

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: County of Santa Clara Department of Environmental Health (County)	Address: 1555 Berger Drive, Suite 300 San Jose, CA 95112-2716
Agency Caseworker: Aaron Costa	Case No.: 06S1E31F03f

Case Information

USTCF Claim No.: 3481	GeoTracker Global ID: T0608501584
Site Name: Western Exterminator	Site Address: 1611 Terminal Avenue San Jose CA 95112
Responsible Party: H. Berokovich Trust Attn: Robin Merritt	Address: Private Residence
USTCF Expenditures to Date: \$202,537	Number of Years Case Open: 27

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0608501584

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)** and **Attachment 3 Previous Recommendations**. Highlights of the case follow:

This case is an active commercial warehouse facility. An unauthorized release was reported in September 1986 following the removal of two gasoline USTs. Soil vapor extraction (SVE) and a groundwater extraction and treatment system (GWETS) operated between 1994 and 1997. Recovering 161 pounds of petroleum hydrocarbons and treating 3.4 million gallon of affected groundwater. Since 1986, 27 groundwater monitoring wells have been installed on and offsite and regularly monitored. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except benzene in MW-1.

The petroleum release is limited to the soil and shallow groundwater. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health or surface water bodies within 1,000 feet of the defined plume boundary. No other water supply wells have been identified within 1,000 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the Santa Clara Valley Water District and San Jose Water Company. 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

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR

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 Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 4. The contaminant plume that exceeds water quality objectives is less than 1,000 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 1,000 feet from the defined plume boundary. The dissolved concentrations of benzene and MTBE are each less than 1,000 µg/L.
- Indoor Vapor Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 2a by scenario 3a. The maximum benzene concentration in groundwater is less than 100 µg/L. The minimum depth to groundwater is greater than 5 feet, overlain by soil containing less than 100 mg/kg of TPH.
- 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.

Objections to Closure and Responses

- The County has no objections to closure.

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 County has the regulatory responsibility to supervise the abandonment of monitoring wells.

Lisa Babcock

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

1/27/2014

Date

Prepared by: Pat G. Cullen, P.G.

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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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 type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" 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 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><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</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 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input 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

- This Site is a commercial business and is bounded by Highway 101 to the west, a commercial warehouse across Terminal Avenue to the northeast, and commercial warehouses to northwest and southeast.
- A Site map showing the location of the former USTs, monitoring wells and groundwater level contours is provided at the end of this closure review summary (Enercon, 2013).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: 1986.
- Status of Release: USTs removed.

Tank Information

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

Receptors

- GW Basin: Santa Clara Valley – Santa Clara.
- Beneficial Uses: The San Francisco Bay Regional Water Quality Control Board (Regional Water Board) basin plan lists municipal, domestic supply, agricultural and industrial process supply.
- Land Use Designation: Commercial and Industrial.
- Public Water System: Santa Clara Valley Water District and San Jose Water Company.
- 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 1,000 feet of the defined plume boundary. No other water supply wells were identified within 1,000 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 1,000 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by interbedded and intermixed sand, silt, and clay.
- Maximum Sample Depth: 50 feet below ground surface (bgs).
- Minimum Groundwater Depth: 4.72 feet bgs at monitoring well EW-2.
- Maximum Groundwater Depth: 10.61 feet bgs at monitoring well MW-3.
- Current Average Depth to Groundwater: Approximately six feet bgs.
- Saturated Zones(s) Studied: Approximately 5-50 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: Northwest.

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (4/17/2012)
MW-1	8/29/1991	7-22	6.56
MW-2	11/26/1991	10.5-20.5	6.40
MW-3	10/21/1994	5.5-20.5	8.38
MW-4	10/21/1994	5.5-20.5	6.69
GX-132F	8/29/1991	7-22	6.58
GX-132I	5/23/1998	10-25	6.60
GX-132L	11/07/1999	40-50	5.66
EW-2	1/19/1993	10-20	4.88
EW-3	07/07/1995	8-20	5.65
EW-4	07/07/1995	8-20	5.76

NM: Not measured

Remediation Summary

- Free Product: Removed to the maximum extent practicable none reported since 2010.
- Soil Excavation: Unknown.
- In-Situ Soil/ Groundwater Remediation: In 1994 a soil vapor extraction system (SVE) in conjunction with a groundwater extraction and treatment system (GWETS) was installed and began operation. The systems were shut down in July 1997 after recovering 161.4 pounds of petroleum hydrocarbons and treating 3,391,307 gallons of affected groundwater.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg, depth, boring and date]	Maximum 5-10 feet bgs [[mg/kg, depth, boring and date]
Benzene	<0.430 @5' SB-1 2/14/2013	<0.430 @10' SB-1 2/14/2013
Ethylbenzene	<0.430 @5' SB-1 2/14/2013	<0.430 @10' SB-1 2/14/2013
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-1	4/17/2013	1,400	140	2.1	1.2	10	<0.5	21
MW-2	4/17/2013	170	<0.5	<0.5	<0.5	<1.0	<0.5	<4
MW-3	4/17/2013	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<4
MW-4	4/17/2013	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<4
GX-132F	4/17/2013	100	<0.5	<0.5	<0.5	<1.0	<0.5	8
GX-132I	4/17/2013	530	12	0.51	0.52	<1.0	<0.5	<4
GX-132L	4/17/2013	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<4
EW-2	4/17/2013	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<4
EW-3	4/17/2013	490	7.3	<0.5	<0.5	<1.0	<0.5	4.2
EW-4	4/17/2013	76	<0.5	<0.5	<0.5	<1.0	<0.5	<4
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

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 a numeric water quality objective for TPHg

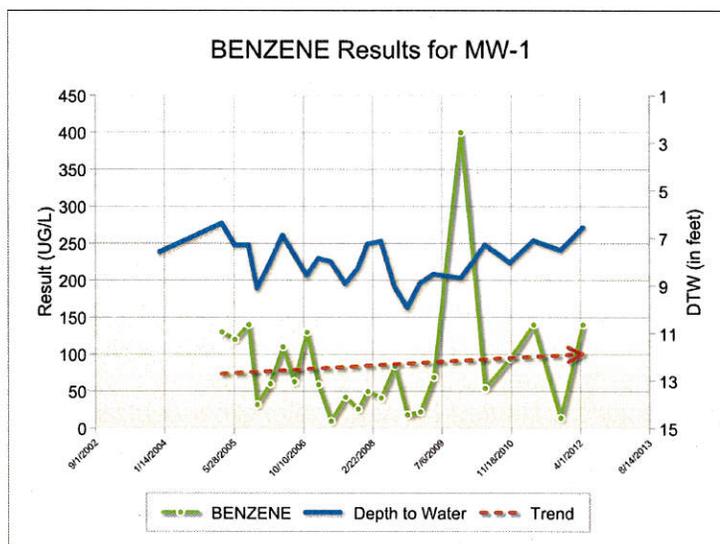
^a: Secondary maximum contaminant level (MCL)

^b: California Department of Public Health, Response Level

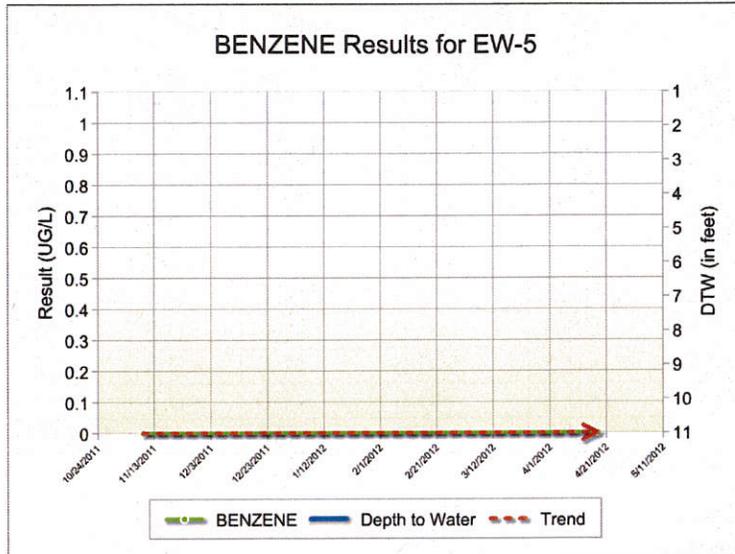
Groundwater Trends

- Since 1986, 10 onsite and 17 offsite groundwater monitoring wells have been installed and regularly monitored. Benzene trends wells MW-1 (source area) and EW-5 (approximately 60 feet downgradient on adjacent site) are shown below:

Source Area Well



60 feet Downgradient well on adjacent Site



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: <1,000 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 4. The contaminant plume that exceeds water quality objectives is less than 1,000 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 1,000 feet from the defined plume boundary. The dissolved concentrations of benzene and MTBE are each less than 1,000 µg/L.
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- 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.

ATTACHMENT 3: PREVIOUS RECOMMENDATIONS

June 2009 The Fund recognizes the detailed and extensive site characterization efforts and the quality of reports that have been conducted, to date, for this site's petroleum fuel contamination. We concur with the current regulatory directives and the need for additional corrective action measures.

