality Control Board (Regional Water Board)	Address: 320 West 4 th Street, Suite 200, Los Angeles, CA 90013
Agency Caseworker: Arman Tourmari	Case No.: 912060070

Case Information

USTCF Claim No.: 13897	Global ID: T0603702060
Site Name: APRO #4	Site Address: 1118 North Glendale Avenue, Glendale, CA 91206
Responsible Party: Attn: Mr. John Hundley	Address: 17311 South Main Street, Gardena, CA 90248
USTCF Expenditures to Date: \$585,946	Number of Years Case Open: 14

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603702060

Summary

The Low-Threat Underground Storage Tank (UST) Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Case Information (Conceptual Site Model)**. Highlights of the case follow:

This Site is an active commercial petroleum fueling facility. Five gasoline USTs and one diesel UST were removed in June 1998. An unauthorized release was reported in November 1998. It is unknown whether soil excavation in addition to UST removal has been conducted at the Site. Soil vapor extraction has been conducted and approximately 616 pounds of TPHg has been removed. 13 groundwater monitoring wells have been installed and monitored irregularly for more than 15 years. According to groundwater data, water quality objectives have been achieved for all constituents except for benzene, ethylbenzene and methyl tert-butyl ether (MTBE).

The petroleum release is limited to the shallow groundwater. The shallow depth soil has been impacted to a minimal degree which is shown below. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health or surface water bodies within 250 feet of the defined plume boundary. No other water supply wells have been identified within 250 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the Metropolitan Water District of Southern California and the City of Glendale. The affected groundwater is not currently being used as a source of drinking water, and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the foreseeable future.

Other designated beneficial uses of impacted groundwater are not threatened and it is highly unlikely that they will be, considering these factors in the context of the site setting. Remaining petroleum hydrocarbon constituents are limited and stable, and concentrations are decreasing. Corrective actions have been implemented and additional corrective actions are not necessary. Any remaining petroleum hydrocarbon constituents do not pose a significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- General Criteria: The case meets all eight Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 1. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Vapor Intrusion to Indoor Air: The case meets the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use, and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

Objections to Closure and Responses

The Regional Water Board concurs with closing the case under the Policy (email February 26, 2013).

Determination

Based on the review performed in accordance with Health & Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

Recommendation for Closure

Based on available information, residual petroleum hydrocarbons at the Site do not pose a significant risk to human health, safety, or the environment, and the case meets the requirements of the Policy. Accordingly, the Fund Manager recommends that the case be closed. The State Water Board is conducting public notification as required by the Policy. The City of Glendale has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock
Lisa Babcock, P.G. 3939, C.E.G. 1235

5/28/13
Date

Prepared by: Abdul Karim Yusufzai

ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW

The case complies with the State Water Resources Control Board policies and state law. Section 25296.10 of the Health and Safety Code requires that sites be cleaned up to protect human health, safety, and the environment. Based on available information, any residual petroleum constituents at the Site do not pose significant risk to human health, safety, or the environment.

The case complies with the requirements of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.¹

<p>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations? The corrective action provisions contained in Chapter 6.7 of the Health and Safety Code and the implementing regulations govern the entire corrective action process at leaking UST sites. If it is determined, at any stage in the corrective action process, that UST site closure is appropriate, further compliance with corrective action requirements is not necessary. Corrective action at this site has been consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations and, since this case meets applicable case-closure requirements, further corrective action is not necessary, unless the activity is necessary for case closure.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>If so, was the corrective action performed consistent with any order?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<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><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>

¹ Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

<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>Nuisance as defined by Water Code section 13050 does not 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 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 checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p> <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 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> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input 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><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>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 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 2: SUMMARY OF BASIC CASE INFORMATION (Conceptual Site Model)

Site Location/History

- The Site is an active commercial petroleum fueling facility.
- Across North Glendale Avenue to the northwest and across North Verdugo Road to the southeast are residences. A grocery store is located to the southwest at the Site. The land use in the area surrounding the Site is mixed residential and commercial.
- An unauthorized release was reported in November 1998. Thirteen monitoring wells have been installed and monitored irregularly.
- Site maps showing the location of the existing and former USTs, monitoring wells, groundwater level contours, and benzene concentrations are provided at the end of this summary (Frey Environmental, Inc., 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only
- Source, Date reported: November 1998
- Status of Release: UST system
- Free Phase Hydrocarbons: None reported

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/Removed/Active	Date
1	15,000	Diesel	Removed	June 1998
2-3	20,000	Gasoline	Removed	June 1998
4	3,000	Gasoline	Removed	June 1998
5	7,500	Gasoline	Removed	June 1998
6	4,000	Gasoline	Removed	June 1998
7	5,000	Gasoline	Removed	June 1998
8,9	10,000	Gasoline	Active	-
10	15,000	Gasoline	Active	-
11	15,000	Diesel	Active	-

Receptors

- GW Basin: San Fernando Valley.
- Beneficial Uses: Municipal and Domestic Supply, Industrial Service Supply, Industrial Process Supply, and Agricultural (Basin Plan).
- Land Use Designation: Aerial photograph available on GeoTracker indicates mixed commercial and residential land use in the vicinity of the Site.
- Public Water System: Metropolitan Water District of Southern California and City of Glendale Water Department.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by the California Department of Public Health within 250 feet of the defined plume boundary. No other water supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water body within 250 feet downgradient of the defined plume boundary. The Los Angeles River is located approximately 300 feet northwest (crossgradient) of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, and clay.
- Maximum Sample Depth: 45 feet below ground surface (bgs).
- Minimum Groundwater Depth: 11.53 feet bgs at monitoring well MW-4.
- Maximum Groundwater Depth: 36.41 feet bgs at monitoring well MW-8.
- Current Average Depth to Groundwater: Approximately 32 feet bgs.
- Saturated Zones(s) Studied: Approximately 14 - 45 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Southwest with an average gradient of 0.06 feet/foot (October 23, 2012).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (10/23/12)
MW-1	October 1998	14-40	33.80
MW-2	October 1998	17-40	33.80
MW-3	October 1998	17-40	33.90
MW-4	October 1998	20-45	28.18
MW-5	September 2001	20-45	29.90
MW-6	September 2001	20-45	30.60
MW-7	September 2001	20-45	26.70
MW-8	September 2001	20-45	34.15
MW-9	February 2006	10-40	Dry
I-1	September 2009	24-39	32.15
I-2	September 2009	25-40	33.57
I-3	September 2009	25-40	32.81
I-4	September 2009	25-40	31.10

Remediation Summary

- Free Product: None reported in GeoTracker.
- Soil Excavation: Not reported.
- In-Situ Soil Remediation: Batch soil vapor extraction conducted in December 2006, January 2007 and November 2010, removed a total of approximately 479 pounds of TPHg.
- Groundwater Remediation: In-Situ chemical oxidation by oxygen sparging, conducted from March 2010 through April 2012, a total of 9,152 hours, injected approximately 103 pounds of oxygen.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg and (date)]	Maximum 5-10 feet bgs [mg/kg and (date)]
Benzene	0.015 (9/17/2001)	<0.005 (9/17/2001)
Ethylbenzene	<0.005 (9/19/2001)	<0.005 (9/19/2001)
Naphthalene	NA	NA
PAHs	NA	NA

NA: Not Analyzed, Not Applicable or Data Not Available
 mg/kg: Milligrams per kilogram, parts per million
 <: Not detected at or above stated reporting limit
 PAHs: Polycyclic aromatic hydrocarbons

Most Recent Concentrations of Petroleum Constituents in Groundwater

Sample	Sample Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	10/23/12	<100	<50	<0.5	1.5	<0.5	<1	<0.5	<10
MW-2	10/23/12	160	440	4.7	1.2	0.59	20	<2.0	<10
MW-3	10/23/12	<100	<100	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-4	10/23/12	<100	<100	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-5	10/23/12	<100	<100	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-6	10/23/12	<100	<100	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-7	10/23/12	<100	<100	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-8	10/23/12	<100	<100	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-9	10/23/12	NA	NA	NA	NA	NA	NA	NA	NA
I-1	10/23/12	<100	<100	<0.5	1.7	<0.5	<1	24	<10
I-2	10/23/12	<100	<100	<0.5	0.67	<0.5	<1	<0.5	<10
I-3	10/23/12	870	290	26	0.61	12	9.5	24	52
I-4	10/23/12	5,000	2,000	740	10	920	58	<0.5	<10
WQOs		--	--	1	150	300	1,750	5^a	1,200^b

NA: Not Analyzed, Not Applicable or Data Not Available

µg/L: Micrograms per liter, parts per billion

<: Not detected at or above stated reporting limit

TPHg: Total petroleum hydrocarbons as gasoline

TPHd: Total petroleum hydrocarbons as diesel

MTBE: Methyl tert-butyl ether

TBA: Tert-butyl alcohol

WQOs: Water Quality Objectives, Regional Water Board Basin Plan

--: Regional Water Board Basin Plan does not have numeric water quality objectives for TPHg and TPHd

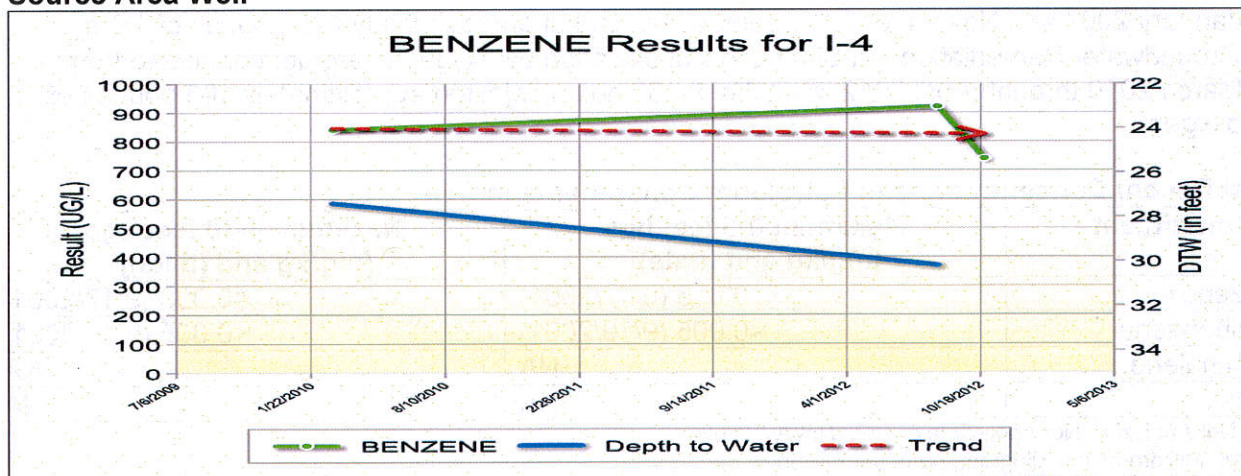
^a: Secondary maximum contaminant level (MCL)

^b: California Department of Public Health, Response Level

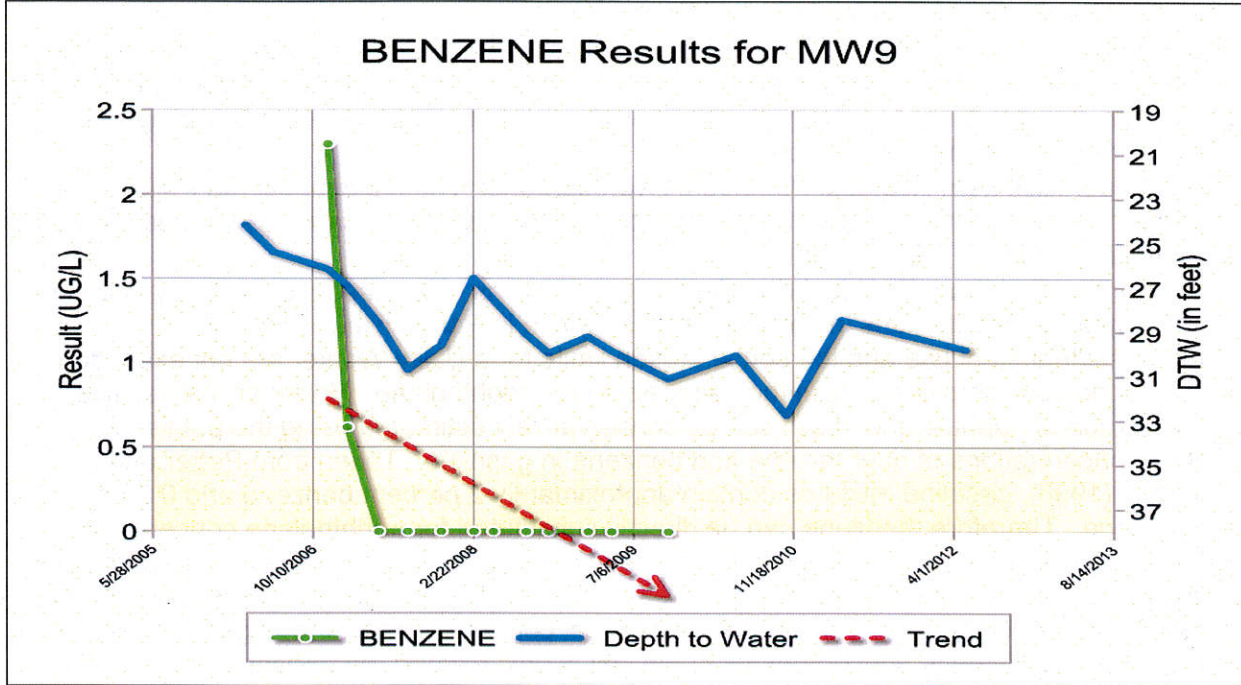
Groundwater Trends

- There are 15 years of irregular groundwater monitoring data for this case. Benzene trends are shown below:

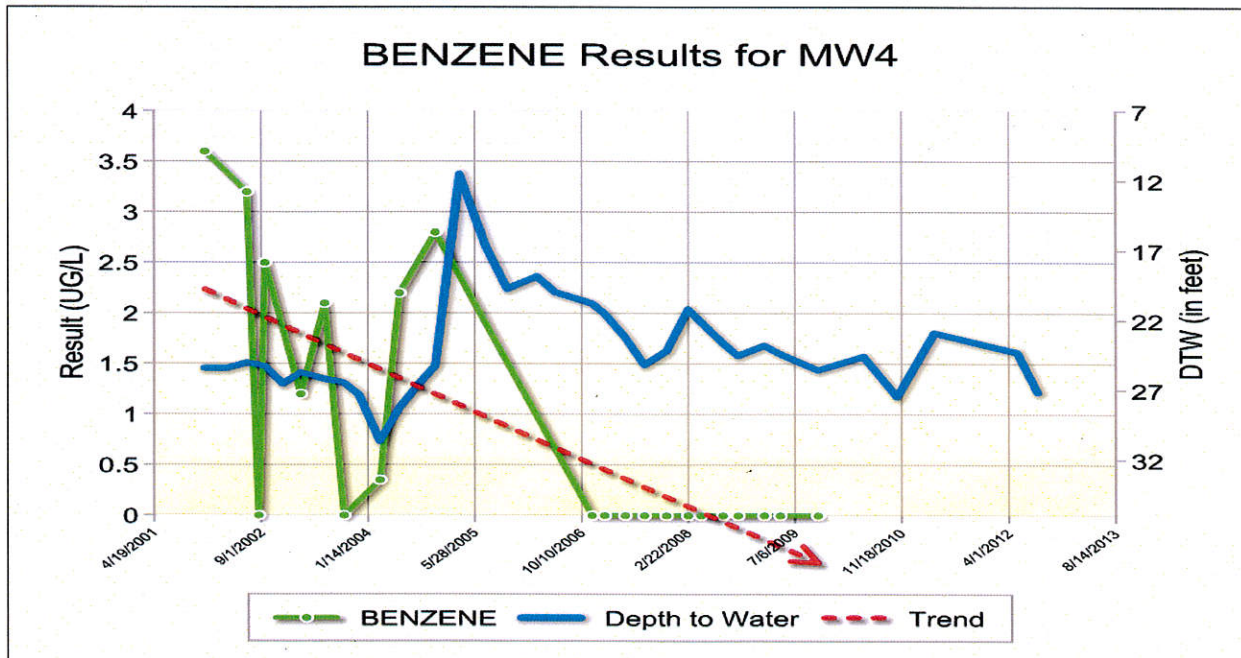
Source Area Well



Downgradient well



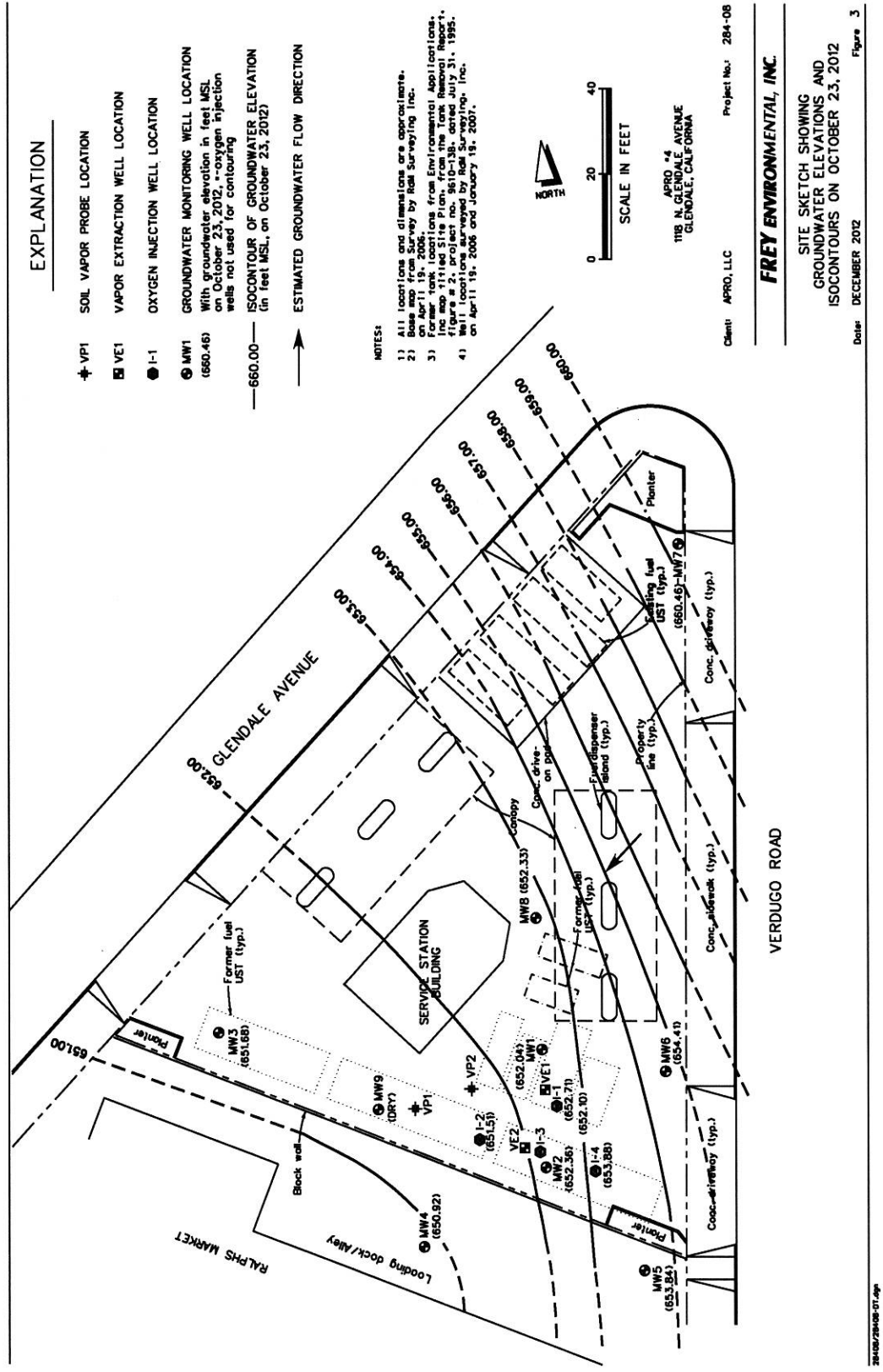
Downgradient Well



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.

- Plume Length: <100 feet long.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.



EXPLANATION

- ⊕ VP1 SOIL VAPOR PROBE LOCATION
- ⊕ VE1 VAPOR EXTRACTION WELL LOCATION
- I-1 OXYGEN INJECTION WELL LOCATION
- ⊕ MW1 GROUNDWATER MONITORING WELL LOCATION (660.46)
- With groundwater elevation in feet MSL on October 23, 2012 --oxygen injection wells not used for contouring
- 660.00 — ISOCONTOUR OF GROUNDWATER ELEVATION (in feet MSL, on October 23, 2012)
- ➔ ESTIMATED GROUNDWATER FLOW DIRECTION

NOTES:

- 1) All locations and dimensions are approximate.
- 2) Base map for this survey by Roll Surveying, Inc.
- 3) Former tank locations from Environmental Applications, Inc map titled Site Plans, from the Tank Removal Report, Figure 2, project no. 98 (0-19), dated July 31, 1995.
- 4) on April 19, 2006 and January 18, 2007.



APRO #4
 1118 N. GLENDALE AVENUE
 GLENDALE, CALIFORNIA

Client: APRO, LLC Project No.: 284-08

FREY ENVIRONMENTAL, INC.

SITE SKETCH SHOWING
 GROUNDWATER ELEVATIONS AND
 ISOCONTOURS ON OCTOBER 23, 2012

Date: DECEMBER 2012 Figure 3

EXPLANATION

- ✦ VPI SOIL VAPOR PROBE LOCATION
- ☒ VE1 VAPOR EXTRACTION WELL LOCATION
- I-1 OXYGEN INJECTION WELL LOCATION
- ⊙ MW1 GROUNDWATER MONITORING WELL LOCATION
(7'40')
- MW2 With benzene concentration in groundwater, in µg/l on October 23, 2012: (ND-not detected above indicated laboratory detection limit NS-not sampled)
- MW3 ISOCONTOUR OF BENZENE CONCENTRATION IN GROUNDWATER (in µg/l, on October 23, 2012)

- NOTES:**
- 1) All locations and dimensions are approximate.
 - 2) Base map from Survey by Ral Surveying Inc. on April 19, 2006.
 - 3) Former site locations from Environmental Applications, Inc. (EAI) dated July 31, 1995, Figure # 2, Project no. 9610-138, dated July 31, 1995.
 - 4) Well locations surveyed by Ral Surveying, Inc. on April 19, 2006 and January 19, 2007.



APRO #4
 1118 N. GLENDALE AVENUE
 GLENDALE, CALIFORNIA

Client: APRO, LLC Project No.: 284-08

FREY ENVIRONMENTAL, INC.

SITE SKETCH SHOWING
 BENZENE CONCENTRATIONS IN GROUNDWATER
 AND ISOCONTOURS ON OCTOBER 23, 2012
 Date: DECEMBER 2012 Figure 6

