

## State Water Resources Control Board

### UST CASE CLOSURE REVIEW SUMMARY REPORT

#### Agency Information

Agency Name: Los Angeles Region Water Quality Control Board, (Region 4)	Address: 320 West 4 <sup>TH</sup> Street, Suite 200, Los Angeles, CA 90013
Agency Caseworker: Chandra Tyler	Case No.: 913401989

#### Case Information

USTCF Claim No.: 12499	Global ID: T0603702254
Site Name: John Angel Property	Site Address: 1404 San Fernando Road, San Fernando, CA 91340
Responsible Party (RP): John Angel & Tamar Barazani	Address: (private residence)
USTCF Expenditures to Date: \$684,507	Number of Years Case Open: 17

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0603702254](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603702254)

#### 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 (CSM) upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Site Information (Conceptual Site Model)**. Highlights of the case follow:

An unauthorized leak was identified in October 1995 by a subsurface investigation. Three underground storage tanks (USTs) used for the storage of gasoline had been removed in 1986. Soil vapor extraction and air sparging were conducted between November 1998 and December 2000, which removed 5,362 pounds of total petroleum hydrocarbons as gasoline (TPHg). Seven batch dual phase extraction events were conducted between February 2003 and January 2009, which removed 95,440 gallons of contaminated groundwater and 286 pounds of TPHg.

The petroleum release is limited to the shallow soil and groundwater. According to data available in GeoTracker, there are no California Department of Public Health (CDPH) regulated water supply wells or surface water bodies within 250 feet of the defined plume boundary. No other water supply wells within 250 feet of the defined plume boundary were identified in files reviewed. Water users in the vicinity of the site rely on the City of San Fernando Water District. 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 constituents are limited, stable and declining. Corrective actions have been implemented and additional assessment/monitoring 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: The case meets Policy Criterion 1 by Class 1. The plume that exceeds water quality objectives (WQO) is less than 100 feet in length. No free product is present. The nearest water supply well or surface water is greater than 250 feet from the defined plume boundary.
- Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2a by Scenario 3a. The maximum benzene groundwater concentration is less than 100 µg/L and the minimum depth to groundwater is greater than 5 feet, overlain by soil that contains less than 100 mg/kg of TPHg.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. 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 Table 1 of the Policy. 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**

The Regional Board objects to UST case closure for this case. The objections and responses are provided below:

- Reports have not been posted to GeoTracker.  
RESPONSE: Prior to issuing the No Further Action letter the claimant will be required to properly destroy all monitoring wells; any investigation derived waste removed from the Site and transported to an appropriate disposal facility; remediation equipment removed from the Site; and all outstanding required electronic submittals must be uploaded to GeoTracker.
- Inadequate remedial action conducted.  
RESPONSE: Remediation occurred between November 1998 and January 2009. After reaching the economic limits of the technologies utilized, the systems were turned off.
- No soil confirmation soil borings conducted.  
RESPONSE: Soil sampling conducted in 2002 detected no residual petroleum hydrocarbons in the 0 to 10 foot bgs interval beneath the Site.
- Concentrations of fuel hydrocarbons exceed MCLs.  
RESPONSE: The case meets the Policy criteria. In addition, Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.

**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.

**Fund Manager Recommendation for Closure**

Based on available information, residual petroleum hydrocarbons at the Site do not pose significant risks 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. Los Angeles County Department of Public Health has the regulatory responsibility to supervise the abandonment of monitoring wells.

*Lisa Babcock*

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

*1/22/13*

\_\_\_\_\_  
Date

Prepared by: Kirk Larson

**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.<sup>1</sup>**

<p><b>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations?</b>                  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 case 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><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this site?</b>   <b>If so, was the corrective action performed consistent with any order?</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b><u>General Criteria</u></b>                  General criteria that must be satisfied by all candidate sites:</p> <p><b>Is the unauthorized release located within the service area of a public water system?</b></p> <p><b>Does the unauthorized release consist only of petroleum?</b></p> <p><b>Has the unauthorized (“primary”) release from the UST system been stopped?</b></p> <p><b>Has free product been removed to the maximum extent practicable?</b></p> <p><b>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</b></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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

<sup>1</sup> 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](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf)

<p><b>Has secondary source been removed to the extent practicable?</b></p> <p><b>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</b></p> <p><b>Nuisance as defined by Water Code section 13050 does not exist at the site?</b></p> <p><b>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</b></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><b><u>Media-Specific Criteria</u></b>        Candidate sites must satisfy all three of these media-specific criteria:</p> <p><b>1. Groundwater:</b>        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><b>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</b></p> <p><b>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</b></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><b>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?</b></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 checked="" type="checkbox"/> NA</p>
<p><b>2. Petroleum Vapor Intrusion to Indoor Air:</b>        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><b>Is the site an active commercial petroleum fueling facility?</b>        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><b>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?</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>

<p>If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" 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 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><b>3. Direct Contact and Outdoor Air Exposure:</b>          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 SITE INFORMATION (Conceptual Site Model)

### Site Location/History

- The Site is located at 1404 San Fernando Road in San Fernando and is an empty lot.
- The Site is bound by a parking lot on the west, a vacant lot to the north, San Fernando Road to the east and Workman Street to the south. The area surrounding the Site is mixed residential and commercial.
- An unauthorized release was reported in October 1995. Eleven monitoring wells are currently active and have been monitored regularly since 2001.
- Site map showing the location of the former USTs, monitoring wells, and site features is provided at the end of this closure summary.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: October 1995.
- Status of Release: USTs removed.
- Free Phase Hydrocarbons: Historically free product was identified. No free product identified since 1999.

### Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1-2	12,000	Gasoline	Removed	May 1986
3	8,000	Gasoline	Removed	May 1986

### Receptors

- GW Basin: Unnamed.
- Watershed: Los Angeles - San Gabriel River – San Fernando – Bull Canyon.
- Beneficial Uses: None specified. Deeper aquifer(s) used for drinking water supply, according to GeoTracker.
- Land Use Designation: None specified. Aerial photo shows site land use is commercial surrounded by mixed commercial and residential.
- Public Water System: City of San Fernando Water District.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no CDPH regulated water supply wells within 250 feet of the defined plume boundary. No water supply wells identified in those files review within 250 feet of the defined plume boundary.
- Distance to Nearest Surface Water: No surface water within 250 feet of the defined plume boundary.

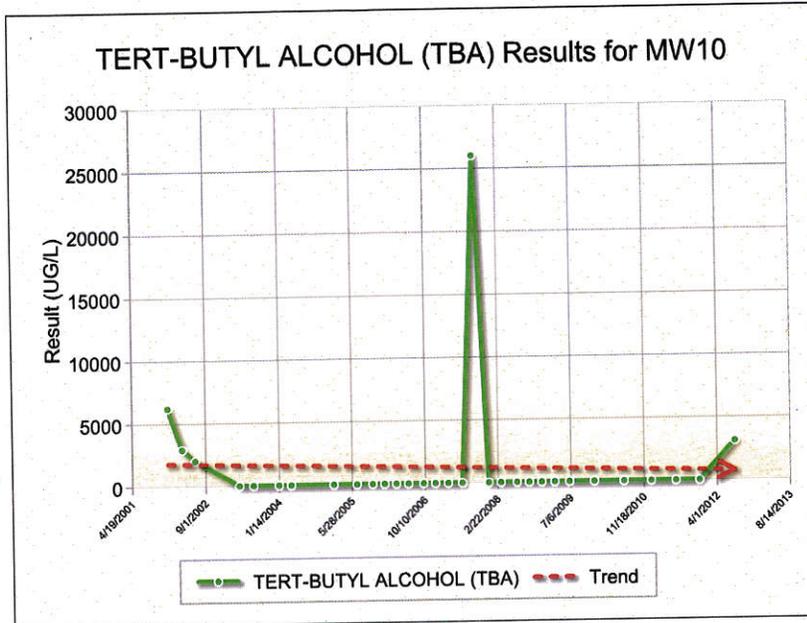
### Geology/ Hydrogeology

- Stratigraphy: The Site is underlain by sand and gravelly sand with occasional minor layers of silt, a fine-grained silt layer occurs at 35 feet below ground surface (bgs).
- Maximum Sample Depth: 55 feet bgs.
- Minimum Groundwater Depth: 33.94 feet bgs at monitoring well MW-16.
- Maximum Groundwater Depth: 42.25 feet bgs at monitoring well VW-3.
- Current Average Depth to Groundwater: 34 feet bgs.
- Saturated Zones(s) Studied: 34 to 55 feet bgs.
- Groundwater Flow Direction: Southeast at 0.002 feet per foot (August 2012).

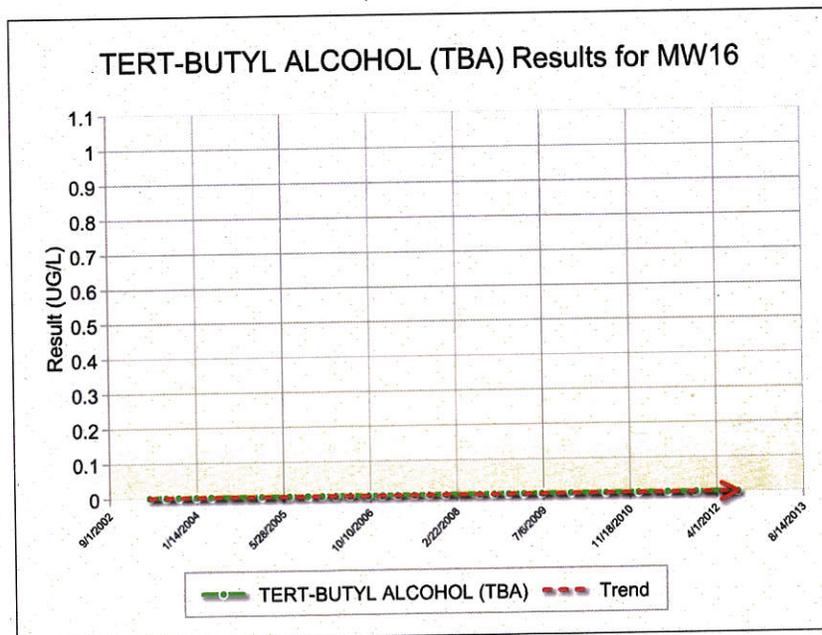
**Groundwater Trends:**

- This Site has been monitored regularly since 2001. TBA trends are shown below:  
Source area (MW-10) and downgradient (MW16).

**Source Area Well**



**Downgradient Well**



**Monitoring Well Information**

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (August 2012)
VW-1	June 1998	10-15	No Access
VW-2	June 1998	10-15	No Access
VW-3	June 1998	35-55	No Access
VW-4	June 1998	Unknown	No Access
VW-5	June 1998	Unknown	No Access
VW-6	June 1998	Unknown	No Access
MW-7	February 2001	25-50	35.10
MW-8	February 2001	25-50	33.96
MW-9	February 2001	25-50	34.30
MW-10	February 2001	25-50	-
MW-11	February 2001	25-50	34.90
MW-12	February 2001	25-50	35.97
MW-13	October 2001	25-55	34.84
MW-14	October 2001	25-55	34.00
MW-15	October 2001	25-55	34.26
MW-16	October 2001	25-55	33.94
MW-17	October 2001	25-55	35.62

**VW-1 through VW-6 were installed as vapor extraction/groundwater monitoring wells in June 1998.**

**Remediation Summary**

- Free Product: Free product noted in VW-4 in 1998. None noted since 1999.
- Soil Excavation: Unknown.
- In-Situ Soil/Groundwater Remediation: Soil vapor extraction and air sparging were conducted between November 1998 and December 2000, which removed 5,362 pounds of TPHg. Seven batch dual phase extraction events were conducted between February 2003 and January 2009, which removed 95,440 gallons of contaminated groundwater and 286 pounds of TPHg.

**Most Recent Concentrations of Petroleum Constituents in Soil**

Constituent	Maximum 0-5 ft. bgs. (mg/kg/ Date)	Maximum 5-10 ft. bgs (mg/kg/ Date)
Benzene	<0.005 (2002)	<0.005 (2002)
Ethylbenzene	<0.005 (2002)	<0.005 (2002)
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**

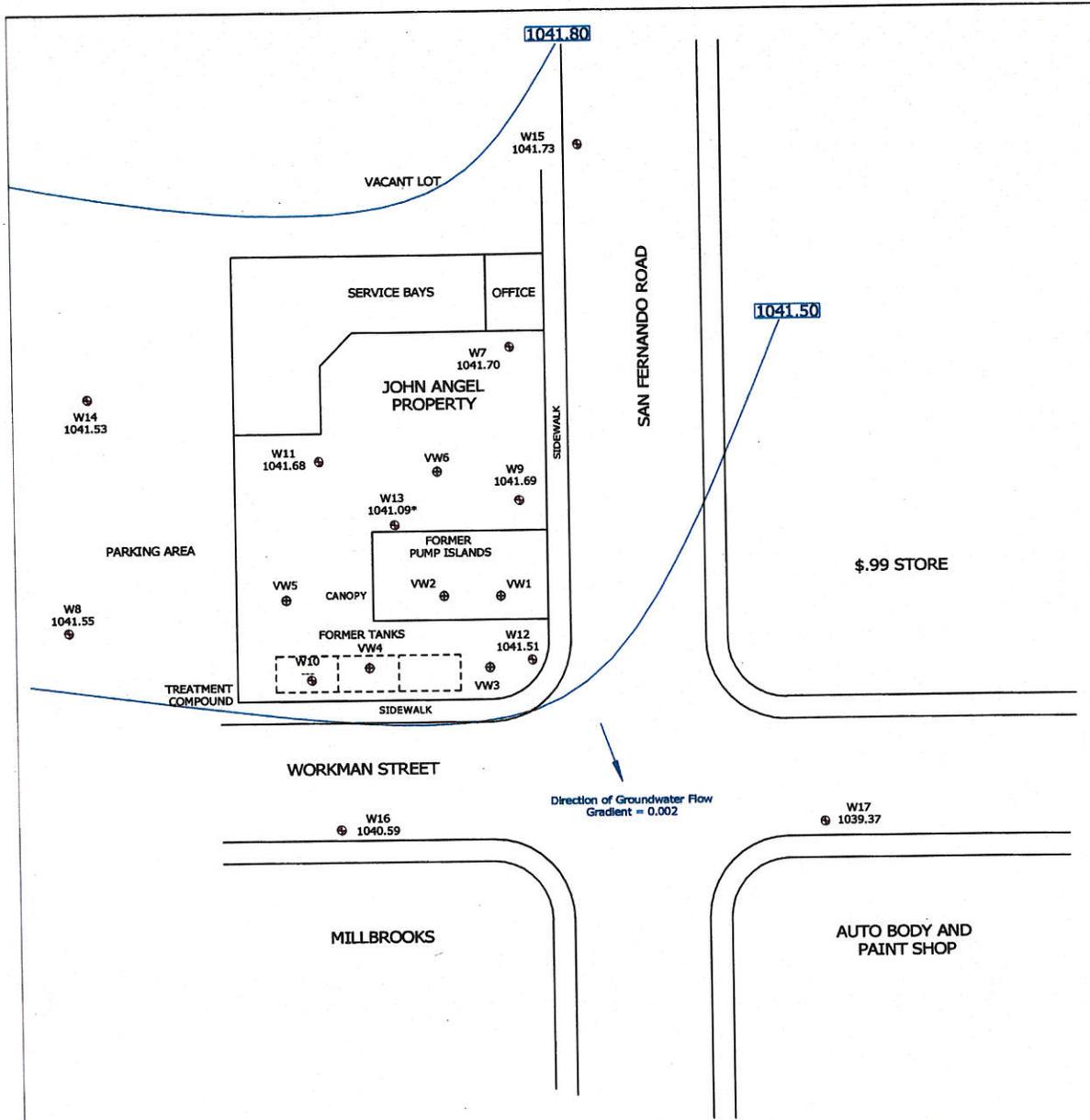
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-7	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-8	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-9	08/01/2012	<b>580</b>	<0.5	<0.5	<0.5	<1	<5	<25
MW-10	08/01/2012	<b>400</b>	<0.5	<0.5	<0.5	<1	<b>7.6</b>	<b>3,100</b>
MW-11	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-12	08/01/2012	<b>800</b>	<0.5	<0.5	<0.5	<1	<5	<25
MW-13	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-14	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-15	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-16	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
MW-17	08/01/2012	<50	<0.5	<0.5	<0.5	<1	<5	<25
<b>WQO</b>	--	<b>50<sup>a</sup></b>	<b>1</b>	<b>150</b>	<b>300</b>	<b>1,750</b>	<b>5</b>	<b>1,200<sup>b</sup></b>

NA: Not Analyzed, Not Applicable or Data Not Available  
 TPHg: Total petroleum hydrocarbons as gasoline  
 TPHd: Total petroleum hydrocarbons as diesel  
 µg/L: micrograms per liter, parts per billion  
 MTBE: Methyl tert-butyl ether  
 TBA: Tert-butyl alcohol  
 WQOs: Water Quality Objectives, Region 4 Basin Plan  
<sup>a</sup>: Typical Laboratory Detection Limit  
<sup>b</sup>: California Department of Public Health, Response Level

**Evaluation of Current Risks**

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater Tested for MTBE: Yes, see table below.
- Plume Length: <100 feet.
- Plume Stable or Degrading: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Oxygen Concentrations in Soil Vapor: No data.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The plume that exceeds WQO is less than 100 feet in length. No free product is present. The nearest water supply well or surface water is greater than 250 feet from the defined plume boundary.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case Policy Criterion 2a by Scenario 3. The maximum benzene groundwater concentration is less than 100 µg/L and the minimum depth to groundwater is greater than 5 feet, overlain by soil that contains less than 100 mg/kg of TPHg.

- Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. 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 Table 1 of the Policy. 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.



LEGEND

- ⊕ Vapor Extraction / Groundwater Monitoring Wells
- ⊙ Groundwater Monitoring Wells

**FIGURE 4**  
**GROUNDWATER GRADIENT MAP**  
**JOHN ANGEL PROPERTY**  
**1404 San Fernando Road**  
**San Fernando, California**

Groundwater Elevations Shown In Feet Above MSL (8/1/12),  
 \* - Anomalous Data Not Contoured.

