

**STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
DIVISION OF WATER QUALITY (DWQ) RESPONSE TO COMMENTS ON THE
PROPOSED UNDERGROUND STORAGE TANK (UST) CASE CLOSURE OF
FORMER MERCURY RENTALS (MERCURY)
4664 LINCOLN AVENUE, CYPRESS, ORANGE COUNTY (SITE)**

DWQ, State Water Board received comments during the public comment period for the proposed case closure of the Site, identified above. The public comment period ended on September 3, 2019 at noon. The summarized comments and DWQ's responses follow.

1. Comment letter from Golden State Water Company (GSWC) was received on August 23, 2019.

COMMENT 1.A.: GSWC owns and operates one public water-supply well within a one-mile radius of the subject UST site. This well (South Cypress 1) is located approximately 4,500 feet upgradient, or east southeast, of the subject UST site based on Spring 2018 groundwater elevation contours for the principal aquifers in the basin of the Orange County Basin, which were obtained from the Orange County Water District (OCWD).

RESPONSE: DWQ staff considered the South Cypress 1 well information when the UST case was reviewed for potential closure. The location and distance between this well and the Site suggest it is unlikely that contaminant releases would be within the zone of capture for this supply well.

COMMENT 1.B. The uppermost perforations in this well occur at 526 feet below ground surface (bgs), or approximately 483 feet below mean sea level.

RESPONSE: Comment noted.

COMMENT 1.C.: Based on data obtained from OCWD and the Water Replenishment of Southern California (WRDSC), a downward vertical hydraulic gradient between the shallow unconfined aquifer and deeper drinking water aquifers exists in the area, which increases the threat to drinking water aquifers posed by contaminants at the subject UST site.

RESPONSE: DWQ staff agrees that a downward vertical gradient is possible in an unconfined water bearing zone and that the risk of cross-contamination into deeper water bearing zones may increase with contaminant migration. Also considered were other factors such as the relative location and distance to a source and plume stability, which influence the potential for impacts to drinking water aquifers.

COMMENT 1.D.: Based on data obtained from OCWD and WRDSC, a few aquitards appear to exist between the shallow unconfined aquifer and deeper

drinking water aquifers in the area, which may impede downward migration of contaminants that have been released at the site.

RESPONSE: Comment noted. DWQ staff agrees that aquitards typically impede the downward vertical migration of contaminants.

COMMENT 1.E.: Regular sampling of GSWC's South Cypress 1 well (DDW Source ID = 3010022-014) wells since 1986 suggests that fuel-related volatile organic compounds (VOCs) have not been detected in groundwater produced by this well.

RESPONSE: Comment noted.

COMMENT 1.F.: Based on the information available via the SWRCB GeoTracker web page for the subject UST site, it is unclear whether non-petroleum products, particularly cleaning solvents, were used at the site. For example, chlorinated VOCs such as tetrachloroethene (maximum of 1.1 ug/L), trichloroethene (maximum of 6.6 ug/L), and cis-1,2-dichloroethylene (maximum of 1.4 ug/L) have been detected in groundwater at the site, not to mention soil vapor samples. In addition, leasing and renovation of construction equipment apparently occurred at the site from 1964 to 1985 and a waste oil tank was removed from the site in 1985. Furthermore, the VOCs detected in groundwater do not appear to have been attributed to an off-site source. Therefore, it is unclear whether General Criterion b of the 1/23/17 Low Threat Closure Policy (LTCP) checklist has been met.

RESPONSE: Based on the documents available for review, there are no documented releases from the waste oil tank formerly located at the Mercury Site. If identified, releases of non-petroleum compounds would be addressed under a separate site cleanup case. Solvent releases are currently being investigated on the adjacent site, Former Hansen Property (aka Bonanni Development), GeoTracker No. T10000011870 (Hansen).

COMMENT 1.G.: Methyl tert-butyl ether (MTBE), which is highly mobile compared to other contaminants, has been detected in groundwater at the subject UST site at concentrations exceeding the drinking water standard of 13 ug/L and as high as 350 ug/L. However, it does not appear that groundwater samples have been collected below 20 feet bgs (i.e., the bottom of the screen interval of the deepest monitoring wells at the site), which could be used to preclude the presence of deeper MTBE contamination. This is relevant because the technical justification for groundwater media-specific criteria described in the LTCP (https://www.waterboards.ca.gov/ust/docs/gw_tecjust.pdf) notes that "There are two common ways to demonstrate plume stability. The first common way is to routinely observe non-detect values for groundwater parameters in down-gradient wells. The second common way is to show stable or decreasing

concentration levels in down-gradient wells at the distal end of the plume.” In GSWC’s opinion, contaminant plumes extending downgradient of a release site or point source may occur in both the horizontal and vertical dimensions. Therefore, because the vertical extent of groundwater contamination has not been characterized, it is unclear whether General Criterion e of the LTCP has been satisfied.

RESPONSE: The highest historical MTBE concentration of 350 µg/L is less than the 1000 µg/L threshold identified in the Groundwater-Specific Criteria of the LTCP. The most recent concentration of 18 µg/L was found in HMW-7 during the Third Quarter 2016 monitoring event. As noted in comment 1.D, aquitards likely exist beneath the site, which would impede the downward migration of contaminants. The CSM Sufficiently characterizes the nature, mobility, and extent of the release

COMMENT 1.H.: California’s 2012 LTCP

(https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf) states “It has been well-documented in the literature and through experience at individual UST release sites that petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater.” The LTCP also states that “A plume that is ‘stable or decreasing’ is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration.” The LTCP is silent however on the degree to which other processes, such as rising and falling groundwater levels, for instance at the water table, may influence plume concentrations and stability. However, the technical justification for groundwater media-specific criteria described in the LTCP (https://www.waterboards.ca.gov/ust/docs/gw_tecjust.pdf) notes that “....concentration levels may exhibit fluctuations due to seasonal variations. These variations may be also attributed to man-made factors, including but not limited to: varying sampling techniques, false positive results, or laboratory inconsistencies.” This implies that attenuation, and conversely an increase, of the contaminant plume at a site caused by processes other than those described in the LTCP, not including remedial actions, must be isolated and removed from the analysis of conformance with groundwater-specific criteria. And, plume stability at a UST site needs to be demonstrated despite non-attenuation processes that may be at play.

RESPONSE: Comment noted.

COMMENT 1.I.: Closure in accordance with the LTCP assumes that contaminants at the subject UST are limited, stable, and decreasing in areal extent. However, this assumption seems to conflict with fluctuations in historical MTBE concentrations in groundwater near wells HMW-7 and HMW-8. For example, the highest concentrations of MTBE in groundwater seem to

have occurred during or following above normal rainfall in the area in 2005 and 2011. Unfortunately, the relationship between contaminant concentrations and above-normal rainfall in 2017 and 2019 cannot be discerned due to a lack of groundwater monitoring since late 2016. Further, no analysis is presented to indicate that concentrations won't increase in the future, for example due to water level fluctuations caused by groundwater recharge associated with above normal rainfall, which caused noticeable increases in groundwater elevations following above-normal rainfall in 2005, and 2011, 2017, and 2019. Thus, in the absence of other factors, the extent of groundwater contamination at the subject UST site may only be stable in so much as, for example, groundwater levels do not fluctuate and/or remain below any residual soil contamination in source areas. As a result, contaminants in certain areas of the subject UST site may not be stable and decreasing in extent, which includes the vertical dimension. Therefore, it is unclear whether the Groundwater-Specific Criterion of the LTCP has been satisfied.

RESPONSE: Fluctuating concentrations are not an indicator of plume instability. A plume is considered stable under the LTCP when attenuation exceeds migration. Plume stability is evaluated by measuring the maximum extent (i.e. a distance) of a plume from the point of release to the downgradient, distal end of the plume where the compound is not detected, or the concentrations are stable or decreasing. Localized fluctuations with temporary increases in concentrations may occur in response to increased recharge, but if the fluctuations do not increase the areal extent of the plume, the plume would meet the LTCP definition of plume stability.

COMMENT 1.J.: The 6/6/2019 LTCP Checklist available via the SWRCB GeoTracker web page for the subject UST site indicates that the General and Groundwater-Specific Criteria have not been satisfied, which would seem to preclude closure of the site.

RESPONSE: DWQ staff conducted an independent evaluation of the Site. The Site meets the criteria in Class 5 of the Groundwater-Specific Criteria of the LTCP, when considered separately from the releases from the Hanson site, consistent with the Salvatore decision (WQ 2013-0109). An evaluation of the Site-specific conditions, including the contaminant plume under current and reasonably anticipated near-term future scenarios were determined to pose a low threat to human health, safety, and to the environment, where water quality objectives will be achieved within a reasonable time frame.

2. Paloma Environmental (Paloma) on behalf of Bonanni Development Inc. submitted a technical report entitled *Site Conceptual Model, Additional Site Assessment Report, and Request for Case Closure*, dated September 1, 2019. The technical report discussed the rationale for closing the Site Cleanup Program case at the Former Hansen Property, which is adjacent to the Mercury site. While the State Board is not considering the Hansen property case for closure, the technical report contained

some statements regarding the proposed closure of the Mercury case for which a response is required.

COMMENT 2.A. The City of Cypress building permit for a 4000 gal AST demonstrates that diesel was never used for Hansen operations.

RESPONSE: The 1974 City of Cypress building permit does not specify whether the 4,000-gallon tank associated with historical steam cleaning operations was an AST or UST. A permit for a steam cleaning tank also does not preclude the prior existence of an AST on the property. The shallow soil impacts found on the Hansen property demonstrate there was a diesel release at the Hansen site. The former AST is the suspected source of the diesel release but given the long industrial history of the Hansen property, which includes a used oil refinery operation, there may have been other sources.

COMMENT 2.B. The shallow soil contamination in the area of historical boring HB-21 is from over-spilling during diesel fueling activities on the Mercury property because the former Hansen site did not have a diesel tank.

RESPONSE: Historical soil boring HB-21 was installed on the former Hansen property and is about 25 feet west of the USTs on the Mercury Site. There is no evidence to suggest that surface spills from the Mercury Site traveled 25 feet from the source, which would be highly unusual. It is more likely that the diesel impacts observed on the Hansen property originated from legacy operations on the Hansen property. The impacted shallow soil is in the same area that may have contained an AST in the late 1940s¹. The southern portion of the former Hansen property and the lot due south are reported to have been used for trucking and oil refining operations as early as the mid-1950s.



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Date

¹ Preliminary Subsurface Assessment, Former Mercury Rentals, 4664 Lincoln Avenue, Cypress, California, Giles Engineering Associates, Inc. June 17, 1996, pgs. 5 – 11, Figs. 3 – 4.