UNDERGROUND STORAGE TANK (UST) CASE CLOSURE SUMMARY

Agency Information

Agency Name: Orange County Health Care Agency, Division of Environmental Health (Orange County)	Address: 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705
Agency Caseworker: Julie Wozencraft	Case No.: 85UT015

Case Information

UST Cleanup Fund (Fund) Claim No. 13360	Global ID: T0605900455
Site Name: Thrifty Oil #014	Site Address: 120 East Imperial Highway Brea, CA 92821 (Site)
Petitioner: Thrifty Oil Company Attention: Barry Berkett (Berkett@ThriftyOil.com)	Address: 13116 Imperial Highway Santa Fe Springs, CA 90670
Fund Expenditures to Date: $1,217,519	Number of Years Case Open: 32

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605900455

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 Site is an active fueling station and has been at this location for over 25 years. Thrifty Oil Company owns the property but ceased its operations in 1997; the facility was subsequently leased by another operator. The Site contains three gasoline USTs (12,000 gallon capacities) and three dispenser islands. Integrity testing for the UST system was conducted in January 1985 and failed. As a result, the former tanks were removed along with 600 tons of contaminated soil, and the USTs were replaced. Since that time, several different types of remedial actions were conducted at the Site, including a groundwater extraction, treatment, and disposal system, vapor extraction, air and ozone sparging, dual phase extraction, and free product recovery. Between 1986 and 2012, over 4,400,000 gallons of contaminated groundwater and about 64,000 pounds of hydrocarbons were removed from the subsurface.

In August 2015, free product was unexpectedly found in off-site, downgradient monitoring well W-10. In February 2016, free product was found in on-site well GTI-1, and in February 2017,

free product was found in RW and W-1. Free product was found in these four wells in only one monitoring event after about a 20 year absence. Free product was not found in subsequent monitoring events or in the most recent monitoring event conducted in August 2017 (i.e. Third Quarter 2017).

Concentrations of benzene and MTBE have decreased over time due to remediation and natural attenuation. The extent of the plumes have been defined with the existing monitoring well network. Benzene concentrations near the leading edge of the plume meet the Policy threshold. Benzene data collected near on-site sources meet or are near the Policy threshold. There are no public supply wells or surface water bodies within 1000 feet of the Site. The recent occurrence of free product is associated with a lowering of the groundwater table to levels below the former smear zone, which resulted due to drought conditions from 2011 through 2016. Minor increases in concentrations during the most recent monitoring event are believed to be associated with the excessive rainfall that occurred during the 2016/2017 wet season. 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 – 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 (b)**. A Site–specific risk assessment for the vapor intrusion pathway was conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency.
- 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

Orange County staff objects to UST case closure because:

1. Absorbent socks have been used in the monitoring wells GTI-1, RW, W-1, W-4, and W-10 where free product has been found in recent years. Additional post-remedial monitoring should continue to assure that free product does not accumulate in monitoring wells at this Site.

Free product was not found in any of the monitoring wells during the most recent monitoring event (i.e. Third Quarter 2017). Weekly field data sheets show the last time any product was found in a monitoring well was in July 2017 in one of the absorbent socks. Prior to 2015, the last time any free product was measured in a monitoring well (W-4) was in January 2000. Since 2015, free product was measured in GTI-1, RW, W-1, and W-10 only one time and not in

subsequent monitoring events. The occurrence of free product during recent years is due to the lowering of the groundwater table below the former smear zone.

2. Benzene concentrations in groundwater are elevated and appear to be increasing in off-site monitoring wells where groundwater flow is southwesterly toward a residential area.

RESPONSE: Plume stability is not determined based on a change in a contaminant concentration from one monitoring event to the next. A plume is considered stable if the contaminant concentration trend is decreasing in monitoring wells at the downgradient, distal end of the plume. Benzene concentrations have decreased significantly since routine monitoring began in the early 1990's. The lowest Groundwater-Specific criterion for benzene is 1000 micrograms per liter (µg/L) and contaminant concentrations less than this threshold are considered low-threat to human health, safety, and the environment under the Policy. The benzene concentrations in monitoring wells adjacent to on-site sources have generally been less than 1000 µg/L for the past seven years. These reductions in concentration are attributable to remedial actions at the Site. Benzene concentrations in all off-site monitoring wells have been less than 1000 µg/L for the past three monitoring events. Concentrations of benzene in off-site monitoring wells will continue to decrease over time due to natural attenuation.

3. The concentrations of total petroleum hydrocarbons as gasoline (TPH-g) and naphthalene have increased in many of the monitoring wells in recent monitoring events.

RESPONSE: Trend graphs of monitoring well data at key locations within the plume display the plume dynamics and are more indicative of plume stability than are changes in contaminant concentrations from one monitoring event to the next. An increase in contaminant concentration does not necessarily mean the areal extent of the plume is expanding. The concentrations of TPH-g in the monitoring wells adjacent to on-site sources have decreased one to two orders of magnitude from the historical high concentrations. The TPH-g plume does not appear to be expanding and is stable. The apparent "increase" in naphthalene is not unexpected and is associated with the occurrence of free product in recent years.

4. Increases in TPH-g concentrations in some of the on-site, upgradient monitoring wells in the mid-2000s are not indicative of an off-site source. There are other on-site, upgradient wells (i.e. W-8 and W-9) that did not show these increases during this period of time and there are no records of releases from other off-site sources.

An off-site source investigation is not needed because under the current and near-term future scenarios, the contaminant plumes pose a low threat and water quality objectives will be achieved in a reasonable time frame due to natural attenuation. The increases in contaminant concentrations in many of the on- and off-site monitoring wells from 2005 through 2006 resulted from excessive rainfall during the 2004/2005 wet season (up to 235 percent of the long-term average). Monitoring wells W-8 and W-9 did not show increases in contaminant concentrations because these slant-drilled monitoring wells do not have comparable monitoring intervals as evidenced by their groundwater elevations.

5. The benzene plume extent has not been defined to water quality objectives in the direction of flow (southwesterly) in the adjacent residential neighborhood. The benzene plume length cannot be determined because the plume extent has not been defined.

The benzene plume can be defined using off-site, downgradient monitoring wells, W-11 through W-14. Plume definition is based on interpolation of the contaminant concentration between known data points. The benzene plume length is about 300 feet based on Third Quarter 2017 monitoring data. Installation of another monitoring well to define the benzene concentration along the southwestern flank of the plume will not change the conceptual site model for this case.

6. The conceptual site model that assess the nature, extent and mobility of the release was not developed.

Sufficient data have been developed and there is a long, consistent, and thorough monitoring history at this Site to understand the migration of residual petroleum concentrations in groundwater.

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.

Reviewed By: _____ 1/19/2017

Matthew Cohen, PG No. 9077 Date
Senior Engineering Geologist