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April 29, 2014

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Mr. Gary Bankhead  
Kaiser Foundation Hospitals  
100 San Leandro Blvd.  
San Leandro, CA 94577

Heitzinger Associates  
PO Box 1613  
Pebble Beach, CA 93953  
Pasadena, CA 91188

Subject: Request for Data Gap Work Plan and Focused Site Conceptual Model; Fuel Leak Case No. RO0000500 (Global ID # T0600100334), Chevron #9-1026, 3701 Broadway, Oakland CA 94611

Dear Ms. Fischer, Mr. Bankhead, and Heitzinger Associates:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Conceptual Site Model and Low-Threat Case Closure Request*, dated March 18, 2014. The report was submitted on your behalf by Conestoga-Rovers & Associates (CRA). Thank you for the submittal.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, to determine if the site is eligible for closure as a low risk site under the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria e (Site Conceptual Model), and the Media-Specific Criteria for Groundwater, and the Media-Specific Criteria for Vapor Intrusion to Indoor Air (see Geotracker for a copy of the LTCP checklist).

Therefore, at this juncture ACEH requests that you prepare a Site Conceptual Model (SCM) Addendum, and a Data Gap Investigation Work Plan that is supported by the SCM Addendum, to address the Technical Comments provided below and discussed with you in a meeting with Chevron and ACEH staff on April 24, 2014.

### **TECHNICAL COMMENTS**

**1. LTCP General Criteria e (Site Conceptual Model)** – According to the LTCP, the SCM is a fundamental element of a comprehensive site investigation. The SCM establishes the source and attributes of the unauthorized release, describes all affected media (including soil, groundwater, and soil vapor as appropriate), describes local geology, hydrogeology and other physical site characteristics that affect contaminant environmental transport and fate, and identifies all confirmed and potential contaminant receptors (including water supply wells, surface water bodies, structures and their inhabitants). The SCM is relied upon by practitioners as a guide for investigative design and data collection. All relevant site characteristics identified by the SCM shall be assessed and supported by data so that the nature, extent and mobility of the release have been established to determine conformance with applicable criteria in this policy.

Our review of the case files indicates that insufficient data collection and analysis has not been presented to assess the nature, extent, and mobility of the release and to support compliance with Media Specific Criteria for Groundwater, and Vapor Intrusion to Indoor Air, as described in Technical Comments 2 and 3 below, respectively.

**2. LTCP Media Specific Criteria for Groundwater** – To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or

decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our 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. **Length of Groundwater Contaminant Plume** – The length of the offsite groundwater and Light Non-Aqueous Phase Liquids (LNAPL) contaminant plumes appears to be poorly constrained. Onsite downgradient property line wells B and B-2 contained LNAPL while they were monitored, and well B contained continuous LNAPL until it was destroyed in July 2006. Offsite downgradient wells have been historically non-detect. Offsite well EA-1, located approximately 60 feet downgradient of well B-2 (as defined by the predominant groundwater flow direction in the rose diagram) has a 25 foot long screen interval, and is screened between 25.5 and 32 feet below grade surface (bgs) across a gravel layer that can cause significant vertical mixing of groundwater and dilute contaminant concentrations in the groundwater column. The groundwater and LNAPL plumes downgradient of LNAPL well B, as determined by the rose diagram, do not appear to have been historically monitored. Additionally, offsite and downgradient wells E and F are considered to be submerged and therefore not capable of delineating LNAPL. Therefore the offsite length of the groundwater and LNAPL plumes do not appear to have been determined.

As discussed in the April 24, 2014 meeting, the dissolved-phase plume extent can be defined either through additional investigation or by delineating the maximum extent of the plume using the LTCP technical justification papers, and locating sensitive receptors including basements and other dewatering infrastructures within that area. However, upon further review, ACEH notes that maximum dissolved-phase residual benzene concentrations have not been determined and therefore requires data collection onsite (see next).

- b. **Residual Groundwater Benzene Concentration** – As discussed in the meeting, soil samples collected at the base of the excavation contained the highest benzene concentrations in the historical soil sample data set. These concentrations appear to remain beneath, or near, the underground medical office building. Although substantial groundwater dewatering was conducted at the time of the construction of the Kaiser-Permanente hospital and medical offices, the effect of the dewatering wells (and principal depth of water intake) on residual soil contamination, has not been assessed at the site since remediation. Wells E and F also are screened between 25 – 35 feet and 15 – 30 feet bgs, respectively, and although concentrations in these wells appear to define the dissolved-phase plume vertically, the bore logs are not logged below 20 feet and thus the screens may intercept the same gravel unit observed in well EA-1. Therefore the magnitude of the onsite and offsite groundwater concentrations and plume extent remain undefined.
- c. **Preferential Pathway Evaluation** – Two utility conduits (storm drain and sewer) have been identified in MacArthur Boulevard at depths that can act as preferential pathways for contaminant migration immediate downgradient of the subject site (dissolved-phase and LNAPL in wells B and B-2). It appears that a series of soil bores were installed offsite along the property perimeter, and along MacArthur Boulevard, including along the storm drain conduit located beneath the street. However, except for SP18A soil data, soil and / or groundwater analytical data is not included in the historical data set. Specifically, this includes soil bores SP3, SP8, SP16, SB18B, and SP17. This data may also help delineate the length of the groundwater and LNAPL plumes offsite.
- d. **Vicinity Water Supply Well Survey** – The referenced report indicated that the Geotracker Groundwater Ambient Monitoring and Assessment (GAMA) database was reviewed to determine if water supply wells are located within 1,000 feet of the subject site. ACEH views the database as a starting point for well surveys as it does not contain the complete datasets maintained by the Department of Water Resources (DWR) and the Alameda County Public Works Agency (ACPWA). These databases contain additional information about privately owned water supply wells in the vicinity. Consequently, ACEH requests these resources also be included in a well survey for the site.

Please present a strategy in a Data Gap Work Plan (described in Technical Comment 4 below) to address the Technical Comments discussed above, or alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Groundwater in an addendum to the SCM described in Technical Comment 4 below.

- 3. LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air** – The LTCP describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to human occupants of existing or future site buildings, and adjacent parcels. Appendices 1 through 4 of the LTCP criteria illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario.

Our review of the case files indicates that the site data collection and analysis fail to support the requisite characteristics of one of the four scenarios. Specifically, while extensive excavation occurred at the subject site, substantial residual soil contamination remained beneath the medical offices (concentrations up to 8,600 milligrams per kilogram [mg/kg] Total Petroleum Hydrocarbons [TPH] as gasoline; 4,300 mg/kg TPH as diesel, 14,000 mg/kg Total Oil and Grease, 31 mg/kg benzene, and 100 mg/kg ethylbenzene). As discussed in the April 24, 2014 meeting, it is anticipated that substantial oxygenation of the residual contamination occurred at the time of excavation; however, the effect of the oxygenation, and the thickness of the residual soil contamination beneath the medical offices at the site has not been evaluated, nor has the site been assessed for the potential of vapor intrusion to the subgrade medical offices. Additionally, while a waterproofing membrane is reported to have been installed beneath the medical offices, DTSC does not regard a water barrier to be a vapor barrier. As discussed in the meeting, please provide documentation confirming dewatering of the site is ongoing. Based on the dissolved-phase concentration of benzene in groundwater samples requested to be collected in the southern portion of the site (see Technical Comment 2) please provide justification of why the site satisfies the Media-Specific Criteria for Vapor Intrusion to Indoor Air in an addendum to the SCM that assures that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to occupants of adjacent buildings.

Please also provide documentation as to the nature of the backfill material used to backfill the southern portion of the former Chevron site in order to assess the risk for vapor exposure in this area. Alternatively, please present a strategy in a Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to satisfy the bioattenuation zone characteristics of Scenarios 1, 2 or 3, or to collect soil gas data to satisfy Scenario 4.

Please note, that if direct measurement of soil gas is proposed, ensure that your strategy is consistent with the field sampling protocols described in the Department of Toxic Substances Control's Final Vapor Intrusion Guidance (October 2011). Consistent with the guidance, ACEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations.

- 4. Site Conceptual Model Addendum and Data Gap Investigation Work Plan** – Please prepare a SCM Addendum and a Data Gap Investigation Work Plan, to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with the SCM Addendum and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to.

The SCM Addendum can be presented in a focused SCM format. In order to do so, please see Attachment A "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

- 5. Request for Closure Document** – A number of factual errors were noted in the referenced document. In particular the list of maximum residual concentrations in soil in Section 3.2.2 is consistently incorrect and substantially under reports maximum residual concentrations for many of the contaminants listed (one example is the maximum benzene listed is 3.1 mg/kg, on Table 2 [misnamed Table 3], corrected it is 31 mg/kg). It appears appropriate to revise the text of the SCM, in the SCM addendum, to accurately report residual maximum concentrations at the site.

- 6. Groundwater Monitoring** – ACEH is in general agreement that groundwater monitoring can be reduced at the site until further case review, and the representativeness of groundwater samples, can be undertaken. Consequently, ACEH requests that groundwater monitoring be reduced to a bi-annual basis from the previous sampling event (March 2013).

### **TECHNICAL REPORT REQUEST**

Please upload technical reports to the ACEH ftp site (Attention: Barbara Jakub), and to the State Water Resources Control Board's Geotracker website, in accordance with the following specified file naming convention and schedule:

- **July 25, 2014** – Site Conceptual Model Addendum and if appropriate, Data Gap Investigation Plan  
(File to be named: WP\_SCM\_R\_yyyy-mm-dd)

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>.

If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org).

Sincerely,

Mark E. Detterman, P.G., C.E.G.  
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations  
Electronic Report Upload (ftp) Instructions

Attachment A – Site Conceptual Model Requisite Elements

cc: Kiersten Hoey, Conestoga-Rovers & Associates, Inc., 5900 Hollis Street, Suite A, Emeryville, CA 94608; (sent via electronic mail to [khoey@croworld.com](mailto:khoey@croworld.com))

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