UNDERGROUND STORAGE TANK (UST) CASE CLOSURE SUMMARY

Lead Agency Information

Lead Agency Name: Orange County Local Oversight Program (Orange County LOP)	Address: 1241 East Dyer Road, Suite 120 Santa Ana, CA 92705
Case Manager: Geniece Higgins	Case No.: 86UT206

Case Information

UST Cleanup Fund (Fund) Claim No.: 8957	Global ID: T0605900372
Case Name: Arco #6066	Site Address: 490 Pacific Coast Hwy. Seal Beach, CA 90740
Responsible Party: Marathon Petroleum Company, LP Attention: Eric Swaisgood Atlantic Richfield Company	Address: 539 South Main Street Findlay, Ohio 45840 501 Westlake Park Boulevard Houston, TX 77079
Fund Expenditures to Date: $1,490,000	Number of Years Case Open: 39

GeoTracker Case Record: http://geotracker.waterboards.ca.gov/?gid=T0605900372

Summary

This case has been proposed for closure by the State Water Resources Control Board (State Water Board) at the request of the Orange County LOP, which concurs with closure.

The Low-Threat Underground Storage Tank Case Closure Policy (Policy)[1] contains general and media-specific criteria. Sites that meet Policy criteria are appropriate for closure pursuant to the Policy because they pose a low threat to human health, safety,

[1] https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

and the environment. The Site meets all Policy criteria and therefore, case closure is appropriate.

The Site is an empty lot located on the northwest corner of the intersection of Pacific Coast Highway and 5th Street in Seal Beach, Orange County, California. The Site was formerly an active retail gasoline fueling station with a small mini-mart and a Smog Pros-branded auto repair shop. The release was discovered in 1986 when ARCO service station personnel noted discrepancies on their inventory records. The source of the release included a 10,000-gallon gasoline UST and three 6,000-gallon gasoline USTs. The USTs were removed in January 1987 along with 1,700 gallons of petroleum-impacted groundwater, 25 gallons of liquid phase hydrocarbons, and an unknown quantity of contaminated soil. The USTs were replaced by three 12,000-gallon gasoline USTs and one used-oil UST. These USTs were later removed in April 2011.

Dual Phase Extraction (DPE) was conducted from July 2000 to June 2001, September 2002 to July 2003, and August 2003 to December 2004. These DPE operations cumulatively removed approximately 1,378 pounds of vapor-phase hydrocarbons and 381,169 gallons of petroleum-impacted groundwater. Three major excavation events, which occurred in 2004, 2011-2012, and 2016, removed a total of approximately 24,892 tons of petroleum-impacted soil from the Site and the surrounding area. In 2009, a permanent DPE system was installed and operated until 2023. An estimated total of 36,176 pounds of vapor-phase hydrocarbons were removed between 2009 and 2023. Additionally, approximately 56,507,874 gallons of groundwater was treated and discharged to the Orange County Sanitation District (OCSD) sanitary sewer system under OCSD Permit No. S-053371.

Recent groundwater monitoring events have indicated that the remaining petroleum hydrocarbon plume is stable and decreasing in areal extent. Confirmation soil samples taken during excavation events in 2011-2012 and 2016 found that benzene, ethylbenzene, and naphthalene concentrations in the upper 10 feet of soil do not exceed those listed in Table 1 in the Policy for a commercial property. Finally, a site-specific risk assessment for vapor intrusion was conducted by the State Water Board, that determined that soil vapor at and around the Site does not pose a human health risk for all chemicals analyzed, including benzene, ethylbenzene, and naphthalene.

Groundwater Rise Considerations: Sea-level rise (SLR) can cause groundwater rise (GWR) at near-shore cleanup sites. Utilizing the Coastal Storm Modeling System (CoSMoS) - Sea Level Rise Visualization overlays (2100 predictions) on the GeoTracker database, the Site is not expected to be affected by inundation; however, was identified within the “Groundwater rise as a result of 1.5 meter SLR with hydraulic conductivity of 1 meter/day” zone. While the site is being evaluated for closure under a residential exposure scenario and the threat of adverse effects due to projected SLR and GWR is low, the Orange County LOP anticipates updated predictions of sea level rise and applicable management guidance and Orange County LOP staff will reopen the case if site conditions change substantially that create new exposure pathways and change the risk profile of the site.

Remaining petroleum constituents are limited, stable, and decreasing and further assessment will not alter the conceptual site model significantly. Remaining petroleum constituents associated with the case do not pose a significant risk to human health, safety, or the environment under current conditions and property use.

Rationale for Closure Under the Policy

- General Criteria – Site **MEETS ALL EIGHT GENERAL CRITERIA** under the Policy.
- **Groundwater Media-Specific Criteria – Site Meets Criteria 1, Class 1**. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- **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 are less than or equal to those listed in Table 1 of the Policy for the specified depth below ground surface.

Response to Public Comments

The State Water Board received several comments from interested parties during the public comment period for the Site, which ended on April 17, 2026. Upon consideration, the State Water Board finds that case closure is still warranted. The public comments and the State Water Board's response are provided below:

1. *If the site doesn't meet the Low Threat Closure Scenarios (Appendix 4 Scenario 4 – Direct Measurement of Soil Gas Concentrations (2 of 2) Soil Gas Sampling – With Bio attenuation zone) because of shallow groundwater (apparently less than 5'), does the shallow groundwater also put the risk assessment in question due to it limiting the depth of soil vapor sampling? Page 17 of the [California Environmental Protection Agency (CalEPA)] Final Draft Supplemental Guidance: Screening and Evaluating Vapor Intrusion February 2023: "The sample depths generally should be no shallower than 5 feet bgs as discussed in Attachment 1. Shallow groundwater can limit the ability to collect soil gas samples, in which case it will be necessary to rely on other [lines of evidence (LOEs)]."*

   Response:

Attachment #2 of the *CalEPA Final Draft Supplemental Vapor Intrusion Guidance 2023*[2] (SVIG) discusses petroleum-based vapor intrusion screening approaches that can be used to evaluate vapor intrusion concerns at petroleum release sites. A soil gas sample collected shallower than 5 feet below ground surface (ft bgs) can be used when using a bioattenuation factor (BAF) unless it is being applied to sub-slab soil gas, crawlspace air, or indoor air. This assumption is supported by field studies that indicate that bioattenuation occurs at depths shallower than 5 ft bgs at sites with shallow groundwater. These studies are discussed in Section 3.1.2 of the *Technical Justification for Vapor Intrusion Media-Specific Criteria* (Technical Justification) for the Policy.[3] Studies considered for the Technical Justification show that petroleum soil vapor almost completely bioattenuates within 5 ft or less if dissolved benzene concentrations in groundwater are 6,000µg/L or less.

In the case of ARCO 6066, oxygen concentrations between 2-3 ft bgs were greater than 4%, on average, for the entire site from 2009-2025. Petroleum concentrations in groundwater were also low, especially at monitoring well locations within the neighborhood. These conditions indicate the presence of a stable bioattentuation zone.

2. Does the human health assessment reflect data collected over the span of the remediation years (2009-2025) or does it reflect the data collected from 2024-2025?

   Response: The State Water Board's human health risk assessment reflects data collected from 2009 to 2025.

3. Is data available regarding total petroleum hydrocarbon [TPH] in soil between 1986-2008? If data is available, was a human health risk assessment performed for that time period?

   Response: There is TPH data available starting in 1987 following removal of the USTs. This data is available on the GeoTracker Case Record page referenced above. The State Water Board's human health risk assessment only reflects data collected from 2009 to 2025, since historical concentrations do not reflect current Site conditions following remediation.

4. Since the onset of remediation in 2009, the soil vapor oxygen concentrations were noted to be on average greater than 4%. I don't know if it was feasible or logical to obtain a baseline soil vapor oxygen concentration immediately prior to remediation, but if this was measured, what was the oxygen concentration prior to remediation? Hypothetically, if the oxygen concentration was less than 4% at

[2] https://www.waterboards.ca.gov/water_issues/programs/site_cleanup_program/vapor_intrusion/docs/2023/Final-Draft-Supplemental-VI-Guidance-Feb2023.pdf
[3] https://www.waterboards.ca.gov/water_issues/programs/ust/docs/vi_tecjust.pdf

baseline, would it be reasonable to assume that prior to remediation, there was low level petroleum bioattenuation occurring?

Response: Stantec's June 9, 2010 *Conceptual Site Model* report provides a summary of oxygen data that was collected at the Site during vapor sampling in 2009 prior to remediation. Oxygen was above 4% in the majority of samples analyzed.

5. On page 6 of the report, the maximum TPH concentration collected from Soil Vapor Sample (VP-15-4) in 2015 was 530,000,000 µg/m^3. After adjusting this concentration by the soil vapor to indoor air attenuation factor and the bioattenuation factor, the adjusted TPH concentration appears to be 159,000 µg/m^3. According to the Environmental Screening Levels safety limit of 600 µg/m^3, that concentration would appear to be approximately 25 times the acceptable limit. How was the human health assessment impacted by this elevated hydrocarbon level? Also, is data available detailing the concentrations measured at VP-15-4 during the years 2009-2014 and 2016-2023?

   Response:
   The human health risk assessment focused on the most recent sampling data at each location to determine whether the Arco 6066 site currently posed a human health risk. The changes in concentrations from 2015 to 2024 at VP-15 and other sampling locations were evaluated in the assessment. As is discussed in the Frequently Asked Questions, the TPH concentrations in VP-15 measured between 2024 and 2025 decreased to 1,100 µg/m^3. Since this concentration is below screening levels, it can be concluded that the sampling location no longer poses a risk to nearby residents.

6. Is data available detailing the TPH concentrations from all of the 6 soil vapor sample locations at the onset of remediation? Also, were measurements performed on a yearly basis or an intermittent schedule?

   Response: TPH was analyzed in 62 different soil vapor sampling locations and documented in Stantec's June 9, 2010 *Conceptual Site Model*. In addition, over 50 different soil vapor probes were installed throughout the investigation area. The samples were collected at an intermittent schedule.

7. Is there a map that can be provided to view the location of the sample sites?

   Response: Stantec has provided a comprehensive site map that can be accessed through GeoTracker: https://geotracker.waterboards.ca.gov/?surl=dlq7x.

8. Are there any other sample locations (other than the 6 locations cited in the report) that haven't been published?

Response: All sample locations related to this cleanup case have been published and can be accessed through GeoTracker.

Recommendation for Closure

The corrective action conducted for this case ensures that any residual petroleum constituents associated with the case pose a low threat to human health, safety, and the environment. The corrective action was 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. As such, case closure is recommended.

Prepared by:

Steven Mullery, P.G. No. 10304
Engineering Geologist

Revised: 5/26/2026
Date

Reviewed By:

Dayna Cordano, P.G. No. 9694
Senior Engineering Geologist

Revised: 06/19/2026
Date