



ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
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May 29, 2013

Mr. Jeff Kerry  
Kerry & Associates  
151 Callan Avenue, Suite 300  
San Leandro, CA 94577  
(sent via electronic mail to:  
[djkerry1@aol.com](mailto:djkerry1@aol.com))

Mr. Jeffery Kerry  
Jeffery & Dolores Kerry Trust & Jame Donnelley et. al.  
19655 North Ripon Road  
Ripon, CA 95366

Subject: Request for Work Plan; Fuel Leak Case No. RO0000208; Palace Garage (Global ID #T0600101043), 14336 Washington Avenue, San Leandro, CA 94578

Dear Mr. Kerry:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *First Quarter 2013 Groundwater Monitoring Report*, dated February 28, 2013, and the *Revised Draft Corrective Action Plan (CAP)*, dated April 10, 2013. ACEH has also received a draft Public Participation document for the site for review. The reports and the Public Participation document were prepared and submitted on your behalf by Closure Solutions, Inc. (Closure Solutions). Thank you for submitting them. The CAP proposes installation of two dual-phase extraction wells to perform secondary source removal. ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, and 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 f (Secondary Source Removal) based on insufficient data to establish that the secondary source has been removed to the extent practicable, the Media-Specific Criteria for Vapor Intrusion to Indoor Air based on a one-time vapor sampling event where benzene concentrations exceeded acceptable values under the LTCP, and the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure based on insufficient soil sampling in the 0 to 5 and 5 to 10 foot depth intervals beneath the site (see Attachment A for a copy of the LTCP checklist).

ACEH notes that it may be possible for the site to obtain closure under the LTCP if sufficient additional data is collected to address the current deficiencies at the site under the LTCP. As a consequence, rather than proceed with proposed corrective actions and the potential attendant costs, ACEH requests that you prepare a Data Investigation Work Plan that is supported by a focused Site Conceptual Model (SCM) to address the LTCP technical comments provided below.

#### **TECHNICAL COMMENTS**

- 1. LTCP General Criteria f – Secondary Source Has Been Removed to the Extent Practicable –** The former underground storage tank (UST) at the site was reported to have been removed and soil excavated vertically to a depth of approximately 18 to 20 feet below grade surface (bgs). A UST removal confirmation sample was collected at a depth of ten feet bgs; however, the bottom of the overexcavation was not sampled for characterization. The excavation is not reported to have been enlarged laterally, and the dispenser island is reported not to have been excavated. Soil bore SB-1 was installed through the former dispenser location and encountered contamination in two soil samples collected at 10 and 15 feet bgs. Shallower soil samples were not collected. Soil vapor location SV-1 located immediately adjacent to the former dispenser location yielded benzene vapor concentrations in excess of allowable concentrations in the LTCP without confirmation of the concentration of Total Petroleum Hydrocarbons (TPH) in the upper 5 or 10 feet bgs. These data indicate that uncharacterized residual shallow contamination remains in the source area(s) in vicinity of the former UST and dispenser, and that the

removal of the secondary source (specifically defined by the LTCP to be tank system proximal) to the extent practicable has not been established.

Consequently, please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to determine this LTCP requirement. Alternatively, please provide justification of why the site data satisfies this General Criteria in a focused SCM as described below.

- 2. 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 insufficient data and analysis has been presented to determine that the site meets the LTCP vapor intrusion to indoor air criteria. Specifically, as discussed above, existing one-time soil vapor data indicates that an uncharacterized residual contaminant mass is present at a shallow depth in the vicinity of the former UST and dispenser.

Therefore, please present a strategy in the 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 gas data to satisfy Scenario 4.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Vapor Intrusion to Indoor Air in a focused SCM that assures that exposure to petroleum vapors in indoor air will not pose unacceptable health risks to occupants of future buildings.

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. However, since one one-time sampling event data has been collected already, a second one-time event may provide sufficient data to assess vapor intrusion potential and the need for corrective.

- 3. LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure** - To satisfy the media-specific criteria for direct contact and outdoor air exposure sufficient soil samples are required to have been collected and analyzed to determine if residual soil contamination meets the concentrations listed in Table 1 of the policy. Alternatively a site specific risk assessment can be conducted to demonstrate that the maximum concentrations in soil will have no significant risk to adversely affect human health, or the regulatory agency can determine the concentrations will have no significant risk or adversely affect human health.

Our review of the case files indicates that insufficient data and analysis has been presented to determine that the site meets the LTCP direct contact and outdoor air exposure criteria. Specifically, with one exception, no soil samples have been collected in the 0 to 5 and the 5 to 10 foot depth zones as required by the shallow soil characterization pathway within this Criterion. The one sample, collected at a depth of 7.5 feet bgs, was located 15 to 20 feet upgradient of the source(s), and is non-detectable for TPH as gasoline and BTEX and MTBE at standard reporting limits. This is not unexpected at an upgradient location. At present, no soil samples have been collected in either the 0 to 5 or 5 to 10 foot depth zones within the source zone(s), or downgradient of the fuel hydrocarbon UST.

Consequently, please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to satisfy the additional characteristics of one of the two classes of sites listed in the policy.

Alternatively, please provide justification of why the site satisfies the media-specific criteria for direct contact and outdoor air exposure in a focused SCM (described in Technical Comment 4) that assures that threats by residual shallow soil sources have been mitigated or are de minimis.

- 4. Data Gap Investigation Work Plan and Focused Site Conceptual Model** – Please prepare 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 a focused SCM 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. If the sampling strategy includes data collection to support the proposed site redevelopment, a description of that redevelopment should be included in the Data Gap Investigation Work Plan to support your sampling strategy so that ACEH can verify the appropriateness of the proposed sample locations.

In order to expedite review, ACEH requests the SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please see Attachment B "Site Conceptual Model Requisite Elements". Please sequence activities in the proposed Data Gap Investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

5. **Path to Closure Project Schedule** - The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. The Path to Closure must have milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. Therefore, by the date listed below please prepare a Path to Closure Schedule for your site that incorporates the items identified by ACEH in the Technical Comments above as impediments to closure (further detailed in Attachment C). Additionally, please evaluate the site against the LTCP criteria and incorporate additional data collection activities in the Path to Closure Schedule and Data Gap Investigation Work Plan to address other impediments to closure under the policy not identified by ACEH. ACEH staff utilizes a Data Gap Identification Tool (DGIT) while reviewing cases for compliance with the LTCP criteria and identification of impediments to closure. We encourage you to also utilize the DGIT to (1) evaluate your site and develop an efficient path to site closure by focusing data collection efforts, if necessary, on the LTCP criteria, and (2) assist and expedite ACEH staff review of work plans and request for closures. ACEH will provide the DGIT as a PDF form via e-mail upon request. ACEH will review the schedule to ensure that all key elements are included.
6. **Groundwater Monitoring Interval** – Quarterly groundwater monitoring at recently installed wells has progressed through a full hydrologic cycle. Consequently, please convert all wells to a semi-annual groundwater sampling interval using the months of May and November (2<sup>nd</sup> and 4<sup>th</sup> quarters) for sampling. This is expected to capture the range of hydrocarbon concentrations in groundwater beneath the site.

#### **TECHNICAL REPORT REQUEST**

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with Attachment 1 and the following specified file naming convention and schedule:

- **June 28, 2013** – Data Gap Investigation Plan, and Focused Site Conceptual Model  
File to be named: RO2408\_WP\_R\_YYYY-MM-DD
- **July 12, 2013** – Semi-Annual Groundwater Monitoring Report  
File to be named: RO208\_GWM\_R\_YYYY-MM-DD
- **September 9, 2013** – Path to Closure Schedule  
File to be named: RO208\_WP\_R\_YYYY-MM-DD
- **December 20, 2013** – Semi-Annual Groundwater Monitoring Report  
File to be named: RO208\_GWM\_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>.

Mr. Jeff Kerry  
RO000208  
May 29, 2013, Page 4

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, PG, CEG  
Senior Hazardous Materials Specialist

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

Attachment A – Geotracker LTCP Checklist

Attachment B – Site Conceptual Model Requisite Elements

Attachment C – Path to Closure Project Schedule Requisite Elements

cc: Matthew Farris, Closure Solutions, Inc, 4600 Northgate Blvd, Suite 230, Sacramento, CA 95834  
(sent via electronic mail to: [mfarris@closureolutions.com](mailto:mfarris@closureolutions.com))

Donna Drogos (sent via electronic mail to [donna.drogos@acgov.org](mailto:donna.drogos@acgov.org))

Dilan Roe (sent via electronic mail to [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))

Mark Detterman (sent via electronic mail to [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org))

Electronic File, GeoTracker

**ATTACHMENT A**

**Geotracker LTCP Checklist**

LTCP Checklist

[GEOTRACKER HOME](#) | [MANAGE PROJECTS](#) | [REPORTS](#) | [SEARCH](#) | [LOGOUT](#)

PALACE GARAGE (T0600101043) - [MAP THIS SITE](#)

OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION

14336 WASHINGTON AVE  
SAN LEANDRO , CA 94578  
ALAMEDA COUNTY

[ACTIVITIES REPORT](#)  
[PUBLIC WEBPAGE](#)

**CLEANUP OVERSIGHT AGENCIES**  
ALAMEDA COUNTY LOP (LEAD) - CASE #: R0000208  
CASEWORKER: [MARK DETTERMAN](#) - SUPERVISOR: DONNA DROGOS  
SAN FRANCISCO BAY RWQCB (REGION 2) - CASE #: 01-1133  
CASEWORKER: [Cherie McCaulou](#) - SUPERVISOR: MARY ROSE CASSA

[VIEW PRINTABLE CASE SUMMARY FOR THIS SITE](#)

CUF Claim #: 14228 CUF Priority Assigned: B CUF Amount Paid: \$100,552

THIS PROJECT WAS LAST MODIFIED BY [MARK DETTERMAN](#) ON 1/25/2013 10:50:41 AM - [HISTORY](#)

THIS SITE HAS SUBMITTALS. CLICK [HERE](#) TO OPEN A NEW WINDOW WITH THE SUBMITTAL APPROVAL PAGE FOR THIS SITE.

CLOSURE POLICY **THIS VERSION IS FINAL AS OF 1/25/2013** [CLOSURE POLICY HISTORY](#)

**General Criteria** - *The site satisfies the policy general criteria* - [CLEAR SECTION ANSWERS](#)

a. Is the unauthorized release located within the service area of a public water system?  
  YES  NO

b. The unauthorized release consists only of petroleum [\(info\)](#).  YES  NO

c. The unauthorized ("primary") release from the UST system has been stopped.  YES  NO

d. Free product has been removed to the maximum extent practicable [\(info\)](#).  FP Not Encountered  YES  NO

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed [\(info\)](#).  YES  NO

f. Secondary source has been removed to the extent practicable [\(info\)](#).  
**Impediment to Removing Secondary Source (Check all that Apply):**  
 Remediation Has Not Been Attempted  
 Remediation Was Designed Incorrectly  YES  NO  
 Remediation Was Shut Off Prematurely  
 Poor Remediation O&M  
 Other -

g. Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15.  Not Required  YES  NO

h. Does a nuisance exist, as defined by [Water Code section 13050](#).  YES  NO

**1. Media-Specific Criteria: Groundwater** - *The contaminant plume that exceeds water quality objectives is stable or decreasing in areal extent, and meets all of the additional characteristics of one of the five classes of sites listed below.* - [CLEAR SECTION ANSWERS](#)

**EXEMPTION - Soil Only Case (Release has not Affected Groundwater - Info)**  YES  NO

Does the site meet any of the Groundwater specific criteria scenarios?  YES  NO

1.2 - The contaminant plume that exceeds water quality objectives is <250 feet in length. There is no free product. The nearest existing water supply well or surface water body is >1,000 feet from the defined plume boundary. The dissolved concentration of benzene is <3,000 µg/L. The dissolved concentration of MTBE is <1,000 µg/L.  YES  NO

**2. Media Specific Criteria: Petroleum Vapor Intrusion to Indoor Air** - *The site is considered low-threat for the vapor-intrusion-to-air pathway if site-specific conditions satisfy items 2a, 2b, or 2c* - [CLEAR SECTION ANSWERS](#)

**EXEMPTION - Active Commercial Petroleum Fueling Facility**  YES  NO

Does the site meet any of the Petroleum Vapor Intrusion to Indoor Air specific criteria scenarios?  YES  NO

**ADDITIONAL QUESTIONS** - Please indicate only those conditions that do not meet the policy criteria:

**Soil Gas Samples :**  
 No Soil Gas Samples  Taken Incorrectly  Not Taken at Two Depths Within 5ft Zone

**Exposure Type :**  
 Residential  Commercial

**Free Product :**  
 In Groundwater  In Soil  Unknown

**TPH in the Bioattenuation Zone :**  
 ≥ 100 mg/kg  Unknown

**Bioattenuation Zone Thickness :**  
 < 5 Feet (No BioZone)  ≥ 5 Feet and < 10 Feet  ≥ 10 Feet and < 30 Feet  ≥ 30 Feet  30ft BioZone Compromised TPH > 100mg/kg  Unknown

**O2 Data in Bioattenuation Zone :**  
 No O<sub>2</sub> Data  O<sub>2</sub> < 4%  O<sub>2</sub> ≥ 4%

**Benzene in Groundwater :**  
 ≥ 100 µg/l and < 1,000 µg/l  ≥ 1,000 µg/l  Unknown

**Soil Gas Benzene :**  
 ≥ 85 µg/m<sup>3</sup> and < 280 µg/m<sup>3</sup>  ≥ 280 µg/m<sup>3</sup> and < 85,000 µg/m<sup>3</sup>  ≥ 85,000 µg/m<sup>3</sup> and < 280,000 µg/m<sup>3</sup>  ≥ 280,000 µg/m<sup>3</sup>  Unknown

**Soil Gas EthylBenzene :**  
 ≥ 1,100 µg/m<sup>3</sup> and < 3,600 µg/m<sup>3</sup>  ≥ 3,600 µg/m<sup>3</sup> and < 1,100,000 µg/m<sup>3</sup>  ≥ 1,100,000 µg/m<sup>3</sup> and < 3,600,000 µg/m<sup>3</sup>  ≥ 3,600,000 µg/m<sup>3</sup>  Unknown

**Soil Gas Naphthalene :**  
 ≥ 93 µg/m<sup>3</sup> and < 310 µg/m<sup>3</sup>  ≥ 310 µg/m<sup>3</sup> and < 93,000 µg/m<sup>3</sup>  ≥ 93,000 µg/m<sup>3</sup> and < 310,000 µg/m<sup>3</sup>  ≥ 310,000 µg/m<sup>3</sup>  Unknown

**3. Media Specific Criteria: Direct Contact and Outdoor Air Exposure** - *The site is considered low-threat for direct contact and outdoor air exposure if it meets 1, 2, or 3 below.* - [CLEAR SECTION ANSWERS](#)

**EXEMPTION - The upper 10 feet of soil is free of petroleum contamination**  YES  NO

Does the site meet any of the Direct Contact and Outdoor Air Exposure criteria scenarios?  YES  NO

**ADDITIONAL QUESTIONS** - Please indicate only those conditions that do not meet the policy criteria:

**Exposure Type :**  
 Residential  Commercial  Utility Worker

**Petroleum Constituents in Soil :**  
 ≤ 5 Feet bgs  >5 Feet bgs and ≤10 Feet bgs  Unknown

**Soil Concentrations of Benzene :**

|   |
|---|
| <input type="radio"/> > 1.9 mg/kg and ≤ 2.8 mg/kg <input type="radio"/> > 2.8 mg/kg and ≤ 8.2 mg/kg <input type="radio"/> > 8.2 mg/kg and ≤ 12 mg/kg <input type="radio"/> > 12 mg/kg and ≤ 14 mg/kg <input type="radio"/> > 14 mg/kg <input checked="" type="radio"/> Unknown  |
| <b>Soil Concentrations of EthylBenzene :</b><br><input type="radio"/> > 21 mg/kg and ≤ 32 mg/kg <input type="radio"/> > 32 mg/kg and ≤ 89 mg/kg <input type="radio"/> > 89 mg/kg and ≤ 134 mg/kg <input type="radio"/> > 134 mg/kg and ≤ 314 mg/kg <input type="radio"/> > 314 mg/kg <input checked="" type="radio"/> Unknown |
| <b>Soil Concentrations of Naphthalene :</b><br><input type="radio"/> > 9.7 mg/kg and ≤ 45 mg/kg <input type="radio"/> > 45 mg/kg and ≤ 219 mg/kg <input type="radio"/> > 219 mg/kg <input checked="" type="radio"/> Unknown   |
| <b>Soil Concentrations of PAH :</b><br><input type="radio"/> > 0.063 mg/kg and ≤ 0.68 mg/kg <input type="radio"/> > 0.68 mg/kg and ≤ 4.5 mg/kg <input type="radio"/> > 4.5 mg/kg <input checked="" type="radio"/> Unknown   |
| <b>Area of Impacted Soil :</b><br><input type="radio"/> Area of Impacted Soil > 82 by 82 Feet <input type="radio"/> Unknown   |
| <b>Additional Information</b><br>This case should be closed in spite of NOT meeting policy criteria. <input type="radio"/> YES <input checked="" type="radio"/> NO  |
| <a href="#">SPELL CHECK</a>   |
| <input type="button" value="Save in Progress"/> <input type="button" value="Save as Final"/>  |

LOGGED IN AS MARKDETT

[CONTACT GEOTRACKER HELP](#)

**ATTACHMENT B**

**Site Conceptual Model Requisite Elements**



## ATTACHMENT B

### Site Conceptual Model

The site conceptual model (SCM) is an essential decision-making and communication tool for all interested parties during the site characterization, remediation planning and implementation, and closure process. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors.

The SCM is initially used to characterize the site and identify data gaps. As the investigation proceeds and the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened until it is said to be "validated". At this point, the focus of the SCM shifts from site characterization towards remedial technology evaluation and selection, and later remedy optimization, and forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

For ease of review, Alameda County Environmental Health (ACEH) requests utilization of tabular formats to (1) highlight the major SCM elements and their associated data gaps which need to be addressed to progress the site to case closure (see Table 1 of attached example), and (2) highlight the identified data gaps and proposed investigation activities (see Table 2 of the attached example). ACEH requests that the tables presenting the SCM elements, data gaps, and proposed investigation activities be updated as appropriate at each stage of the project and submitted with work plans, feasibility studies, corrective action plans, and requests for closures to support proposed work, conclusions, and/or recommendations.

The SCM should incorporate, but is not limited to, the topics listed below. Please support the SCM with the use of large-scaled maps and graphics, tables, and conceptual diagrams to illustrate key points. Please include an extended site map(s) utilizing an aerial photographic base map with sufficient resolution to show the facility, delineation of streets and property boundaries within the adjacent neighborhood, downgradient irrigation wells, and proposed locations of transects, monitoring wells, and soil vapor probes.

- a. Regional and local (on-site and off-site) geology and hydrogeology. Include a discussion of the surface geology (e.g., soil types, soil parameters, outcrops, faulting), subsurface geology (e.g., stratigraphy, continuity, and connectivity), and hydrogeology (e.g., water-bearing zones, hydrologic parameters, impermeable strata). Please include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s), cross sections, soil boring and monitoring well logs and locations, and copies of regional geologic maps.
- b. Analysis of the hydraulic flow system in the vicinity of the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on groundwater elevation contour maps and updated in all future reports submitted for your site. Please address changes due to seasonal precipitation and groundwater pumping, and evaluate the potential interconnection between shallow and deep aquifers. Please include an analysis of vertical hydraulic gradients, and effects of pumping rates on hydraulic head from nearby water supply wells, if appropriate. Include hydraulic head in the different water bearing zones and hydrographs of all monitoring wells.
- c. Release history, including potential source(s) of releases, potential contaminants of concern (COC) associated with each potential release, confirmed source locations, confirmed release locations, and existing delineation of release areas. Address primary leak source(s) (e.g., a tank, sump, pipeline, etc.) and secondary sources (e.g., high-

## ATTACHMENT B

### Site Conceptual Model (continued)

concentration contaminants in low-permeability lithologic soil units that sustain groundwater or vapor plumes). Include local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.).

- d. Plume (soil gas and groundwater) development and dynamics including aging of source(s), phase distribution (NAPL, dissolved, vapor, residual), diving plumes, attenuation mechanisms, migration routes, preferential pathways (geologic and anthropogenic), magnitude of chemicals of concern and spatial and temporal changes in concentrations, and contaminant fate and transport. Please include three-dimensional plume maps for groundwater and two-dimensional soil vapor plume plan view maps to provide an accurate depiction of the contaminant distribution of each COC.
- e. Summary tables of chemical concentrations in different media (i.e., soil, groundwater, and soil vapor). Please include applicable environmental screening levels on all tables. Include graphs of contaminant concentrations versus time.
- f. Current and historic facility structures (e.g., buildings, drain systems, sewer systems, underground utilities, etc.) and physical features including topographical features (e.g., hills, gradients, surface vegetation, or pavement) and surface water features (e.g. routes of drainage ditches, links to water bodies). Please include current and historic site maps.
- g. Current and historic site operations/processes (e.g., parts cleaning, chemical storage areas, manufacturing, etc.).
- h. Other contaminant release sites in the vicinity of the site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for the SCM. Include a summary of work and technical findings from nearby release sites, including the two adjacent closed LUFT sites, (i.e., Montgomery Ward site and the Quest Laboratory site).
- i. Land uses and exposure scenarios on the facility and adjacent properties. Include beneficial resources (e.g., groundwater classification, wetlands, natural resources, etc.), resource use locations (e.g., water supply wells, surface water intakes), subpopulation types and locations (e.g., schools, hospitals, day care centers, etc.), exposure scenarios (e.g. residential, industrial, recreational, farming), and exposure pathways, and potential threat to sensitive receptors. Include an analysis of the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e., vapor pathway). Please include copies of Sanborn maps and aerial photographs, as appropriate.
- j. Identification and listing of specific data gaps that require further investigation during subsequent phases of work. Proposed activities to investigate and fill data gaps identified.

**TABLE 1  
INITIAL SITE CONCEPTUAL MODEL**

| <b>CSM Element</b>       | <b>CSM Sub-Element</b> | <b>Description</b>   | <b>Data Gap</b>  | <b>How to Address</b>  |
|--------------------------|------------------------|--|--|--|
| Geology and Hydrogeology | Regional               | <p>The site is in the northwest portion of the Livermore Valley, which consists of a structural trough within the Diablo Range and contains the Livermore Valley Groundwater Basin (referred to as "the Basin") (DWR, 2006). Several faults traverse the Basin, which act as barriers to groundwater flow, as evidenced by large differences in water levels between the upgradient and downgradient sides of these faults (DWR, 2006). The Basin is divided into 12 groundwater basins, which are defined by faults and non-water-bearing geologic units (DWR, 1974).</p> <p>The hydrogeology of the Basin consists of a thick sequence of fresh-water-bearing continental deposits from alluvial fans, outwash plains, and lacustrine environments to up to approximately 5,000 feet bgs (DWR, 2006). Three defined fresh-water bearing geologic units exist within the Basin: Holocene Valley Fill (up to approximately 400 feet bgs in the central portion of the Basin), the Plio-Pleistocene Livermore Formation (generally between approximately 400 and 4,000 feet bgs in the central portion of the Basin), and the Pliocene Tassajara Formation (generally between approximately 250 and 5,000 or more feet bgs) (DWR, 1974). The Valley Fill units in the western portion of the Basin are capped by up to 40 feet of clay (DWR, 2006).</p> | None   | NA   |
|                          | Site                   | <p><b>Geology:</b> Borings advanced at the site indicate that subsurface materials consist primarily of finer-grained deposits (clay, sandy clay, silt and sandy silt) with interbedded sand lenses to 20 feet below ground surface (bgs), the approximate depth to which these borings were advanced. The documented lithology for one on-site boring that was logged to approximately 45 feet bgs indicates that beyond approximately 20 feet bgs, fine-grained soils are present to approximately 45 feet bgs. A cone penetrometer technology test indicated the presence of sandier lenses from approximately 45 to 58 feet bgs and even coarser materials (interbedded with finer-grained materials) from approximately 58 feet to 75 feet bgs, the total depth drilled. The lithology documented at the site is similar to that reported at other nearby sites, specifically the Montgomery Ward site (7575 Dublin Boulevard), the Quest laboratory site (6511 Golden Gate Drive), the Shell-branded Service Station site (11989 Dublin Boulevard), and the Chevron site (7007 San Ramon Road).</p> <p><b>Hydrogeology:</b> Shallow groundwater has been encountered at depths of approximately 9 to 15 feet bgs. The hydraulic gradient and groundwater flow direction have not been specifically evaluated at the site.</p>                    | <p>As noted, most borings at the site have been advanced to approximately 20 feet bgs, and one boring has been advanced and logged to 45 feet bgs; CPT data was collected to 75 feet bgs at one location. Lithologic data will be obtained from additional borings that will be advanced on site to further the understanding of the subsurface, especially with respect to deeper lithology.</p> <p>The on-site shallow groundwater horizontal gradient has not been confirmed. Additionally, it is not known if there may be a vertical component to the hydraulic gradient.</p> | <p>Two direct push borings and four multi-port wells will be advanced to depth (up to approximately 75 feet bgs) and soil lithology will be logged. See items 4 and 5 on Table 2.</p> <p>Shallow and deeper groundwater monitoring wells will be installed to provide information on lateral and vertical gradients. See Items 2 and 5 on Table 2.</p> |
| Surface Water Bodies     |                        | The closest surface water bodies are culverted creeks. Martin Canyon Creek flows from a gully west of the site, enters a culvert north of the site, and then bends to the south, passing approximately 1,000 feet east of the site before flowing into the Alamo Canal. Dublin Creek flows from a gully west of the site, enters a culvert approximately 750 feet south of the site, and then joins Martin Canyon Creek approximately 750 feet southeast of the site.  | None   | NA   |
| Nearby Wells             |                        | The State Water Resources Control Board's GeoTracker GAMA website includes information regarding the approximate locations of water supply wells in California. In the vicinity of the site, the closest water supply wells presented on this website are depicted approximately 2 miles southeast of the site; the locations shown are approximate (within 1 mile of actual location for California Department of Public Health supply wells and 0.5 mile for other supply wells). No water-producing wells were identified within 1/4 mile of the site in the well survey conducted for the Quest Laboratory site (6511 Golden Gate Drive; documented in 2009); information documented in a 2005 report for the Chevron site at 7007 San Ramon Road indicates that a water-producing well may exist within 1/2 mile of the site.   | A formal well survey is needed to identify water-producing, monitoring, cathodic protection, and dewatering wells.   | Obtain data regarding nearby, permitted wells from the California Department of Water Resources and Zone 7 Water Agency (Item 11 on Table 2).  |

**TABLE 2  
DATA GAPS AND PROPOSED INVESTIGATION**

| <b>Item</b> | <b>Data Gap</b>   | <b>Proposed Investigation</b>  | <b>Rationale</b>   | <b>Analysis</b>  |
|-------------|---|--|--|--|
| 5           | Evaluate the possible presence of impacts to deeper groundwater.<br><br>Evaluate deeper groundwater concentration trends over time.<br><br>Obtain data regarding the vertical groundwater gradient.<br><br>Obtain more lithological data below 20 feet bgs. | Install four continuous multichannel tubing (CMT) groundwater monitoring wells (aka multi-port wells) to approximately 65 feet bgs in the northern parking lot with ports at three depths (monitoring well locations may be adjusted pending results of shallow grab groundwater samples; we will discuss any potential changes with ACEH before proceeding). Groundwater monitoring frequency to be determined. Soil samples will be collected only if there are field indications of impacts. Soil lithology will be logged. However, information regarding the moisture content of soil may not be reliable using sonic drilling technology (two borings will be logged using direct push technology; see Item 4, above). | One well is proposed at the western (upgradient) property boundary to confirm that there are no deeper groundwater impacts from upgradient. Two wells are proposed near the center of the northern parking lot to evaluate potential impacts in an area where deeper impacts, if any, would most likely to be found. One well is proposed at the eastern (downgradient) property boundary to confirm that there are no impacts extending off-site. Port depths will be chosen based on the locations of saturated soils (as logged in direct push borings; see Item 4, above), but are expected at approximately 15, 45, and 60 feet bgs.  | <i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.   |
| 6           | Evaluate possible off-site migration of impacted soil vapor in the downgradient direction (east).<br><br>Evaluate concentration trends over time.   | Install 4 temporary nested soil vapor probes at approximately 4 and 8 feet bgs along the eastern property boundary. Based on the results of the sampling, two sets of nested probes will be converted to vapor monitoring wells to allow for evaluation of VOC concentration trends over time.   | Available data indicate that PCE and TCE are present in soil vapor in the eastern portion of the northern parking lot. Samples are proposed on approximately 50-foot intervals along the eastern property boundary to provide a transect of concentrations through the vapor plume. The depths of 4 and 8 feet bgs are chosen to provide data closest to the source (i.e., groundwater) while avoiding saturated soil, and also provide shallower data to help evaluate potential attenuation within the soil column. Two sets of nested vapor probes will be converted into vapor monitoring wells (by installing well boxes at ground surface); the locations of the permanent wells will be chosen based on the results of samples from the temporary probes. | <i>Soil vapor:</i> VOCs by EPA Method TO-15.   |
| 7           | Evaluate potential for off-site migration of impacted groundwater in the downgradient direction (east).   | Advance two borings to approximately 20 feet bgs in the parking lot of the property east of the Crown site for collection of grab groundwater samples.   | Two borings are proposed off-site, on the property east of the Crown site, just east of the building in the expected area of highest potential VOC concentrations.   | <i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.   |
| 8           | Evaluate VOC concentrations just north of the highest concentration area.   | Advance two borings to approximately 20 feet bgs north of Building A for collection of soil and grab groundwater samples. Soil samples will be collected at two depths in the vadose zone. Soil samples will be collected based on field indications of impacts (PID readings, odor, staining) or, in the absence of field indications of impacts, at 5 and 10 feet bgs.   | The highest concentrations of PCE in groundwater were detected at boring NM-B-32, just north of Building A. The nearest available data to the north are approximately 75 feet away. One of the borings will be advanced approximately 20 feet north of NM-B-32 to provide data close to the highest concentration area. A second boring will be advanced approximately halfway between the first boring and former boring NM-B-33 to provide additional spatial data for contouring purposes. These borings will be part of a transect in the highest concentration area.  | <i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.<br><br><i>Soil:</i> VOCs by EPA Method 8260 (soil samples to be collected using field preservation in accordance with EPA Method 5035). |
| 9           | Evaluate VOC concentrations in soil vapor in the south parcel of the site.  | Install four temporary soil vapor probes at approximately 5 feet bgs around boring SV-25, where PCE was detected in soil vapor at a low concentration.   | PCE was detected in soil vapor sample SV-25 in the southern parcel, although was not detected in groundwater in that area. Three probes will be installed approximately 30 feet from of boring SV-25 to attempt to delineate the extent of impacts. A fourth probe is proposed west of the original sample, close to the property boundary and the location of mapped utility lines, which may be a potential conduit, to evaluate potential impacts from the west.  | <i>Soil vapor:</i> VOCs by EPA Method TO-15.   |
| 10          | Obtain additional information regarding subsurface structures and utilities to further evaluate migration pathways and sources.   | Ground penetrating radar (GPR) and other utility locating methodologies will be used, as appropriate, to further evaluate the presence of unknown utilities and structures at the site.  | Utilities have been identified at the site that include an on-site sewer lateral and drain line, and shallow water, electric, and gas lines. Given the current understanding of the distribution of PCE in groundwater at the site, it is possible that other subsurface utilities, and specifically sewer laterals, exist that may act as a source or migration pathway for distribution of VOCs in the subsurface.   | NA   |

**ATTACHMENT C**

**Path to Closure Project Schedule Requisite Elements**

## ATTACHMENT C

### Path to Closure Project Schedule Requisite Elements

The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. Please prepare a Path to Closure Schedule that has milestone dates tied to calendar quarters which will achieve site cleanup and case closure in a timely and efficient manner and minimizes the cost of corrective action. The complexity of the Path to Closure Schedule should be commensurate with the complexity of the site and tasks required to achieve case closure. ACEH will review the schedule to ensure appropriate key elements are included.

The Path to Closure Schedule should include the following key environmental elements and milestones as appropriate:

- Preferential Pathway Study
- Soil, Groundwater, and Soil Vapor Investigations
- Initial, Updated, and Final/Validated SCMs
- Interim Remedial Actions
- Feasibility Study/Corrective Action Plan
- Pilot Tests
- Remedial Actions
- Soil Vapor and Groundwater Monitoring Well Installation and Monitoring
- Public Participation Program (Fact Sheet Preparation/Distribution/Public Comment Period, Community Meetings, etc.)
- Case Closure Tasks (Request for closure documents, ACEH Case Closure Summary Preparation and Review, Site Management Plan, Institutional Controls, Public Participation, Landowner Notification, Well Decommissioning, Waste Removal, and Reporting.)

Please include time for regulatory and RP in house review, permitting, off-site access agreements, and utility connections, etc.

For complex projects (i.e., redevelopment projects, etc.), please use a critical path methodology/tool to construct a schedule with sufficient detail to support a realistic and achievable Path to Closure Schedule. The schedule is to include at a minimum:

- Defined work breakdown structure including summary tasks required to accomplish the project objectives and required deliverables
- Summary task decomposition into smaller more manageable components that can be scheduled, monitored, and controlled
- Sequencing of activities to identify and document relationships among the project activities using logical relationships
- Identification of critical paths, linkages, predecessor and successor activities, leads and lags, and key milestones
- Identification of entity responsible for executing work
- Estimated activity durations (60-day ACEH review times are based on calendar days)