UST CASE CLOSURE SUMMARY

Agency Information

Agency Name: Humboldt County Department of Health and Human Services (County)	Address: 100 H Street, Suite 100, Eureka, CA 95501
Agency Caseworker: Mr. Robert Stone	Case No.: 12794

Case Information

USTCF Claim No.: 18204	Global ID: T0602304775
Site Name: Don's Rent-All	Site Address: 916 Broadway Avenue, Eureka, CA 95501 (Site)
Petitioner: Mr. Don Biasca	Address: 916 Broadway Avenue, Eureka, CA 95501
USTCF Expenditures to Date: $103,538	Number of Years Case Open: 9

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0602304775

Summary

The Low-Threat Underground Storage Tank 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 Site Information.** Highlights of the Conceptual Site Model of the Case are as follows:

During 2003, the current Site owner was notified about a potential unauthorized release when an investigation of an adjacent underground storage tank (UST) site GeoTracker Global ID T0602300444 (Hansen's Machine Works) indicated that a release had occurred from the UST at the Petitioner's Site. The Site is located in an industrial and commercial district and is operated as an active retail equipment rental/repair facility with aboveground storage tanks for refueling rental equipment and vehicles. Soil data indicates that buildings in the area are built on fill material containing organic debris and bay mud. In January 2006, approximately 95 tons of contaminated soil, 14,300 gallons of impacted water, and the UST system were removed. The Site is currently undergoing post-remedial groundwater monitoring.

The petroleum release is limited to the shallow soil and groundwater. The nearest surface water is approximately 400 feet west of the estimated plume boundary. No public supply wells or domestic wells have been identified within 1,500 feet of the Site. Public water is supplied by the City of Eureka.

The affected groundwater is not currently being used as a source of drinking water or for any other designated beneficial use, and it is highly unlikely that the affected groundwater will be used as a source of drinking water or for any other beneficial use in the foreseeable future. Public supply wells are usually constructed with competent sanitary seals and intake screens that are in deeper more protected aquifers. Remaining petroleum constituents are limited, stable and declining. Remedial actions have been implemented. Additional assessment/monitoring will not likely change the conceptual site model. Any remaining petroleum constituents do not pose significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- General Criteria – Site **MEETS ALL EIGHT GENERAL CRITERIA** under the Policy.

- Groundwater Media-Specific Criteria – Site meets the criterion in **CLASS 5**. – Based on an analysis of Site-specific conditions, the contaminant plume is less than 250 feet in length, there is no free product, and the nearest existing supply well or surface water body is greater than 250 feet from the defined plume boundary. Under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and the environment and water quality objectives will be achieved within a reasonable time frame.

- Petroleum Vapor Intrusion to Indoor Air Criteria – Site meets the **EXCEPTION**. The Site is an active commercial fueling facility and has no release characteristics that can be reasonably believed to pose an unacceptable health risk.

- Direct Contact and Outdoor Air Exposure Criteria – Site meets the criteria in **CLASS (3) b**. In November 2007, concentrations of poly-aromatic hydrocarbons (PAHs) were detected in soil boring sample MW-4 at 3.5 feet to 4.0 feet at 0.69 milligram per kilogram (mg/kg). Concentrations of PAHs were only slightly above the screening concentration value, 0.68 mg/kg, and additional assessment is unnecessary at this time. The estimated naphthalene concentrations in soil are less than the thresholds in Table 1 of the Policy for direct contact. Concentrations of benzene and ethylbenzene do not exceed the threshold listed in Table 1 of the Policy for direct contact.

Objections to Closure

Humboldt County staff objected to UST case closure because:

1. The concentrations of contaminants are too high at some locations to estimate the distal extent. Groundwater monitoring data collected to date indicates groundwater flow direction is toward the northwest with a relative flat gradient ~0.002ft/ft. The lateral extent of contaminants (TPHg, BTEX, MTBE, or TPHd) has not been adequately defined in soil and/or groundwater beyond boring B-100. Laboratory analytical results record TPHmo, TPHd, and TPHg to 510-ppm, 260-ppm, and 54-ppm, respectively, in soil and TPHmo, TPHg and MTBE to 190-ppb, 2,200-ppb and 2,700-ppb in groundwater.

   RESPONSE: The lateral extent of petroleum hydrocarbons has been assessed and delineated during post remediation soil sampling and groundwater monitoring at the Petitioner's and the downgradient open UST case Hansen's Machine Works. The grab groundwater sample from boring B-100 was collected in July 2006, less than one year after the UST removal and interim remedial actions had been completed. Since 2007, groundwater contaminant trends for Site wells indicate stable and decreasing concentrations of TPHg, TPHd, BTEX, and MTBE.

Groundwater data for offsite Hansen's Machine Works wells HMW-1, HMW-6, and HMW-18 indicate that the extent of the residual petroleum hydrocarbon plume ends beneath Washington Street.

2. Remediation has not been conducted to the maximum extent practicable. Further activity (i.e. remedial action) reducing the mass of contamination will provide significant benefit to human health and the environment. We concur with the recommended (High Vacuum Dual Phase Extraction) HVDPE.

   RESPONSE: Interim remedial actions were completed in July 2005. Post remediation soil and groundwater sampling events indicate a limited residual source area remains near the former tank basin. The plume is stable and decreasing.

3. The estimated time to achieve water quality objectives (WQOs) is excessive. First order decay analysis of groundwater monitoring data collected from on-site monitoring wells (MW-1 through MW-3) suggest twenty to sixty years to achieve objectives. Evaluating a reasonable time to achieve objectives requires knowledge of site conditions, including potential impact to nearby sensitive receptors such as Humboldt Bay. The influence of buried utilities in Washington Street has not been evaluated.

   RESPONSE: The approximate time period in which the requisite level of water quality will be met for dissolved petroleum hydrocarbons is a few decades to hundreds of years. The likelihood that shallow groundwater in this area will be used and the petroleum constituents are stable and decreasing was considered when evaluating whether the time it will take to ultimately reach water quality objectives is a reasonable period.

   There are numerous buried utilities beneath Washington Street. The estimated plume length is less than 250 feet and the plume is stable and decreasing. It is unlikely that petroleum hydrocarbons have migrated beyond 250 feet along buried utilities.

Recommendation for Closure

The corrective action performed at this Site ensures the protection of human health, safety, the environment and is consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations, applicable state policies for water quality control and the applicable water quality control plan, and case closure is recommended.

Prepared By: Russell Hansen — 5/28/13
Russell Hansen, PE No. 77684 — Date
Water Resource Control Engineer

Reviewed By: [signature] — 5/28/13
Benjamin Heningburg, PG No. 8130 — Date
Senior Engineering Geologist

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

The Site complies with 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 Site 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
Does nuisance as defined by Water Code, section 13050 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? If YES, check applicable class: ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☒ **5**	☒ Yes ☐ No ☐ NA
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?	☐ 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 INFORMATION (Conceptual Site Model)

Site Location/ History

- The Site is an active retail equipment rental/repair facility. Aboveground storage tanks are used onsite for fueling rental equipment.
- The Site is bounded by commercial and industrial properties.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system
- Discovery Date: December 2003, during a site investigation for downgradient site (Hansen's Machine Works).
- Release Type: Petroleum[2]
- Five monitoring wells have been installed.
- Free Product: During UST removal light non aqueous phase liquid (LNAPL) was observed in tank excavation.

Table A. USTs:

Tank No.	Size	Contents	Status	Date
1	10,000 gallon	Gasoline	Removed	2006

Receptors

- Groundwater Basin: Eureka Plain Hydrologic Unit
- Groundwater Beneficial Uses: Municipal and domestic supply (MUN); industrial service supply (IND); industrial process supply (PRO); agricultural water supply (AGR); and replenishment to surface waters (FRESH).
- Designated Land Use: General commercial (GC)
- Public Water System: City of Eureka
- Distance to Nearest Surface Waters: Slough in balloon track (Union Pacific Railroad Yard,
- Global ID: T0602391155) leading to Humboldt Bay, approximately 400 feet from the estimated plume boundary.
- Distance to Nearest Supply Wells: No supply wells in area.

Geology/ Hydrogeology

- Average Groundwater Depth: ~4 feet below grade surface
- Minimum Groundwater Depth: ~2.9 feet below grade surface
- Groundwater Flow Direction: Lateral gradient of 0.002 foot per foot (ft/ft) Northwesterly
- Geology: Site is located on top of bay mud and native marsh which was covered with fill material. Boring logs indicated buried wood debris present in the subsurface showing the fill material has organic content.
- Hydrogeology: Groundwater is unconfined. Groundwater flows in subsurface from the City of Eureka, under the Site and towards Humboldt Bay, Northwest.

[2] "Petroleum" means crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute.
(Health & Safety Code, § 25299.2)

Corrective Actions

- January 2006: Removal of USTs and soil excavation.
- Tank cavity was over excavated and water purged several times into a temporary storage tank for proper disposal.

Table B. Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	.00009	.00097
Ethylbenzene	.0011	.025
Naphthalene	Not Analyzed	Not Analyzed
PAHs*	.069	<.010

*Poly-aromatic hydrocarbons as benzo(a)pyrene toxicity equivalent

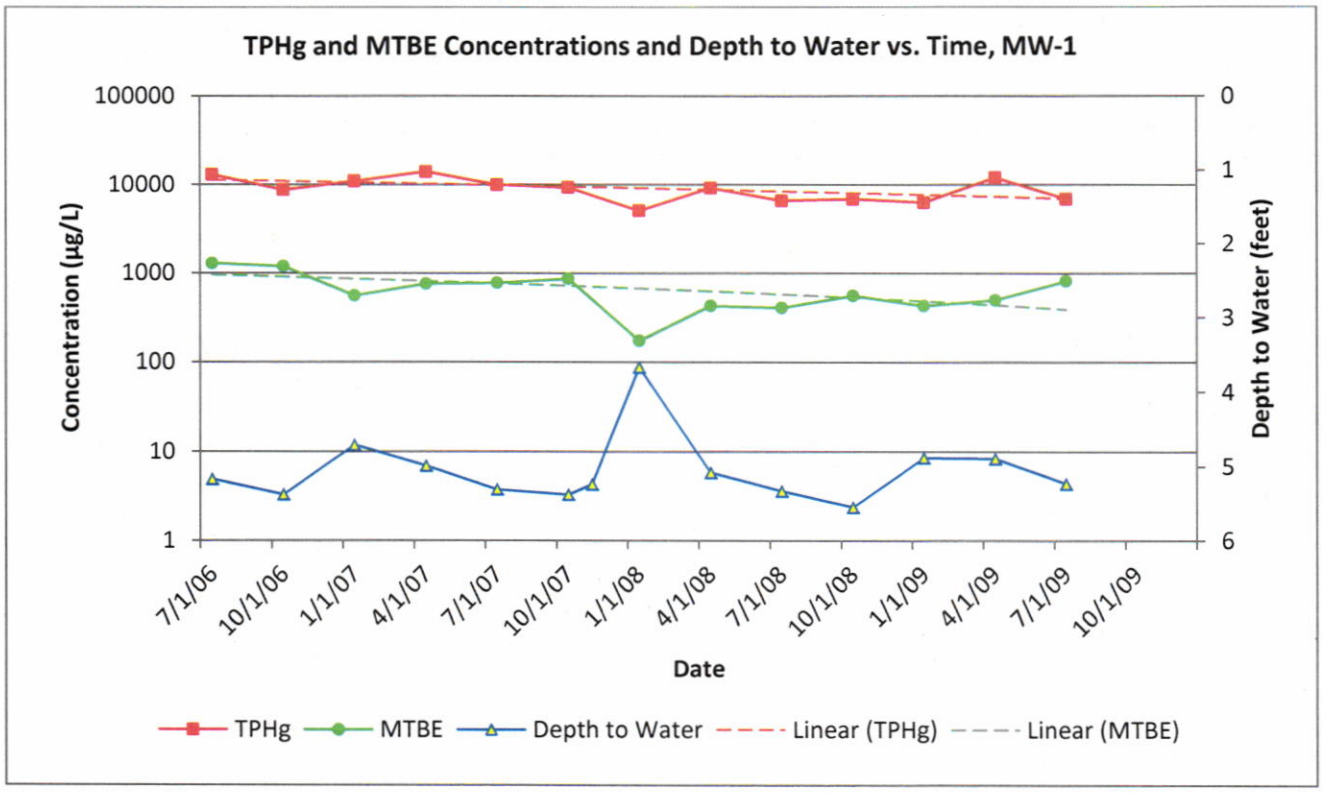
Table C: Concentrations of Petroleum Constituents of Concern in Groundwater

Sample	Sample Date	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-1	7/01/09	**6,900**	**91**	12	**86**	**315**	**820**
MW-2	04/03/09	**290**	<0.5	<0.5	<0.5	<1.0	**28**
MW-3	7/01/09	**2,000**	**31**	.91	1.2	**20**	**200**
MW-4	04/03/09	<50	<0.5	<0.5	<0.5	<1.0	**4.2**
MW-5	7/01/09	**53**	<0.5	<0.5	<0.5	<1.0	**24**
WQOs	-	**50**	**1**	**42**	**29**	**17**	**5**

Notes:
bold indicates that sample result exceeds WQOs
TPHg – Total petroleum hydrocarbons as gasoline
MTBE- Methyl tert-butyl ether
µg/L – micrograms per liter
"<" – indicates result is below the laboratory reporting limit

Groundwater Trends

- Petroleum Constituents reported in groundwater at the Site has demonstrated stable and decreasing trends over time.



Evaluation of Risk Criteria

- Maximum Petroleum Constituent Plume Length above WQOs: The groundwater plume is less than 250 feet in length.
- Petroleum Constituent Plume Determined Stable or Decreasing: Yes
- Soil/Groundwater Sampled for MTBE: Yes, see Table C above
- Residual Petroleum Constituents Pose Significant Risk to the Environment: No
- Residual Petroleum Constituents Pose Significant Vapor Intrusion Risk to Human Health: No – Petroleum constituents most likely to pose a threat for vapor intrusion were removed during soil excavation and over-excavation. Site conditions demonstrate that the residual petroleum constituents in soil and groundwater are protective of human health.
- Residual Petroleum Constituents Pose a Nuisance[3] at the Site: No
- Residual Petroleum Constituents in Soil Pose Significant Risk of Adversely Affecting Human Health: No – A Site-specific risk assessment from exposure shows that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

[3] Nuisance as defined in California Water Code, section 13050, subdivision (m).

- Residual Petroleum Constituents Pose Significant Direct Contact and Outdoor Air Exposure to Human Health: No – There are no soil samples 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% benzene and 0.25% naphthalene. Therefore, benzene concentrations 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, 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.

MTBE in Groundwater Map