CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Alameda County Environmental Health Department (County)	Address: 1131 Harbor Bay Parkway, Alameda, CA 94501-6577
Agency Caseworker: Mark Detterman	Case No.: RO0000288

Case Information

USTCF Claim No.: 8694	Global ID: T0600101928
Site Name: Oro Loma Sanitary District	Site Address: 2600 Grant Avenue, San Lorenzo, CA 94580
Responsible Party: Jason Warner	Address: 2600 Grant Avenue, San Lorenzo, CA 94580
USTCF Expenditures to Date: $631,133	Number of Years Case Open: 20

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600101928

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 Low-Threat 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.** Highlights of the Conceptual Site Model of the case follow:

The Site is an operating Publicly Owned Treatment Works (Waste Water Treatment Plant) that is operated adjacent to the San Francisco Bay and has a substantial buffer zone around it. The area of the former USTs beneath an employee parking lot that is covered by asphalt. An unauthorized release was reported in November 1992 followed by the removal of two gasoline USTs in 1995. A groundwater extraction and treatment system was tested but proved ineffective due to low groundwater flow. Since 1992, six monitoring wells have been installed and contaminated soil excavated. According to groundwater data, water quality objectives have been achieved for all constituents except total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, and methyl tert-butyl ether (MTBE) in three wells. When any residual petroleum hydrocarbons in groundwater migrate as far as the main plant interceptor; that groundwater will be captured and processed through the on-site treatment works.

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 City of Alameda 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 hydrocarbon constituents are limited, stable and concentrations 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 5. The nearest water supply well is greater than 1,000 feet from the defined plume boundary. The nearest surface water body is is approximately 500 feet from the defined plume boundary. The regulatory agency determines, based on an analysis of site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame. During the UST removal activities the excavation (40 feet by 45 feet by 8 feet deep) was open for several weeks, and less than 100 gallons of groundwater were collected in the excavation. Based on this evidence the proposed and partially constructed groundwater extraction system was never started. This provides significant evidence the soil beneath the Site (Bay Mud) has minimal effective porosity to transmit water and soil vapor. Contamination left in place will stay in place and naturally degrade over time.
- Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2b. A professional assessment of site-specific risk from exposure through the vapor intrusion pathway shows that maximum concentrations of petroleum constituents will have no significant risk of adversely affecting human health. The area where the former USTs were located is now an asphalt parking lot.
- 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

The County objects to UST case closure for this case because:

- Insufficient soil sampling has been conducted to adequately assess contamination.
  RESPONSE: Soil sampling has been completed to assess the Site where possible. It is suspected that an unknown volume of affected soil underlies the facility. It is highly unlikely that the land use will change or the operation move to a different location.

- No conceptual site model has been completed.
  RESPONSE: There is enough information contained in multiple reports submitted to the regulatory agency over a period of time that support a conceptual site model that meets the Policy criteria.
- High concentratons of benzene remain in soil (12 mg/kg).
  RESPONSE: The concentrations of petroleum hydrocarbons that remain in the soil meet Table 1 of the Policy. Table 1 presents concentrations of petroleum constituents in Soil that will have no significant risk of adversely affecting human health.

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

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

6/5/13
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]

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 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.	☒ Yes ☐ No
Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this site?	☐ Yes ☒ No
If so, was the corrective action performed consistent with any order?	☐ Yes ☐ No ☒ NA
General Criteria General criteria that must be satisfied by all candidate sites:	
Is the unauthorized release located within the service area of a public water system?	☒ Yes ☐ No
Does the unauthorized release consist only of petroleum?	☒ Yes ☐ No
Has the unauthorized ("primary") release from the UST system been stopped?	☒ Yes ☐ No
Has free product been removed to the maximum extent practicable?	☐ Yes ☐ No ☒ NA
Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☒ Yes ☐ No

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

Has secondary source been removed to the extent practicable?	☒ Yes ☐ No
Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☒ Yes ☐ No
Nuisance as defined by Water Code section 13050 does not exist at the site?	☒ Yes ☐ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☒ No
Media-Specific Criteria Candidate sites must satisfy all three of these media-specific criteria: **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:	
Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?	☒ Yes ☐ No ☐ NA
If YES, check applicable class: ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☒ **5** **Do site soils contain insufficient mobile constituents (leachate, vapors, or light non-aqueous phase liquids) to threaten groundwater?**	☐ Yes ☐ No ☒ NA
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.	
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.	☐ Yes ☒ No
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: ☐ **1** ☐ **2** ☐ **3** ☐ **4**	☐Yes ☐ No ☒ NA

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?	☒ Yes ☐ No ☐ NA
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?	☐ Yes ☐ No ☒ NA
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).	
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)?	☒ Yes ☐ No ☐ NA
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?	☐ Yes ☐ No ☒ NA
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?	☐ Yes ☐ No ☒ NA

ATTACHMENT 2: SUMMARY OF BASIC CASE INFORMATION (Conceptual Site Model)

Site Location/ History

- The Site is located at the west end of Grant Avenue in San Lorenzo. The Site is an operating Publicly Owned Treatment Works (Waste Water Treatment Plant) that is operated adjacent to the San Francisco Bay and has a substantial buffer zone around it.
- The Site is bounded by San Francisco Bay to the west, open land to the north, three commercial warehouse structures the east, and open land to the south. Another UST site is located in the warehouse complex to the east.
- Since 1999, six monitoring wells have been installed and five are actively monitored.
- A Site map showing the location monitoring wells and site features is provided at the end of this closure review summary.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system
- Date reported: 11/2/1992.
- Status of Release: USTs removed.
- Free-Phase Hydrocarbons: None reported.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	?	Gasoline	Removed	May 1995
2	1,000	Gasoline	Removed	May 1995

Receptors

- GW Basin: Santa Clara Valley - East Bay Plain.
- Beneficial Uses: Municipal and Domestic Supply.
- Land Use Designation: Commercial/Industrial.
- Public Water System: East Bay Municipal Utility District.
- 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: The San Francisco Bay wetlands lies 500 feet northwest of the Site.

Geology/ Hydrogeology

- Stratigraphy: The Site is underlain by clays interbedded with fine sands, silts and occasional peat.
- Maximum Sample Depth: 51 feet below ground surface (bgs).
- Minimum Groundwater Depth: 2.08 bgs at monitoring well MW-D-1.
- Maximum Groundwater Depth: 8.73 feet bgs at monitoring well MW-1.
- Current Average Depth to Groundwater: Approximately 7 feet bgs.
- Saturated Zones(s) Studied: Approximately 2 - 15 bgs.
- Appropriate Screen Interval: Yes.

- Groundwater Flow Direction: Generally southerly towards the main interceptor that delivers all wastewater to the plant. If groundwater were to reach the trench of the main interceptor, it would be captured and treated as part of the POTW.

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (12/27/2010)
MW1	1999	5-15	6.21
MW2	1999	5-15	5.01
MW3	1999	5-15	4.51
MW4	2002	4-14	Abandoned 2008
MW5	2002	4-14	3.85
MW6	2002	3-13	3.89

Remedial Action

- Free Product: None reported.
- Soil Excavation: In 2008, approximately 574 tons of impacted soil were removed and disposed. The limits of the excavation were 40-foot by 45-foot by 8-foot deep. Less than 100 gallons of formation water entered the open excavation over a two week period.
- In-Situ Soil Remediation: None reported.
- Groundwater Remediation: Groundwater extraction system was installed but never utilized due to tight soil conditions identified during the tank removal.

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg [Date])	Maximum 5-10 feet bgs (mg/kg [Date])
Benzene	<0.005 @ 4 feet (4/16/2008)	12 @ 7 feet (4/16/2008)
Ethylbenzene	0.01 @4 feet (4/16/2008)	60 @ 7 feet (4/16/2008)
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
NA: Not Analyzed

Most Recent Concentrations of Petroleum Constituents in Groundwater

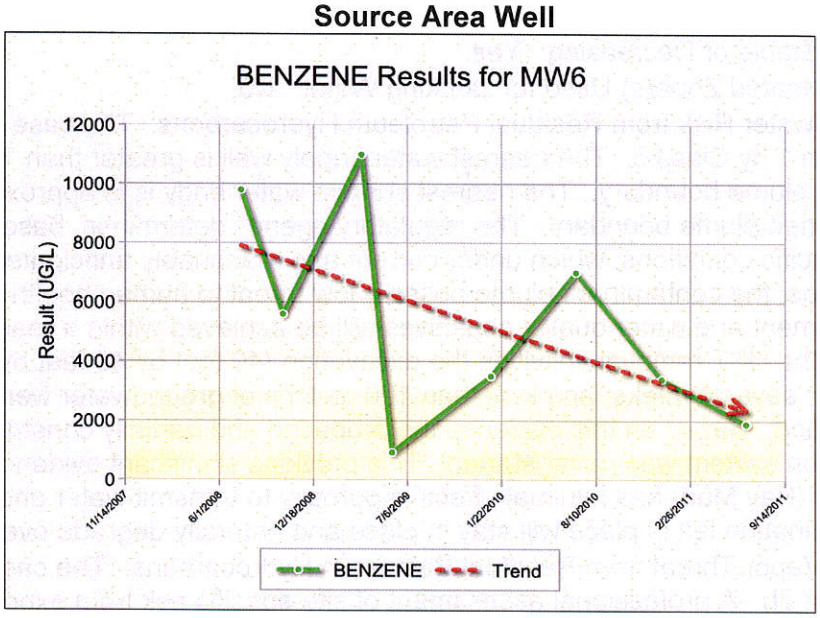
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW1	06/29/11	<50	<0.5	<0.5	<0.5	<1.0	<0.5
MW2	06/29/11	<50	<0.5	<0.5	<0.5	<1.0	0.76
MW3	06/29/11	<50	<0.5	<0.5	<0.5	<1.0	**26**
MW4	NS	NS	NS	NS	NS	NS	NS
MW5	06/29/11	**6,000**	**2,500**	**76**	220	720	**8**
MW6	06/29/11	**6,000**	**1,900**	**150**	30	940	**32**
RW1	06/29/11	<50	<0.5	<0.5	<0.5	<1.0	<0.5
WQOs	-	--	**1**	**150**	**700**	**1,750**	**5**

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
WQOs: Water Quality Objectives, Regional Water Board Basin Plan
--: Regional Water Board Basin Plan does not have a numeric water quality objective for TPHg

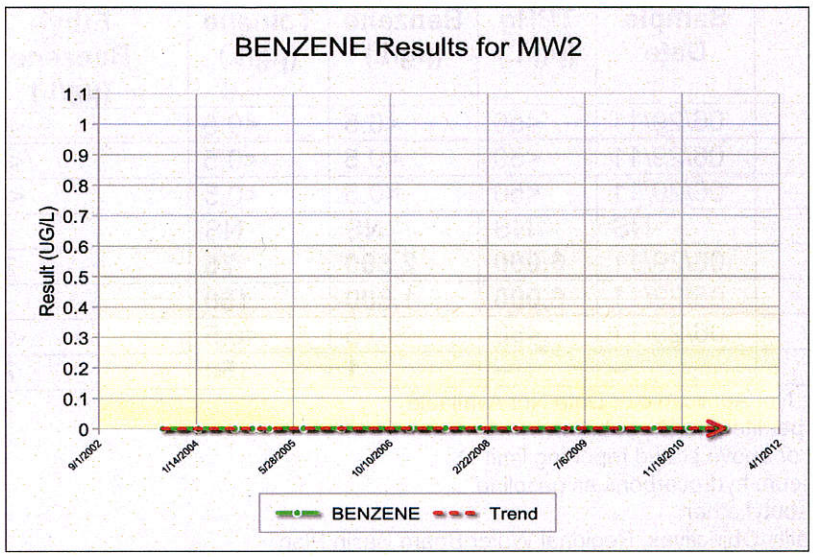
Groundwater Trends:

- There are nine years of groundwater monitoring data for this Site. Benzene trends are shown below: Source Area (MW6) and Downgradient (MW2).

Source Area Well



Downgradient (50 feet) well



Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for MTBE: Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet.
- 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 5. The nearest water supply well is greater than 1,000 feet from the defined plume boundary. The nearest surface water body is is approximately 500 feet from the defined plume boundary. The regulatory agency determines, based on an analysis of site specific conditions, which under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame. During the UST removal activities the excavation (40 feet by 45 feet by 8 feet deep) was open for several weeks, and less than 100 gallons of groundwater were collected in the excavation. Based on this evidence the proposed and partially constructed groundwater extraction system was never started. This provides significant evidence the soil beneath the Site (Bay Mud) has minimal effective porosity to transmit water and soil vapor. Contamination left in place will stay in place and naturally degrade over time.
- Indoor Vapor Threat from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 2b. A professional assessment of site-specific risk from exposure through the vapor intrusion pathway shows that maximum concentrations of petroleum constituents will have no significant risk of adversely affecting human health. The area where the former USTs were located is now an asphalt parking lot.

- 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.

Oro Loma Sanitation District
Claim No: 8694