UST CASE CLOSURE SUMMARY

Agency Information

Agency Name: Central Coast Regional Water Quality Control Board (Regional Water Board)	Address: 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401
Agency Caseworker: John Goni	Case No.: 2916

Case Information

USTCF Claim No.: None	Global ID: T0605300215
Site Name: Chevron Service Station #9-3969	Site Address: 650 Laurel Drive East Salinas, CA 93905 (Site)
Responsible Party: Chevron Environmental Management Company	Address: 145 S. State College Boulevard, #400 Brea, CA 92821-5818
USTCF Expenditures to Date: $0	Number of Years Case Open: 16

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605300215

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 Policy. This Case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Low-Threat 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:

The release at the Site was discovered when hydrocarbon-affected soil was encountered during station upgrade activities in March 1997. Five underground storage tanks (USTs) were removed and replaced in March 1997. Approximately 1,071 cubic yards (cy) of soil and 443 cy of pea gravel were removed from the Site during the UST removal. Three gasoline USTs were removed in March 2005 when the station was demolished. Approximately 260 cy of impacted soil and 50 cy of pea gravel were removed during the March 2005 UST removal. During the risk assessment performed in 2006, approximately 609 tons of soil were removed from the Site. The Site currently includes two commercial buildings. No USTs are currently on-site.

A soil vapor extraction and treatment (SVET) and air sparging (AS) system operation began in May 2007. An estimated 14,323 pounds of total petroleum hydrocarbons as gasoline (TPHg), 249 pounds of benzene, and 290 pounds of methyl tert-butyl ether (MTBE) have been extracted from soil and groundwater beneath the Site since May 2007. The SVET/AS system was shut-down in December 2011 due to very low petroleum hydrocarbon mass recovery.

Rationale for Closure under the Policy

- General Criteria – Site meets all eight general criteria under the Policy.
- Groundwater Media-Specific Criteria – Site meets the Policy Groundwater-Specific Class "1."
- Petroleum Vapor Intrusion to Indoor Air – Site meets Policy Class "a."
- Direct Contact and Outdoor Air Exposure – Site meets the Policy Class "a." Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 of the Policy. The estimated naphthalene concentrations in soil meet the thresholds in Table 1 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

Regional Water Board staff objected to UST case closure because confirmation groundwater samples are needed from multiple-level completion monitoring well MW-8. In the absence of the availability of well MW-8, direct push type grab samples from the three water bearing zones will be needed.

RESPONSE:

Well MW-8 has not been sampled since 2008 due to an obstruction in the well casing. Groundwater results from the prior two years sampling events before 2008 for well MW-8 were either non-detect, detected at the concentration below the water quality objectives (WQOs), or detected at the concentration slightly above the WQO. Analytical data from soil and groundwater samples indicate that petroleum constituents in soil and groundwater have naturally attenuated. Total petroleum hydrocarbons as diesel (TPHd), TPHg, benzene, and MTBE in groundwater have currently been either non-detect or have established a decreasing concentration trend at or near WQOs in all monitoring wells that are available for sampling.

Remedial actions undertaken at the Site have reduced the residual petroleum constituents mass to low or non-detect level. The remaining mass of residual petroleum constituents is limited to the vicinity of the former dispenser islands and the former USTs.

Based on these considerations, the residual petroleum contaminants that remain only pose a low risk to human health, safety, or the environment. Therefore, continuation of groundwater sampling or collecting grab samples from well MW-8 is not necessary.

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: Trinh pham 5/29/2013
Trinh Pham Date
Water Resource Control Engineer

Reviewed By: [signature] 5/29/2013
George Lockwood, PE#59556 Date
Senior Water Resource Control Engineer

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
<u>General Criteria</u> 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

- Location: The Site currently includes two commercial buildings. No USTs are currently on-site. The Site is located at the southwest corner of the intersection of East Laurel Drive and Natividad Road in Salinas.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system.
- Discovery Date: 1997.
- Release Type: Petroleum[2].
- Free Product: None reported.

Table A: USTs

Tank No.	Size in Gallons	Contents	Status	Date
1	6,000	Diesel	Removed	1997
2	10,000	Gasoline	Removed	1997
3	10,000	Gasoline	Removed	1997
4	10,000	Gasoline	Removed	1997
5	1,500	Used-oil	Removed	1997
6	12,000	Gasoline	Removed	2005
7	12,000	Gasoline	Removed	2005
8	12,000	Gasoline	Removed	2005

Receptors

- Groundwater Basin: Salinas Valley Groundwater Basin (East Side Aquifer Sub-basin).
- Groundwater Beneficial Uses: Municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PRO).
- Designated Land Use: Commercial and residential.
- Public Water System: California Water Service Company.
- Distance to Nearest Surface Waters: Gabilan Creek and Natividad Creek are both located approximately ½ to one mile east of the Site.
- Distance to Nearest Supply Wells: There are no supply wells within 1,000-foot radius of the Site.

Geology/ Hydrogeology

- Average Groundwater Depth: ~45 feet bgs.
- Maximum Groundwater Depth: ~46 feet bgs.
- Geology: The Site is underlain by predominantly clay, silty clay, sandy clay, gravelly clay, and silt to depths of approximately 12 to 17.5 feet bgs, 32 to 38.5 feet bgs, and 95.5 to 96 feet bgs. Silty sand and discontinuous lenses of sand were observed from 12 to 27 feet bgs and from 42 to 52 feet bgs.
- Hydrogeology: Regionally, the shallow groundwater flow direction is to the southwest to west. Locally, the groundwater flow direction is generally to the west to south.

[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 & Saf. Code, § 25299.2.)

Corrective Actions

- Five USTs were removed and replaced during station upgrade activities in 1997. Approximately 1,071 cy of soil and 443 cy of pea gravel were removed during the UST removal.
- Three gasoline USTs were removed in 2005 when the station was demolished. Approximately 260 cy of impacted soil and 50 cy of pea gravel were removed during the UST removal.
- In May 2006, approximately 609 tons of impacted soil were removed in the vicinity of the former eastern dispenser during the risk assessment.
- Eleven monitoring wells, nine AS wells, and seven SVE wells have been installed at the Site.
- An SVET/AS system operation began on May 2007. An estimated 14,323 pounds of TPHg, 249 pounds of benzene, and 290 pounds of MTBE have been extracted from soil and groundwater beneath the Site since May 2007. The SVET/AS system was shut-down in December 2011 due to very low petroleum hydrocarbon mass recovery.

Table B: Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	0.001	0.002
Ethylbenzene	0.002	16
Naphthalene	Not Analyzed	Not Analyzed
PAHs*	Not Analyzed	Not Analyzed

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

Table C: Groundwater Sampling Results

Well No.	Date Sampled	TPHd (µg/L)	TPHg (µg/L)	Benzene (µg/L)	MTBE (µg/L)
MW-1	9/13/2012	<50	<50	<0.5	<0.5
MW-2	9/13/2012	<50	<50	<0.5	1
MW-3	9/13/2012	<50	<50	<0.5	<0.5
MW-4R	9/13/2012	<50	<50	<0.5	<0.5
MW-5	9/13/2012	<50	**83**	<0.5	<0.5
MW-6	9/13/2012	<50	<50	<0.5	<0.5
MW-7R	9/13/2012	99	<50	<0.5	<0.5
MW-8-49	11/7/2008[1]	<50	<50	<0.5	**17**
MW-8-64	2/7/2008[1]	66	<50	<0.5	<0.5
MW-8-78.5	2/7/2008[1]	75	<50	<0.5	<0.5
MW-9-50	11/2/2007[1]	**110**	<50	<0.5	<0.5
MW-9-67	5/8/2009[1]	Not Available	<50	<0.5	<0.5
MW-9-82	11/2/2007[1,2]	**490**	<50	<0.5	<0.5
MW-10	9/13/2012	<50	<50	<0.5	<0.5
MW-12-50	5/2/2011[1]	<50	<50	<0.5	<0.5
MW-12-67	2/7/2008[1]	78	<50	<0.5	<0.5
MW-12-83	2/7/2008[1]	58	<50	<0.5	<0.5
WQO		**100[3]**	**5[4]**	**1[5]**	**5[6]**

See footnotes on the next page

Table C: Groundwater Sampling Results (Cont'd)

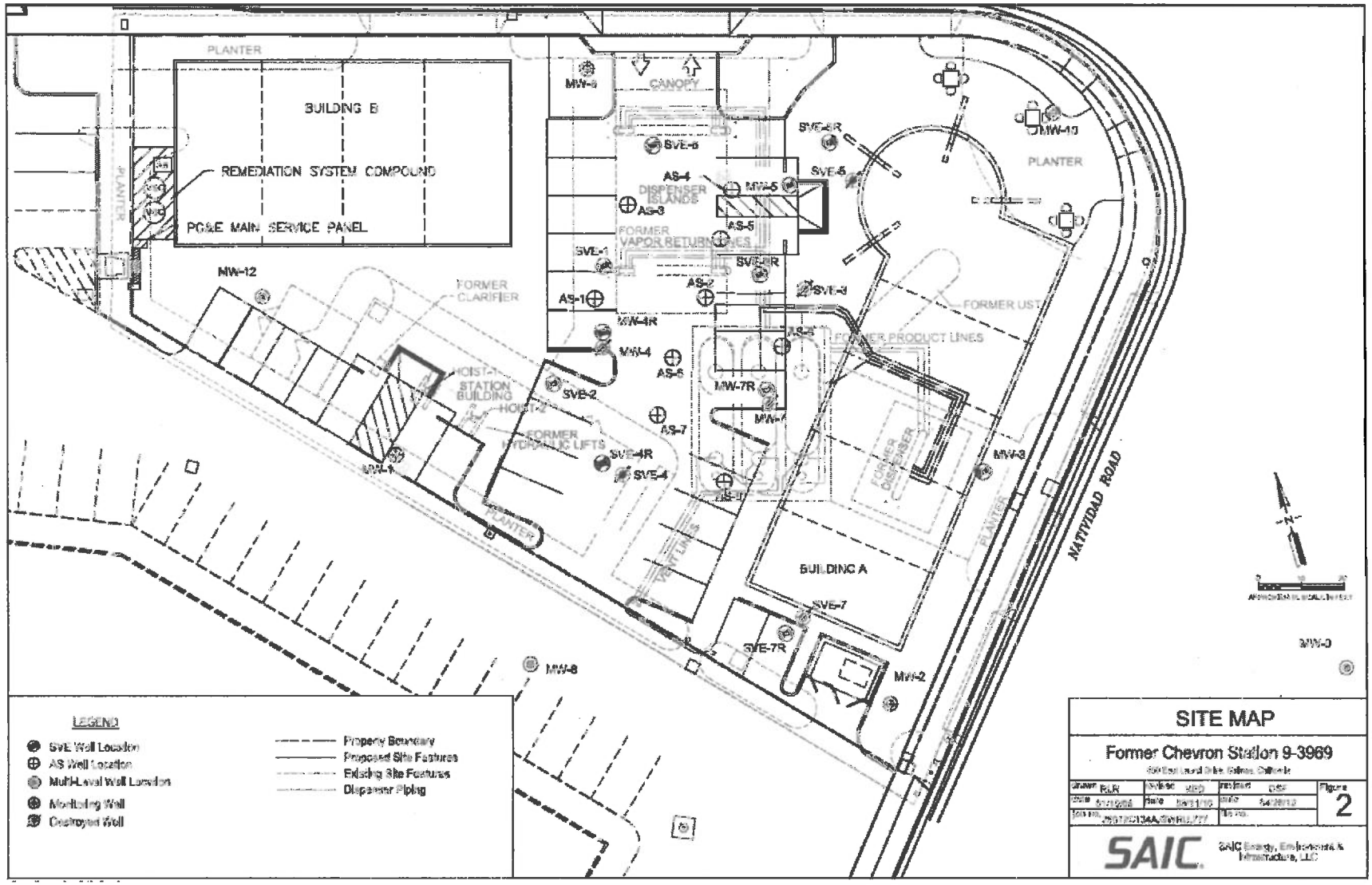
[1]	Unable to sample after this sampling event due to an obstruction in the well casing
[2]	Insufficient water to collect sample for TPHd
[3]	Taste and odor threshold (USEPA Health Advisory)
[4]	Taste and odor threshold (McKee and Wolf)
[5]	California Primary Maximum Contaminant Level (MCL)
[6]	California Secondary MCL
µg/L	Micrograms per liter

Evaluation of Risk Criteria

- Maximum Petroleum Constituent Plume Length above WQOs: The groundwater plume for TPHg is approximately 20 feet.
- 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 remediation. 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.
- 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.

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

SITE MAP


PLANTER
BUILDING B
REMEDIATION SYSTEM COMPOUND
PG&E MAIN SERVICE PANEL
MW-12
FORMER CLARIFIER
MW-6
CANOPY
SVE-6
SVE-6R
MW-10
PLANTER
AS-4
MW-5
SVE-5
DISPENSER ISLANDS
AS-3
AS-5
FORMER VAPOR RETURN LINES
SVE-1
SVE-1R
AS-2
SVE-3
AS-1
FORMER UST
MW-4R
FORMER PRODUCT LINES
MW-4
AS-6
HOIST-1
STATION BUILDING
HOIST-2
SVE-2
MW-7R
AS-7
FORMER HYDRAULIC LIFTS
SVE-4R
SVE-4
MW-1
MW-3
FORMER DISPENSER
PLANTER
NATIVIDAD ROAD
BUILDING A
SVE-7
SVE-7R
MW-8
MW-2
MW-9
LEGEND
SVE Well Location
AS Well Location
Multi-Level Well Location
Monitoring Well
Destroyed Well
Property Boundary
Proposed Site Features
Existing Site Features
Dispenser Piping
SITE MAP
Former Chevron Station 9-3969
Figure
2
SAIC

TPHg IN GROUNDWATER (µG/L) – SEPTEMBER 2012