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September 30, 2014

Ms. Vivian Gomez-Latino
State Water Resources Control Board
1001 I Street, 15th Floor
Sacramento, CA 95814
(Sent via E-mail to: USTClosuresComments@waterboards.ca.gov)

Subject: **Comment Letter – ARCO #04931 Case Closure Summary**, State Water Resources Control Board Notice of Opportunity for Public Comment; Proposed Underground Storage Tank Case Closure; Fuel Leak Case No. RO0000076 and GeoTracker Global ID T0600100110, ARCO #04931, 731 W Macarthur Blvd., Oakland, CA 94609

Dear Ms. Gomez-Latino:

Alameda County Environmental Health (ACEH) staff has received the State Water Resources Control Board (SWRCB) *Notice of Opportunity for Public Comment, Proposed Underground Storage Tank Case Closure* dated July 24, 2014, for the subject site. The purpose of the Notice is to inform interested parties of 1) the SWRCB's intent to recommend closure of the subject site to the California SWRCBs Executive Director, and 2) the sixty day public comment period on the Fund's *UST Case Closure Summary*, dated July 16, 2014. According to the Notice, written comments to the SWRCB on the Fund's Case Closure Summary must be received by 12:00 noon on October 3, 2014. This letter herein transmits ACEH's comments.

Please note that the *UST Case Closure Summary* incorrectly states the ACEH does not object to case closure. This letter transmits ACEH's objections to closure.

Requirements for Investigation and Cleanup of Unauthorized Releases from USTs

ACEH reviewed the SWRCB's *UST Case Closure Summary*, dated July 24, 2014, prepared by Ms. Trinh Pham and reviewed by George Lockwood, in conjunction with the case files for the above-referenced site. Available documents did not include a copy of the SWRCB's Low-Threat UST Case Closure Policy Paper Check List or a Conceptual Site Model. A complete record of the case files (i.e., regulatory directives and correspondence, reports, data submitted in electronic deliverable format, etc.) can be obtained through review of both the SWRCB's Geotracker database, and the ACEH website at http://www.acgov.org/aceh/index.htm.

ACEH's review was guided by the requirements for investigation and cleanup of unauthorized releases from underground storage tanks (USTs) contained in the following resolutions, policies, codes, and regulations:

- SWRCB's Low-Threat Underground Storage Tank Case Closure Policy (LTCP), adopted on May 1, 2012; and effective August 17, 2012;
- California Code of Regulations (CCR) Title 23, Article 5 and Article 11, Underground Storage Tank Regulations, as amended and effective July 1, 2011;
- California Health & Safety Code (HS&C) Sections 25280-15299.8, Underground Storage of Hazardous Substances, as amended on January 1, 2011;
- SWRCB Resolution 1992-0049, Policies and Procedures for the Cleanup and Abatement of Discharges under California Water Code Section 13304, as amended on April 21, 1994 and October 2, 1996;

- San Francisco Bay Regional Water Quality Control Board's (RWQCB) San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan).

Application of Case Review Tools

ACEH's case closure evaluation was also guided by the application of the principles and strategies presented in the *Leaking Underground Fuel Tank Guidance Manual* (CA LUFT Manual), dated September 2012, developed by the SWRCB "…[t]o provide guidance for implementing the requirements established by the Case Closure Policy" and associated reference documents including but not limited to:

- *Technical Justification for Vapor Intrusion Media-Specific Criteria*, SWRCB dated March 21, 2012;
- *Technical Justification for Groundwater Media-Specific Criteria*, SWRCB dated April 24, 2012;
- *Technical Justification for Soil Screening Levels for Direct Contact and Outdoor Air Exposure Pathways*, SWRCB dated March 15, 2012;
- *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air, Final* DTSC, dated October, 2011;
- *Active Soil Gas Investigations Advisory,* DTSC, dated April 2012.

ACEH also utilized other case review tools developed by the SWRCB to aid in determining compliance of the subject fuel leak site with LTCP criteria, including both the paper *Policy Checklist* (available at www.waterboards.ca.gov/ust/docs/checklist.pdf) and the electronic version of the *Policy Checklist* (available on the SWRCB's GeoTracker website at http://geotracker.waterboards.ca.gov). ACEH's evaluation of the subject site is presented below and in previously submitted documents posted to Geotracker and the ACEH ftp website.

Summary of ACEH's Review of the SWRCB's UST Case Closure Summary

ACEH does not agree with the SWRCB's *UST Case Closure Summary.* Specifically, ACEH remains concerned that the downgradient extent of the groundwater contaminant plume has not been defined and that the site fails multiple aspects of the groundwater media-specific criteria, and that the potential for vapor intrusion into residential structures, both upgradient as well as downgradient, exists at the site due to unevaluated sensitive receptors in the site vicinity. The following sections provide more details:

General Criteria a: The unauthorized release is located within the service area of a public water system.
The site meets this General Criteria.
General Criteria b: The unauthorized release consists only of petroleum.
The site meets this General Criteria.
General Criteria c: The unauthorized ("primary") release from the UST system has been stopped.
The site meets this General Criteria.
General Criteria d: Free product has been removed to the maximum extent practicable.
The site meets this General Criteria.
General Criteria e: A conceptual site model has been developed.
While a CSM has been developed for the site, the SCM does not account for the threat of vapor intrusion to offsite residents in the upgradient and downgradient direction. Thus the site does not meet this General Criteria, and has not been evaluated with respect to this concern.

General Criteria f: Secondary source removal has been addressed. The secondary source is the petroleum-impacted soil, free product, or groundwater that acts as a long-term source releasing contamination to the surrounding area. Unless site conditions prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable.

The site meets this General Criteria.

General Criteria g: Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15.

The site meets this General Criteria.

General Criteria h: Nuisance as defined by Water Code section 13050 does not exist at the site.

The site meets this General Criteria.

Media-Specific Criteria 1. Groundwater: If groundwater with a designated beneficial use is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal (sic) extent, and meet all of the additional characteristics of one of the five classes of sites listed in the Policy. 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 *Case Closure Review Summary Report* indicates that the SWRCB has determined the site meets Class 1 of the Groundwater Media-Specific Criteria. This category is a finding by the regulatory agency (the SWRCB) that the plume is less than 100 feet in length, there is no free product, and that existing water supply wells or surface water body is greater than 250 feet from the defined plume boundary.

ACEH's review of the case files indicates that insufficient data collection and analysis has been presented to support the requisite characteristics of plume stability or plume classification as follows:

a. **Site Hydrogeology –** Site hydrogeology is not adequately defined. The depth to water in groundwater monitoring wells ranges from approximately 2 feet to 11 feet below grade surface (bgs); however, it is not clear if this represents shallow semi-confined or deeper confined conditions in a gravel unit located at depth due to long screen intervals for a number of site wells. A review of boring logs indicates groundwater was first encountered at a depth of approximately 9 feet in many soil borings; thus evidence suggests that a ten foot bioattenuation zone is not present at the site and vicinity. Alternatively, based on the consistent shallow depth of groundwater in wells A-2 and AR-2 (as shallow as 1.82 feet bgs), it appears there is not a five foot bioattenuation zone in portions of the site. In either situation, hydrogeology of the site is not adequately characterized to understand the depth at which groundwater is encountered at beneath the site within the context of the LTCP.

b. **Downgradient Extent of Groundwater Plume -** The downgradient extent of the groundwater plume has not been defined. Offsite groundwater monitoring wells A-11 and A-12 have consistently yielded non-detectable concentrations at good limits of detection. However, based on gradient maps these wells appear to monitor the lateral extent of the plume rather than the downgradient extent. Groundwater monitoring well A-8, located in the downgradient core of the groundwater plume, consistently yields the highest petroleum hydrocarbon concentrations and is the most downgradient well within the contaminant plume. Concentrations are highest in late summer of a year (recently 1,400 and 3,700 micrograms per liter [µg/l] Total Petroleum Hydrocarbons as gasoline [TPHg] and 940 and 1,800 µg/l benzene; August 2012 and 2013).

   Because the groundwater flow direction at the site has been mapped as predominantly to the west to southwest, the extent of the off-site groundwater contaminant plume remains undefined

beneath the downgradient residential neighborhood. Well A-8 is also the only well with significant benzene and very high limits of detection for ethanol. The apparent lack of benzene degradation in well A-8 appears to be related to elevated limits of detection for ethanol in the well. Elevated ethanol concentrations are generally understood to lengthen the downgradient extent of a groundwater plume by 40 to 70%, in this case beneath a residential neighborhood (LTCP *Technical Justification for Groundwater Media-Specific Criteria* and *Leaking Underground Fuel Tank Guidance Manual*, September 2012).

c. **Groundwater Plume Stability –** In May 2005 and February 2014 similar concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) and benzene were documented in groundwater collected from well A-8 (69 µg/l TPHg and 0.90 µg/l benzene; and 190 µg/l TPHg, and 4.4 µg/l, benzene respectively). In the period of time between these two events, concentrations of TPHg and benzene were documented up to 7,600 and 2,300 µg/l in groundwater, respectively. Groundwater plume stability has not been demonstrated at the site.

d. **Five Years of Declining Groundwater Concentrations -** Low groundwater concentrations were reported in well A-8 in May 2009, March 2010, and February 2014 (270, <50, and 190 µg/l TPHg and 65, <0.50, and 4.4 µg/l benzene); however, concentrations up to 4,300 µg/l TPHg and 1,800 µg/l benzene are documented for this five year period of time. Therefore, five years of declining groundwater concentrations have not been demonstrated at the site.

e. **Distance to Nearest Well –** A well survey of sufficient robustness or clarity does not appear to have been conducted for the subject site. The June 28, 2013 Conceptual Site Model states that adjacent sites have conducted well surveys; however, ACEH's review of the data indicates that a judgment of the adequacy of a well survey, that was conducted for another site, is not possible with the limited data present in the report. It appears appropriate to depict the area of coverage for well surveys conducted for other sites, and to depict any individual well locations found. ACEH is aware that well construction details are confidential; however, well locations are not. Because the databases for the Department of Water Resources and the Alameda County Public Works Agency are sufficiently different, it is also appropriate to ensure reviews at other sites utilized both databases. A recent well survey for the subject site should be generated.

f. **Neighborhood Sensitive Receptors –** The lack of downgradient delineation of the groundwater plume, in conjunction with the lack of benzene degradation, potentially related to elevated ethanol concentrations in well A-8, appears to leave the downgradient residential neighborhood at risk. The lack of a neighborhood sensitive receptor survey (basements, foundation depths, or other subsurface constructions and dewatering activities) eliminates the ability to determine if a sufficient factor of safety is present for these residents. As discussed below, this should include upgradient residential properties.

Media-Specific Criteria 2. Petroleum Vapor Intrusion to Indoor Air: The low-threat vapor-intrusion criteria in the Policy apply to release sites and impacted or potentially impacted adjacent parcels when: (1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or (2) buildings for human occupancy are reasonably expected to be constructed in the near future.

The subject site is an active service station. Therefore the *Case Closure Review Summary Report* indicates that the SWRCB has determined the site meets the active petroleum fueling facility exception of the LTCP.

ACEH recognizes that the site is an operational service station; however, offsite vapor intrusion is a potential as the extent of groundwater contamination is undefined within a residential neighborhood, and downgradient groundwater concentrations are not known. Therefore the site does not meet the active petroleum fueling facility exception of the LTCP.

ACEH's review of the case files indicates that the site data collection and analysis fail to support the requisite characteristics of one of the four vapor intrusion evaluation scenarios. Specifically, although the site is an active commercial fueling station, it does not qualify for an exemption from the Media Specific Criteria for Vapor Intrusion to Indoor Air due to the following factors:

a. **Undefined Downgradient Extent of Groundwater Plume –** As discussed above in Media-

Specific Criteria 1, the lack of delineation of the downgradient extent of the groundwater plume, elevated benzene concentrations, and elevated ethanol detection limits in well A-8, which appear to be preventing benzene degradation and likely extends the length of the downgradient groundwater plume, precludes the ability to determine the vapor risk to the local residential community downgradient of the subject site.

b. Vapor Concentrations Proximal to Upgradient Residential Property Line - Based on the consistent shallow depth of groundwater in wells A-2 and AR-2 (as discussed above, as shallow as 1.82 feet bgs), there does not appear to be a five foot bioattenuation zone in this portion of the site. Under Scenario 4, direct measurement of soil gas concentrations, benzene soil vapor concentrations in residential settings without a bioattenuation zone must be less than 85 micrograms per cubic meter (µg/m^3). Benzene vapor concentrations in the vapor well closest to the homes (SV-6) ranged between 3,400 and 4,800 µg/m^3. It appears appropriate to install a soil vapor well in proximity to the upgradient residential building in order to determine the potential soil vapor risk to offsite residents, and conduct a sensitive receptor survey of upgradient residents and property structures as the upgradient residential property appears to include at least a half-basement.

c. Groundwater Monitoring - Additionally, ACEH has previously recommended that wells AR-1, AR-2, and AR-3 be included in the groundwater monitoring program at the site. The wells have not previously been sampled, and appear capable of providing key data due to their locations, and known screen intervals. For this reason, ACEH has requested the wells be redeveloped and incorporated into groundwater sampling events at the subject site.

Media-Specific Criteria 3. Direct Contact and Outdoor Air Exposure. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, inhalation of volatile soil emissions and inhalation of particulate emissions, and the 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers are reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or

b. Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or

c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

The site meets this Media-Specific Criteria.

Low-Threat Case Closure: If a case has been determined by the regulatory agency to meet the criteria in this policy, the regulatory agency shall notify responsible parties that they are eligible for case closure and that the following items, if applicable, shall be completed prior to the issuance of a uniform closure letter specified in Health and Safety Code section 25296.10:

a. **Notification Requirements:** Municipal and county water districts, water replenishment districts, special acts districts with groundwater management authority, agencies with authority to issue building permits for land affected by the petroleum release, and the owners and occupants of all parcels adjacent to the impacted property shall be notified of the proposed case closure and provided a 60 day period to comment.

Because of ACEHs remaining concern in regards to the potential for offsite vapor intrusion to upgradient and downgradient residential structures, ACEH requests verification that all potentially affected parties have been notified by the SWRCB during the notification of the potential closure of the case.

Conclusions

ACEH is not in agreement that the site can currently be closed under the LTCP. The site appears to fail Media-Specific Criteria for Groundwater and for Vapor Intrusion to Indoor Air. To address these issues ACEH has previously recommended a limited scope of investigation and grab groundwater sampling to investigate the downgradient extent of the groundwater plume and to evaluate soil vapor in proximity to upgradient residential dwellings in order to determine the potential soil vapor risk to offsite residents.

Thank you for providing ACEH with the opportunity to comment on the subject site. Should you have any questions regarding the responses above, please contact Mark Detterman at (510) 567-6876 or send him an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Dilan Roe, P.E.
LOP Program Manager

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