



ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
FAX (510) 337-933

April 14, 2015

Robert A & Leslie C Elliott (& Trust)  
415 Blue Ridge Drive  
Martinez, CA 94553

Richard E Moore (& Trust)  
1855 Olympic Blvd.  
Walnut Creek, CA 94596

Robert A Elliott Sr. (& Trust)  
408 Silver Chief Way  
Danville, CA 94526  
(Sent via E-mail to: [coachelliott@me.com](mailto:coachelliott@me.com))

Subject: Request for Site Investigation Work Plan and Site Conceptual Model, and List of Landowners Form; Fuel Leak Case No. RO0003159 and GeoTracker Global ID T10000006491, Roofing Facility, 745 Kevin Court, Oakland, CA 94621

Dear Robert & Leslie Elliott, and Richard Moore:

Alameda County Environmental Health (ACEH) has reviewed the case file, including the October 6, 2014 report titled "*Phase I Environmental Site Assessment, 745 Kevin Court, Oakland CA*" generated by Eras Environmental, Inc., and the November 25, 2014 report titled "*Limited Phase II Subsurface Investigation*" generated by AEI Consultants. The Phase II report documents the November 2014 soil and groundwater investigation to generate information relating the presence or absence of a former gasoline underground storage tank (UST). The Phase I and II reports document that Oakland Fire Department (OFD) records were researched and no documentation was found regarding the removal actions, confirmation sampling, or remedial activities associated with the former 1,000 gallon gasoline UST. However, limited OFD records and an owner interview indicate a March 1991 UST removal was conducted.

During the November 2014 Phase II investigation, three hydro-punch bores and one soil bore were advanced: One hydro-punch (HP-4) was advanced adjacent to the current above-ground gasoline storage tank while the majority of the investigation focused on the area of concern around the presumed former gasoline UST location (sample points SB-1, HP-2, and HP-3). Due to saturated soil conditions, depth to groundwater ranged between 3.7 to 4.6 feet below ground surface (bgs), no soil samples were collected at SB-1; however, a grab groundwater sample was recovered from 10 feet bgs. The hydro-punch grab groundwater samples (HP-2 to HP-4) were recovered from approximately 10 feet bgs. Maximum concentrations of 6,200 milligrams per liter (mg/L) Total Petroleum Hydrocarbons as gasoline (TPH-g), 73 mg/L benzene, 12 ug/L toluene, 0.65 ug/L ethylbenzene, and 13 mg/L total xylenes were detected. Methyl-tertiary-butyl-ether (MTBE) was not detected above laboratory reporting limits ranging from <5.0 to 50 ug/L.

ACEH has also evaluated the data and recommendations presented in the above-mentioned reports to determine if the site is eligible for closure as a low risk site under the *California State Water Resources Control Board's (SWRCB) 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 **d** (Free Product), **e** (Site Conceptual Model), **f** (Secondary Source Removal), the Media-Specific Criteria for Groundwater, the Media-Specific Criteria for Petroleum Vapor Intrusion to Indoor Air, and the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure (see GeoTracker ([http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/2012/rs2012\\_0016atta.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf)))

and ([http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T10000006491](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000006491)) for a copy of the LTCP and case-specific files).

Further work is required to assess the nature and extent of contamination around the area of the former UST and to characterize the case. Please ensure that the case is characterized in light of the requirements contained in the LTCP. ACEH requests that you prepare a Work Plan that is supported by a Site Conceptual Model to address the technical comments provided below.

### **TECHNICAL COMMENTS**

1. **Request for a Site Investigation Work Plan and Site Conceptual Model** – ACEH requests the submittal of a site investigation Work Plan, and Site Conceptual Model (SCM) by a consultant qualified to undertake the work by the date identified below (see **Attachment 1**). Please prepare the Work Plan to address the technical comments listed below. Please support the scope of work in the Work Plan with a Site Conceptual Model (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. Include in the Work Plan the appropriate soil and groundwater sampling and analysis based on US EPA SW-846 methods.

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 A “Site Conceptual Model Requisite Elements”**. Please sequence activities in the proposed site investigation Work Plan scope of work to enable efficient data collection in the fewest mobilizations possible.

- a. **Vertical and Lateral Definition of Soil Impacts** - If soil contamination exists below the water table, and if delineation or a vertical soil contaminant gradient has not been established to the water table, the saturated zone soil shall be delineated for both residual product and for direct contact soil remediation standards. ACEH acknowledges the shallow groundwater conditions at the site; however, ACEH requests soil samples, although soils may lie within the saturated zone, at the soil/water interface, at obvious signs of contamination, at changes in lithology, within the 0 to 5 and 5 to 10 foot intervals for direct contact evaluation per LTCP, and evaluation of the potential existence of a bio-attenuation zone in vadose soils. Additionally, as secondary source removal has not been confirmed via UST removal confirmation soil samples, and analytical concentrations are most elevated at the northern sample point, HP-2, ACEH requests further investigation north of the potential historical UST area.
- b. **Verification of Secondary Source Removal** - Removal of the gasoline UST is reported to have occurred at an unknown date prior to March 1991. A report on the UST removal, fate of excavated soils, and backfill source has apparently not been found or submitted. Grab groundwater characterization in the vicinity around the presumed former UST location has been undertaken; however, the presumed former UST excavation is uncharacterized and may contain residual contamination above concentrations of concern.

Therefore, ACEH requests presentation of a strategy in the Site Investigation Work Plan to address the adequacy of secondary source removal in light of the LTCP criteria. Alternatively, please provide justification of why the site satisfies this general criterion in the SCM.

- c. **Naphthalene and TPH as Diesel Analysis** – ACEH acknowledges that the Phase 1 ESA denoted the UST material last stored was gasoline. Gasoline formulations have varied through time and naphthalene, although a minor constituent by average weight percent, is a potential constituent of concern, especially with regard to satisfaction of LTCP criteria. Additionally, as UST confirmation sample data is unknown, ACEH requests confirmation sampling for soil and groundwater as TPH as diesel (TPH-d) on a limited one-time basis. Please ensure the TPH-d analysis is performed with

both silica-gel and non-silica gel cleanup methods due to the site's geology and proximity to San Leandro Bay.

Therefore, ACEH requests representative soil and groundwater samples be additionally analyzed for naphthalene and TPH-d. Please include the appropriate analytical methods and sampling locations in the Work Plan.

- d. Dissolved-Phase Plume Delineation and Concentration Trend Analysis** – The soil bore, SB-1, noted visible oil/sheen on the soil core between 5.5 to 6.5 feet bgs within the silty fill material, above high plasticity clay. Whilst the groundwater concentrations of TPH-g and BTEX do not necessarily indicate the presence of free product, as theoretical effective solubility limits are not exceeded, field observations suggest the potential for residual free product within the fill material and potentially extending into the native clay material.

Therefore, ACEH requests the installation of appropriately screened, permanent monitoring wells in order to evaluate the potential presence of free product, to evaluate contaminant trends over time to determine plume stability and plume length, and to evaluate site-specific groundwater depth and flow direction.

- e. Potential Future Land Use Redevelopment Plans** – LTCP closure may be more or less conservative (or restrictive) based on reasonably anticipated future land use (e.g. residential vs. commercial/industrial) and potential redevelopment. In order to guide ACEH evaluation, please include a description of the reasonably anticipated future land use and potential redevelopment with the Work Plan.
- f. Water Supply Well Survey** – ACEH requests that a water supply well survey be conducted that queries the Alameda County Public Works Agency and California Department of Water Resources databases. Please survey for the existence of public and private water supply wells within a 2,000 foot radius of the subject site. Please tabulate and depict the well survey results on a figure; however, please do not disclose confidential well construction details.

- 2. GeoTracker Compliance** – A review of the *State Water Resources Control Board's (SWRCB) GeoTracker website* indicates the site has not yet been claimed. Because this is a state requirement, ACEH requests that the site be claimed in GeoTracker by the date identified below.

Pursuant to *California Code of Regulations (CCR), Title 23, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1*, beginning September 1, 2001, all analytical data, including monitoring well samples, submitted in a report to a regulatory agency as part of the UST or LUST program, must be transmitted electronically to the SWRCB GeoTracker system via the internet. Also, beginning January 1, 2002, all permanent monitoring points utilized to collect groundwater samples (i.e. monitoring wells) and submitted in a report to a regulatory agency, must be surveyed (top of casing) to mean sea level and latitude and longitude to sub-meter accuracy using NAD 83. A California licensed surveyor may be required to perform this work. Additionally, pursuant to *California Code of Regulations, Title 23, Division 3, Chapter 30, Articles 1 and 2, Sections 3893, 3894, and 3895*, beginning July 1, 2005, the successful submittal of electronic information (i.e. report in PDF format) shall replace the requirement for the submittal of a paper copy. Please claim your site and upload all future submittals to GeoTracker and ACEH's ftp server by the date specified below. Electronic reporting is described below on the attachments.

Additional information regarding the SWRCB's GeoTracker website may be obtained online at [http://www.waterboards.ca.gov/water\\_issues/programs/ust/electronic\\_submittal/](http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/) and [http://www.swrcb.ca.gov/ust/electronic\\_submittal/report\\_rqmts.shtml](http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml)) or by contacting the GeoTracker Help Desk at [geotracker@waterboards.ca.gov](mailto:geotracker@waterboards.ca.gov) or (866) 480-1028.

3. **List of Landowners Form** - Pursuant to Section 25297.15 (a), of the California Health and Safety Code, ACEH, the local agency, shall not consider cleanup or site closure proposals from the primary or active responsible party, issue a closure letter, or make a determination that no further action is required with respect to a site upon which there was an unauthorized release of hazardous substances from an underground storage tank subject to this chapter unless all current record owners of fee title to the site of the proposed action have been notified of the proposed action by the primary or active responsible party. ACEH is required to notify the primary or active responsible party of their requirement to certify in writing to the local agency that the notification requirement in the above-mentioned regulation has been satisfied and to provide the local agency with a complete mailing list of all record fee title owners.

To satisfy the above-mentioned requirement, please complete the enclosed "List of Landowners Form," and mail it back to ACEH within thirty (30) days from the date of this letter. Also your comments, if any, must be considered prior to the proposed cleanup or closure. Please respond within 30 days from the date of this letter for your comments to be considered.

### **UNDERGROUND STORAGE TANK CLEANUP FUND**

Please be aware that site investigation/site cleanup costs may be reimbursable from the California Underground Storage Tank Cleanup Fund. The application and additional information is available at the State Water Resources Control Board's website at [http://www.waterboards.ca.gov/water\\_issues/programs/ustcf](http://www.waterboards.ca.gov/water_issues/programs/ustcf). Please be aware that reimbursement monies are contingent upon maintaining compliance with directives from ACEH.

### **TECHNICAL REPORT REQUEST**

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

- **May 15, 2015 (30 days)** – List of Landowners Form (file name: RO0003159\_LNDOWNR\_F\_yyyy-mm-dd)
- **July 15, 2015 (90 days)** – GeoTracker Compliance, Site Investigation Work Plan, and Site Conceptual Model (file name: RO0003159\_WP\_R\_yyyy-mm-dd)
- **Sixty (60) Days After Work Plan Approval** – Soil and Groundwater Investigation Report (file name: RO0003159\_SWI\_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.

Should you have any questions, please contact me at (510) 567-6725 or send me an electronic mail message at [matthew.soby@acgov.org](mailto:matthew.soby@acgov.org).

Sincerely,

Matthew Soby  
Hazardous Materials Technician

Enclosures: Attachment 1 – Responsible Party(ies) Legal Requirements / Obligations  
Electronic Report Upload (ftp) Instructions  
Attachment A “Site Conceptual Model Requisite Elements”  
List of Landowners Form

cc:

David Provance P.G., AEI Consultants, 2500 Camino Diablo, Walnut Creek, CA 94597 (Sent via E-mail to: [dprovance@aeiconsultants.com](mailto:dprovance@aeiconsultants.com))

Joseph Bernardini, Bernardini Enterprises, Inc. & JD Services, PO Box 1563, Burlingame, CA 94011 (Sent via E-mail to: [JDHauling@hotmail.com](mailto:JDHauling@hotmail.com))

Dilan Roe, ACEH, (Sent via E-mail to: [dilan.roe@acgov.org](mailto:dilan.roe@acgov.org))

Matthew Soby, ACEH, (Sent via E-mail to: [matthew.soby@acgov.org](mailto:matthew.soby@acgov.org))

Electronic File, GeoTracker

## Attachment 1

### Responsible Party(ies) Legal Requirements / Obligations

#### REPORT REQUESTS

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.

#### ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements ([http://www.waterboards.ca.gov/water\\_issues/programs/ust/electronic\\_submittal/](http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

#### UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

#### AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

<b>Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)</b>	<b>REVISION DATE:</b> May 15, 2014
	<b>ISSUE DATE:</b> July 5, 2005
	<b>PREVIOUS REVISIONS:</b> October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
<b>SECTION:</b> Miscellaneous Administrative Topics & Procedures	<b>SUBJECT:</b> Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

## REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.**
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

## Submission Instructions

- 1) Obtain User Name and Password
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to [deh.loptoxic@acgov.org](mailto:deh.loptoxic@acgov.org)
  - b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
    - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
  - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to [deh.loptoxic@acgov.org](mailto:deh.loptoxic@acgov.org) notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
  - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
  - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

**ATTACHMENT A**

**Site Conceptual Model Requisite Elements**



# ATTACHMENT A

## 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 A

### 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.  Evaluate deeper groundwater concentration trends over time.  Obtain data regarding the vertical groundwater gradient.  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).  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.  <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

# LIST OF LANDOWNERS FORM

County of Alameda  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

## CERTIFIED LIST OF RECORD FEE TITLE OWNERS FOR:

Site Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Record ID #: RO \_\_\_\_\_

Please fill out item 1 if there are multiple site landowners (attach an extra sheet if necessary). If you are the sole site landowner, skip item 1 and fill out item 2.

1. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I, \_\_\_\_\_ (name of primary responsible party), certify that the following is a complete list of current record fee title owners and their mailing addresses for the above site:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

2. In accordance with Section 25297.15(a) of Chapter 6.7 of the California Health & Safety Code, I \_\_\_\_\_, certify that I am the sole landowner for the above site.

Sincerely,

\_\_\_\_\_  
Signature of Primary Responsible Party

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
E-mail Address