

## State Water Resources Control Board

### UST CASE CLOSURE REVIEW SUMMARY REPORT

#### Agency Information

Agency Name: County of Nevada Environmental Health (County)	Address: 950 Maidu Lane, Nevada City, CA 95959
Agency Caseworker: Grant Eisen	Case No.: RO0000006

#### Case Information

USTCF Claim No.: 12786	GeoTracker Global ID: T0605700113
Site Name: Nevada City Public Works	Site Address: 775 Zion Street, Nevada City, CA 95959
Responsible Party: Nevada City Public Works	Address: 317 Broad Street, Nevada City, CA 95959
USTCF Expenditures to Date: \$205,102	Number of Years Case Open: 19

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0605700113](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605700113)

#### 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 inactive commercial petroleum fueling facility. An unauthorized release was reported in September 1993 followed by the removal of three USTs in December 1993. Approximately 830 cubic yards of impacted soil were excavated to a total depth of 16 feet below ground surface (bgs), removed from Site, and replaced with clean imported fill in 1997. No active remediation has been conducted. Since 2006, five groundwater monitoring wells have been installed and monitored. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except benzene in monitoring well MW-5.

The petroleum release is limited to the soil and 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 250 feet of the projected plume boundary. No other water supply wells have been identified within 250 feet of the projected plume boundary in files reviewed. Water is provided to water users near the Site by the Nevada City Public Works. 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.

#### **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 projected to be 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 projected plume boundary.
- Vapor Intrusion to Indoor Air: 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 and Outdoor Air Exposure: This case meets Policy Criterion 3b. Although no document titled "Risk Assessment" was found in the files reviewed, a professional assessment of site-specific risk from potential exposure to residual soil contamination found that maximum concentrations of petroleum constituents remaining in soil will have no significant risk of adversely affecting human health. The impacted soil has been removed up to 16 feet bgs and the surface of the Site is paved.

#### **Objections to Closure and Responses**

The County by March 8, 2012 letter opposes closure of the case because the extent of groundwater contamination has not been defined.

RESPONSE: A large excavation conducted in 1997 removed residual soil contamination. Minor groundwater contamination in downgradient well MW-5 is decreasing rapidly in concentration. The projected groundwater plume boundary is less than 100 feet in length.

#### **Determination**

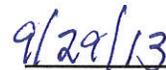
Based on the review performed in accordance with Health and Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

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



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



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Date

Prepared by: Abdul Karim Yusufai

**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 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><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><b>If so, was the corrective action performed consistent with any order?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><b>General Criteria</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> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><b>Does the unauthorized release consist only of petroleum?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><b>Has the unauthorized (“primary”) release from the UST system been stopped?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><b>Has free product been removed to the maximum extent practicable?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><b>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</b> <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>        If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4</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><b>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?</b></p> <p><b>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?</b></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>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><b>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)?</b></p> <p><b>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?</b></p> <p><b>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?</b></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 <input 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 occupied by a retail plumbing and irrigation supply business and is bounded by a former UST site to the north, residences across Zion Street to the west, and residences to the east and south.
- In September 2007, six soil vapor samples were collected and a human health risk assessment concluded residual hydrocarbons do not pose a significant human health risk. The report adds that the documented soil impact is generally deeper than 10 feet bgs.
- A Site map showing the location of the former USTs, monitoring wells, and site features is provided at the end of this review summary (Holdrige and Kull, 2012).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: September 1993.
- Status of Release: USTs removed.

### Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active	Date
1	10,000	Diesel	Removed	December 1993
2	350	Gasoline	Removed	December 1993
3	550	Diesel	Removed	December 1993

### Receptors

- GW Basin: Unnamed Basin.
- Watershed: Yuba River – Nevada City.
- Beneficial Uses: Central Valley Regional Water Quality Control Board (Regional Water Board) Basin Plan lists Agricultural, Municipal, and Domestic Supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates mixed residential and commercial land use in the vicinity of the Site.
- Public Water System: Nevada City Public Works.
- 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 projected plume boundary. No other water supply wells were identified within 250 feet of the projected plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 250 feet of the projected plume boundary.

### Geology/Hydrogeology

- Stratigraphy: The Site is underlain by weathered crystalline (granodiorite) rocks.
- Maximum Sample Depth: 50 feet bgs.
- Minimum Groundwater Depth: 22.10 feet bgs at monitoring well MW-2.
- Maximum Groundwater Depth: 34.27 feet bgs at monitoring well MW-3.
- Current Average Depth to Groundwater: Approximately 23 feet bgs.
- Saturated Zones(s) Studied: Approximately 22-50 feet bgs.
- Appropriate Screen Interval: Submerged.
- Groundwater Flow Direction: Northeast at an average gradient of 0.003 feet/foot.

**Monitoring Well Information**

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (03/13/13)
MW-1	November 2006	26-43	24.20
MW-2	November 2006	27-43	22.32
MW-3	November 2006	26-43	24.59
MW-4	September 2012	30-50	22.08
MW-5	September 2012	25-45	24.12

**Remediation Summary**

- Free Product: None reported in GeoTracker.
- Soil Excavation: Approximately 830 cubic yards of impacted soil were excavated to a total depth of 16 feet bgs, removed from site, and replaced with clean imported fill in 1997.
- In-Situ Soil/Groundwater Remediation: No remediation has been conducted.

**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	0.022 (09/19/07)	<0.005 (11/10/06)
Ethylbenzene	NA	<0.005 (11/10/06)
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**

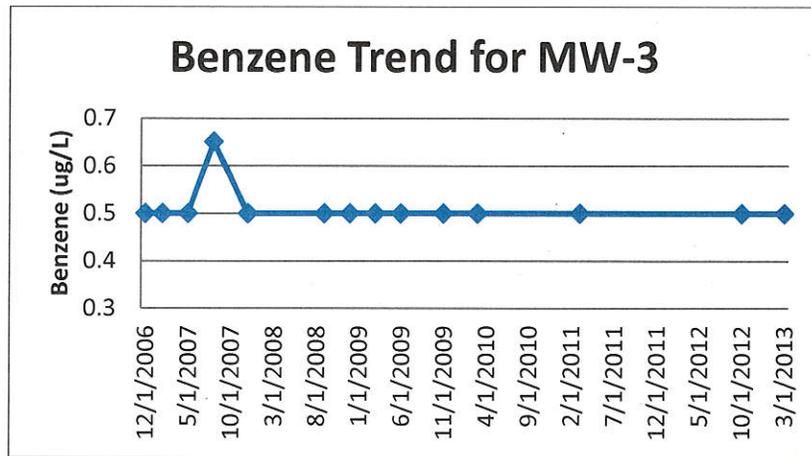
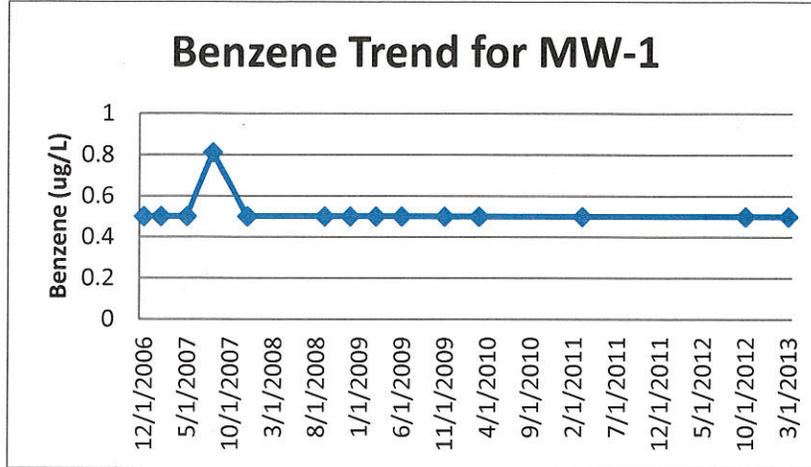
Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	03/13/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-2	03/13/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-3	03/13/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-4	03/13/13	<50	<0.5	<0.5	<0.5	<1	<0.5	<10
MW-5	03/13/13	210	27	<0.5	<0.5	27	<0.5	<10
WQOs	-	5	0.15	42	29	17	5 <sup>a</sup>	1,200 <sup>b</sup>

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  
<sup>a</sup>: Secondary maximum contaminant level (MCL)  
<sup>b</sup>: California Department of Public Health, Response Level

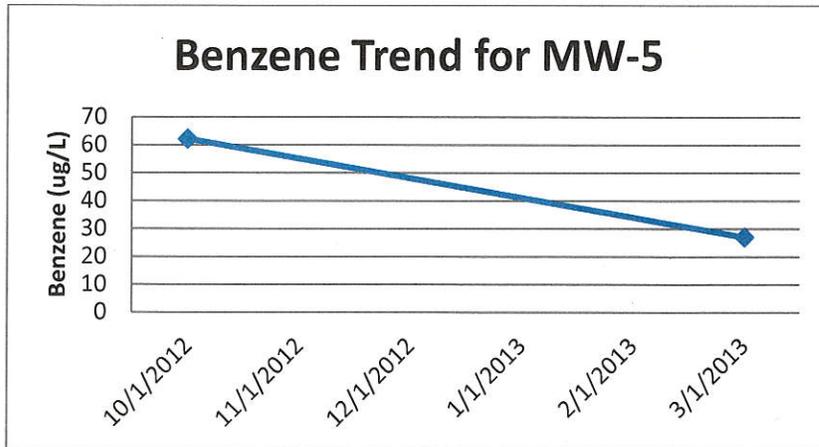
**Groundwater Trends**

- There are 6 years of groundwater monitoring data for this case. Benzene trends are shown below: Source Area (MW-1 and MW-3) and Downgradient (MW-5).

**Source Area Wells**



**Downgradient Well**



### **Evaluation of Current Risk**

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet, projected.
- Plume Stable or Decreasing: Unknown.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The contaminant plume that exceeds water quality objectives is projected to be 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 projected plume boundary.
- 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: This case meets Policy Criterion 3b. Although no document titled "Risk Assessment" was found in the files reviewed, a professional assessment of site-specific risk from potential exposure to residual soil contamination found that maximum concentrations of petroleum constituents remaining in soil will have no significant risk of adversely affecting human health. The impacted soil has been removed up to 16 feet bgs and the surface of the Site is paved.

