DIVISION OF WATER QUALITY RESPONSE TO COMMENTS ON THE PROPOSED UST CASE CLOSURE OF TEXACO 2640 SANTIAGO BOULEVARD, ORANGE (SITE)

We received one comment letter during the public comment period, which ended on September 20, 2013 at noon. The comments and our responses are presented here.

Comment letter received:

1. Orange County Local Oversight Program

COMMENT 1: Case closure was denied by the Orange County Local Oversight Program (OCLOP) due to incomplete development of the site conceptual model. Soil delineation has not been completed in the vicinity of boring B-21 and vapor well VW-3 (located under the dispenser area).

RESPONSE: Soil investigation near B-21 and VW-3 is difficult due to limited access due to both the onsite canopy and the underlying bedrock encountered roughly 40 feet below ground surface. A post-remediation boring, B-28, was directionally drilled to determine soil/bedrock contamination at depths greater than B-21 and VW-3. B-28 identified total petroleum hydrocarbons at a depth of at least 140 feet bgs. There is no other soil sample beyond this depth near this immediate location. Soil contamination beneath 140 feet is delineated using both soil and soil-vapor concentrations from two vapor wells located within 20 feet of this area. Soil concentrations from 100 to 170 feet bgs in VW-7 and VW-8 are reported as non-detect for total petroleum hydrocarbons and fuel oxygenates, thus defining the lateral extent of contamination beneath the canopy. The vertical extent of soil contamination can be inferred using the most recent soil vapor data from VW-7 (screened from 135 to 145 feet bgs and located approximately 10 feet from the soil contamination) and VW-8 (screened from 140 to 170 feet bgs and located approximately 20 feet from the deep soil contamination). The August 2010 soil vapor samples from these two vapor wells show minimal vapor concentrations, thus delineating the vertical extent of soil contamination, which is minimal. Additional soil data near B-21 and VW-3 will not change the conceptual site model explained in the case closure summary. Data support rationale for closure under the Low-threat Case Closure Policy (Policy).

COMMENT 2: Elevated vapor concentrations were detected in a few individual extraction wells prior to soil vapor extraction (SVE) remediation system shut-down in July 2005. In addition, results of rebound testing from August/September 2010 showed that vapor concentrations remained elevated in system influent and select individual extraction wells.

RESPONSE: The vapor concentrations identified at the end of SVE remediation in 2005 and the end of the 2010 rebound test do not indicate significant total petroleum hydrocarbon mass remains beneath the site that is a risk to human health or the environment. Vapor concentrations at the end of the 2010 rebound test from vapor wells located within the source area are approximately 98% lower (1 to 2 orders of magnitude) than pre-remediation values.

Further remediation is unwarranted since the Site meets the criteria of the Policy. The Site meets the exception for **petroleum vapor intrusion to indoor air**, since the Site is an active fueling facility and shallow soil vapor do not indicate a human health or environmental risk to the Site or neighboring properties. The Site meets **general criteria (f) secondary source has been removed to the extent practicable**, since excavation and remediation efforts were

implemented successfully. Soil excavation efforts in November 1995 removed approximately 1,400 tons of impacted soil. Soil beneath the canopy and dispenser islands was removed to a depth of 8 feet bgs. Impacted soil beneath the USTs was removed to a depth of 15 feet bgs. The SVE system removed over 23,000 pounds (lbs) of total petroleum hydrocarbons from 2003 to 2005 and during the 2010 rebound test. The SVE system demonstrated asymptotic conditions in 2005 and during the 2010 rebound test as the extraction rate stabilized between 0.2 and 0.5 lbs per hour.

COMMENT 3: This Site is located in the Forebay Area of the Orange County Groundwater Basin that is the primary source of drinking water for Orange County residents. Based on the incomplete assessment under the canopy, the highly permeable soils at the Site, and the hydrogeologically sensitive nature of the area, it is OCLOP's position that the existing SVE system should be restarted with wells that showed elevated vapor concentrations during the 2010 rebound test and should continue to operate until vapor concentrations decline to asymptotic conditions.

RESPONSE: Sites that meet the Policy are protective of all water bodies including those that are designated as "high use" or groundwater basins designated "Hydrogeologically Vulnerable" per State Water Resources Control Board's response to Governor Executive Order D-5-99. Site data do not demonstrate that sufficient mobile constituents (leachate, **vapors**, or light non-aqueous-phase liquids (LNAPL)] to cause groundwater to exceed the groundwater criteria in the Policy. The Site meets the Exception to the Groundwater-Specific Criteria for the following rationale:

- Deep soil and soil vapor data do not indicate that significant mobile constituents exist beyond 140 feet below ground surface. The lateral extent of total petroleum hydrocarbons is delineated by soil concentrations for two vapor wells VW-7 and VW-8. The vertical extent of hydrocarbons is delineated by the minimal vapor concentrations from these two vapor wells that are screened between 135 and 145 feet bgs, and 140 to 170 feet bgs, respectively. The most recent soil vapor sample from VW-7 contained total petroleum hydrocarbons as gasoline (TPHg) at non-detect levels (<1.5 parts per million per volume [ppmv]) and benzene at 3.8 parts per billion per volume (ppbv) or 12.4 micrograms per cubic meter ($\mu g/m^3$). VW-8 contained TPHg at non-detect levels and benzene at 1.3 ppbv or 4.15 $\mu g/m^3$. These concentrations do not indicate significant mobile constituents exist at this depth;
- Depth to groundwater is approximately 200 feet bgs. Orange County Water District (OCWD) principal aquifer groundwater contour maps indicate that groundwater elevations in vicinity of the Site are between 80 and 100 feet mean sea level (MSL). Ground surface elevation for the Site is approximately 300 feet MSL;
- The Site overlies the western flank of the Peralta Hills. The Peralta Hills is an outcrop of the Fernando Formation that is composed of low permeable silty sandstone to gravely sandstone interbedded with micaceous clayey sitlstone or silty claystone. This formation is encountered approximately 40 feet bgs below the Site. Due to the consolidated nature of the formation, water bearing units within this outcrop are likely less permeable than those within the principal aquifer located outside of the outcrop; and
- The closest supply well to the Site is City of Orange Well No. W-350, which is located approximately 2,200 feet to the northwest and is hydraulically upgradient of the Site per OCWD's principal aquifer contour map.

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August 16, 2013

Vivian Gomez-Latino
Office Technician
State Water Resources Control Board
1001 I Street, P.O. Box 2231
Sacramento, CA 95812

Subject: **Comment Letter - Santiago Texaco UST Case Closure Summary**

Re: Texaco Station
2640 Santiago Boulevard
Orange, CA
OCHCA Case #98UT083

Dear Ms. Gomez-Latino:

The Orange County Local Oversight Program (OCLOP) has reviewed the case file and the UST Case Closure Summary prepared by the State Water Resources Control Board (SWRCB) dated July 2013. The OCLOP would like to address/clarify following issues prior to consideration for site closure under the SWRCB low-threat closure policy (LTCP):

1. Case closure was denied by the OCLOP due to incomplete development of the site conceptual model. Soil delineation has not been completed in the vicinity of boring B-21 and vapor well VW-3 (located under the dispenser area).

2. Elevated vapor concentrations were detected in a few individual extraction wells prior to soil vapor extraction (SVE) remediation system shut-down in July 2005. In addition, results of rebound testing from August/September 2010 showed that vapor concentrations remained elevated in system influent and select individual extraction wells.

3. This site is located in the Forebay Area of the Orange County Groundwater Basin that is the primary source of drinking water for Orange County residents. Based on the incomplete assessment under the canopy, the highly permeable soils at the site, and the hydrogeologically sensitive nature of the area, it is OCLOP's position that the existing SVE system should be restarted with wells that showed elevated vapor concentrations during the 2010 rebound test and should continue to operate until vapor concentrations decline to asymptotic conditions.

This Agency also provided a petition response letter dated July 22, 2011. Please refer to the OCHCA letter in Geotracker.

If you have any questions, please call me at (714) 433-6262.

Sincerely,

K. Shyamala

Shyamala K. Sundaram
Hazardous Waste Specialist
Hazardous Materials Mitigation Section
Environmental Health

cc: Ken Williams, Santa Ana Regional Water Quality Control Board (electronic copy)
Carl Bernhardt, Santa Ana Regional Water Quality Control Board (electronic copy)
Ben Heningburg, SWRCB - UST Cleanup Unit III, Sacramento, CA (electronic copy)
Nathan Jacobsen, SWRCB Staff Counsel (electronic copy)
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John Huff, Wayne Perry, Inc. (electronic copy)
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