UNDERGROUND STORAGE TANK (UST) CASE CLOSURE SUMMARY

Agency Information

Agency Name: Santa Ana Regional Water Quality Control Board (Santa Ana Water Board)	Address: 3737 Main Street, Suite 500 Riverside, CA 92501-3348
Agency Caseworker: Valerie Jahn-Bull	Case No.: 083003104T

Case Information

UST Cleanup Fund (Fund) Claim No.: 14012	Global ID: T0605902120
Site Name: Thrifty Oil #015	Site Address: 2016 West 17th Street Santa Ana, CA 92706 (Site)
Petitioner Thrifty Oil Company Attention: Barry Berkett	Address: 13116 Imperial Highway Santa Fe Springs, CA 90670
Fund Expenditures to Date: $1,463,889	Number of Years Case Open: 24

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605902120

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.

The Petitioner owns the site, which in a mixed-use area consisting of commercial and residential properties. The Site was used as a retail fueling station from 1985 through June 2013 when operations ceased. The property was subsequently re-developed, and a convenience store now occupies the Site. Originally, four USTs and six dispensers were operated at the Site, but in June 1995, the USTs were removed and the second generation, double-walled USTs consisting of two 12,000-gallon (gal) and one

15,000-gal gasoline tanks were installed. The leak was discovered in June 1995 during tank removal activities and was attributed to corrosion of the original tanks and piping.

About 1151 tons of contaminated soil, generated during removal of the first-generation USTs, were taken off Site for disposal. A dual phase extraction (DPE) system was operated from August 2000 through October 2005, and from December 2006 to June 2007 after system upgrades. In July 2008, the DPE system was shut down after rebound testing. A cumulative total of 15,872 pounds (lbs) of hydrocarbons were removed and destroyed from the vapor phase, and 410,401 gal of groundwater was treated and discharged to the sanitary sewer under a permit issued by the Orange County Sanitation District. Ozone sparging was conducted during two different periods from February 2009 through June 2010 where 868 pounds of ozone were injected into the subsurface. DPE was again conducted in two 30-day events in November 2010 and April 2011 where 57,600 gal and 737 lbs of hydrocarbons were extracted from the subsurface.

The second-generation USTs, dispensers and fuel lines were removed in June 2013. About 85 tons of contaminated soil was taken off Site for disposal. After this removal action, a groundwater pump and treat system using granular activated carbon was specifically implemented in May 2014 to treat tertiary butyl alcohol (TBA). When the system was shut down in September 2015, 664,280 gal of groundwater had been extracted, treated and discharged to the sanitary sewer.

Concentrations of benzene and MTBE have generally been below 1000 micrograms per liter (μg/L) since the mid-2000s. Only one well (TDD-1) had two excursions above this threshold since that time. TBA concentrations continue to fluctuate in the source area due to changes in the groundwater elevation. However, the TBA plume remains stable in areal extent. The Santa Ana River is about 700 feet west of the Site and is concrete lined. Remaining petroleum constituents are limited, stable, and decreasing. Additional assessment would be unnecessary and will not likely change the conceptual model. Any remaining petroleum constituents do not pose significant risk to human health, safety, or the environment under current conditions.

Rationale for Closure Under the Policy

- General Criteria – Site **MEETS ALL EIGHT GENERAL CRITERIA** under the Policy
- Groundwater Media-Specific Criteria – Groundwater Media-Specific Criteria – Site meets the criteria in **Class 5**. The regulatory agency determines, based on an analysis of Site-specific conditions that under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health, safety, and to the environment and water quality objectives will be achieved within a reasonable time frame.
- Petroleum Vapor Intrusion to Indoor Air – Site meets **Criteria 2 (a), Scenario 3**. As applicable, the extent of the bioattenuation zone, oxygen concentrations in soil gas, concentrations of total petroleum hydrocarbons as

gasoline and diesel combined in soil, and dissolved concentrations of benzene in groundwater meet the Policy.

- Direct Contact and Outdoor Air Exposure – Direct Contact and Outdoor Air Exposure – Site meets **Criteria 3 (a)**. Maximum concentrations of petroleum constituents in soil from confirmation soil samples are less than or equal to those listed in Table 1 of the Policy.

Objections to Closure

Santa Ana Water Board staff objects to UST case closure because:

1. The vertical extent of contamination from petroleum hydrocarbons and fuel oxygenates is not defined, and thus the conceptual site model (CSM) is incomplete. Monitoring well W-1D was installed in a deeper water bearing zone but in a peripheral location; its usefulness for defining the extent and distribution of contaminants is limited.

   Response: In October 2016, the Division of Financial Assistance (DFA), State Water Board met with the Santa Ana Water Board on the Thrifty Oil #015 case. It was agreed that a deeper groundwater monitoring well should be installed at the Site. At that time, DFA recommended that two monitoring events be conducted to evaluate contaminants in the deeper water bearing zone. Monitoring well W-1D was installed in March 2017 adjacent to the southeastern corner of the former dispensers.

   Since installation, W-1D has been consistently sampled seven times. Benzene and TBA have never been detected in this well. MTBE and total petroleum hydrocarbons as gasoline (TPH-G) have not been detected during the past three monitoring events. The sampling results indicate petroleum compounds at concentrations greater than water quality objectives are not present in this deeper water bearing zone.

2. Some of the monitoring wells are dry and cannot produce sufficient water needed for plume definition. Additional monitoring wells are needed at this Site to augment the existing monitoring well network.

   Response: Groundwater elevations have recently recovered since dewatering of the saturated zone began in 2011. Based on the most recent monitoring event conducted during 2nd Quarter 2019, groundwater levels generally increased about 5.8 feet from the previous monitoring event (4th Quarter 2018). None of the monitoring wells were dry during the 2nd Quarter 2019 monitoring event.

3. High concentrations of petroleum compounds correspond to an artificial and temporary rise in the groundwater level from leaky irrigation lines and is evidence that residual contamination remains in the subsurface soil.

   Response: We concur; fluctuating groundwater levels, whether increasing or decreasing, can potentially cause temporary increases in the dissolved concentrations of petroleum compounds in groundwater. These concentration "spikes" appear to be localized, have not been found in monitoring wells used to define the plume extent, and do not alter the stability of the plumes.

4. The secondary soil source was not adequately remediated to the extent practicable.

   Response: Concentrations of benzene, ethylbenzene, and naphthalene in soil samples collected within the upper 10 feet of the subsurface during installation of wells and soil borings (i.e. borings installed outside of the excavated areas of the Site) were below the thresholds in Table 1 of the Policy. Several soil remedial actions were conducted from June 1995 through June 2011 and consisted of two removal actions for the USTs, dispensers, related appurtenances, and contaminated soil, three dual-phase extraction actions, and ozone sparging. Unsaturated soil samples collected since 2009 from beneath the USTs and dispensers show that little or no petroleum contaminants were present in soil. The soil data indicate the most readily recoverable fraction of petroleum compounds in the source-area mass were removed or were destroyed in-place.

5. Elevated concentrations of benzene, MTBE and TBA contamination in shallow and deep soil are widespread across the Site and are sources for ongoing leaching to groundwater.

   Response: All of the soil samples collected from across the site meet the thresholds established in the Policy for direct contact and outdoor air exposure and are not a significant risk to human health. The groundwater plumes are stable and do not pose a threat to human health.

6. The plumes are not stable based on increasing TBA concentrations and high concentrations of benzene and MTBE.

   Response: A plume is considered stable if the plume extent between the point of release and the downgradient, distal end of the plume have similar concentrations or the concentrations are decreasing. Plume stability is measure in length (i.e. feet). Existing and historic groundwater data indicate the groundwater plume is stable in areal extent.

7. The case is ineligible for closure due to the elevated dissolved concentrations of benzene, MTBE and TBA in groundwater.

   Response: The risk posed by releases of petroleum compounds to groundwater at this Site is minimal. Free product has never been found in any of the monitoring wells at the Site. The contaminant plumes are less than 500 feet in length and have been stable or decreasing in areal extent for the past 15 years. There are no supply wells within 1000 feet of the site.

8. Additional remediation is needed to mitigate the threat posed by contaminated soil because dissolved groundwater contamination cannot be expected to attenuate to acceptable levels within a reasonable period of time.

   Response: Site conditions demonstrate that the petroleum plumes are stable or decreasing. Monitoring data over the historical record indicates natural attenuation is occurring at this Site and water quality objectives will be met within a reasonable time frame. Additional remediation is not needed to assure petroleum compounds attenuate to acceptable levels.

9. The persistence of contamination threatens the beneficial uses of groundwater. Underlying aquifers in the area of the Site are heavily used for municipal production and must be protected.

   Response: It is unlikely that the shallow groundwater will be used before water quality objectives are restored through natural attenuation. The investigation of the deeper water bearing zone, as evidenced by deeper groundwater levels, indicates that petroleum compounds at concentrations that exceed water quality objectives are not present in groundwater. This Site does not pose a threat to municipal drinking water based on the results of routine water quality monitoring and the absence of nearby water supply wells.

Recommendation for Closure

The corrective action performed at this Site ensures the protection of human health, safety, and the environment. The corrective action performed at this Site is consistent with chapter 6.7 of division 20 of the Health and Safety Code, implementing regulations, applicable state policies for water quality control and applicable water quality control plans. Case closure is recommended.

10/7/2019

Reviewed By: _____ _____
Matthew L. Cohen, PG No. 9077 Date
Senior Engineering Geologist