ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

April 11, 2014

Dr. Brian Sheaff
William J Sheaff Trust
1945 Parkside Drive
Concord, CA 94519
(sent via e-mail: drsheaff@pacbell.net)

Subject: Request for Focused Site Conceptual Model, and a Data Gap Work Plan; Fuel Leak Case No. RO0000377 and Geotracker Global ID T0600102112, Sheaffs Service Garage, 5930 College Avenue, Oakland, CA 94618

Dear Dr. Brian Sheaff:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Additional Soil and Water Investigation Report*, dated February 6, 2014, prepared and submitted on your behalf by Golden Gate Environmental, Inc (GGEI) for the subject site. Thank you for submitting the report.

ACEH has also evaluated the data and recommendations presented in the above-mentioned report, 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 b, (petroleum only release), d (Free Product), e (Site Conceptual Model), f (Secondary Source Removal) and the Media-Specific Criteria for Groundwater, the Media-Specific Criteria for Vapor Intrusion to Indoor Air, and the Media-Specific Criteria for Direct Contact (see Geotracker for a copy of the LTCP review).

Therefore, at this juncture ACEH requests that you prepare a Data Gap Investigation Work Plan that is supported by a focused Site Conceptual Model (SCM) to address the Technical Comments provided below. Prior to submitting the work plan, ACEH would like to invite you to a meeting to discuss the site and strategize about the most efficient path towards closure. ACEH requests notification of suitable dates and times for the meeting by the date listed below.

TECHNICAL COMMENTS

1. **LTCP General Criteria b (Unauthorized Release Consists Only of Petroleum) –** For purposes of this policy, petroleum is defined as crude oil, or any fraction thereof, which is liquid at standard conditions and temperature and pressure, which means 60 degrees Fahrenheit and 14.7 pounds per square inch absolute including the following substances: motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents and used oils, including any additives and blending agents such as oxygenates contained in the formulation of the substances.

   Three areas have been identified during site investigation activities with potential tetrachloroethene (PCE) contamination in soil:

   - A waste oil underground storage tank (UST) was present beneath the College Avenue sidewalk at the southwest corner of the site. The UST was removed in October 1996. Soil analytical data detected low concentrations of PCE in soil at a depth of 8 feet below grade surface (bgs) beneath the UST. Subsequently, five grab groundwater samples in the immediate vicinity of the waste oil UST have not detected PCE in groundwater.
   - Investigations adjacent to an oil-water separator (OWS) in the back parking lot at the site have detected similar low concentrations of PCE at a shallower depth (2 feet rather than 8

feet), and may suggest another source area may be present at the site at the oil-water separator.

- A former parts washer previously located in the southeastern corner of the building. Boring B27 was installed near this former structure and detected no PCE contamination in soil; however, the bore location is upgradient of the former parts washer. Additionally, the parts washer and the OWS appear to have been plumbed together and it is not clear, due to a lack of understanding of the use of the OWS, if the parts washer drained to the OWS prior to discharge to sanitary sewer.

The referenced report suggests that these low soil concentrations may be related to the offsite former waste oil UST location at the immediately adjacent upgradient former Chevron facility. However, the presence of low concentrations of PCE in shallow soil at two feet indicates an onsite source rather than an offsite source. ACEH notes that low concentrations of PCE in soil can lead to risk of vapor intrusion to indoor to building occupants (see Technical Comment 8 below).

Please present a strategy in the Data Gap Work Plan (described in Technical Comment 8 below) to address the data gaps identified above. Specifically, please evaluate potential connections between the former parts washer and the OWS through a sewer pipe and the potential for the presence of another PCE source at the former parts washer location. Alternatively, please provide justification of why the site satisfies this general criterion in the focused SCM described in Technical Comment 8 below.

2. **LTCP General Criteria d (Free Product) –** The LTCP requires free product to be removed to the extent practicable at release sites where investigations indicate the presence of free product by removing in a manner that minimizes the spread of the unauthorized release into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges, or disposes of recovery byproducts in compliance with applicable laws. Additionally, the LTCP requires that abatement of free product migration be used as a minimum objective for the design of any free product removal system.

   ACEH's review of the case files indicates that insufficient data and analysis has been presented to assess residual free product at the site. Specifically, total petroleum hydrocarbons as gasoline (TPHg) and benzene were detected at or near concentrations that the technical support documents for the LTCP consider to be indirect evidence of Light Non-Aqueous Phase Liquid (LNAPL). The technical support documents state that concentrations of benzene in groundwater greater than 3,000 micrograms per liter (µg/l) and TPHg concentrations greater than 20,000 µg/l constitute indirect evidence of LNAPL. Please note that similar concentrations of TPHg and benzene were documented (15,000 and 12,000 µg/l TPHg and 4,900 and 2,400 µg/l benzene) during the October 2008 and the October 2013 groundwater monitoring events. Within this five year interval, TPHg concentrations ranged up to 75,000 µg/l, and benzene concentrations ranged up to 14,000 µg/l. Sheen is also reported on groundwater from wells MW-1, MW-2, and MW-3 during this time interval.

   Please evaluate the concentrations indicative of LNAPL per the LTCP justification papers and assess whether there is a potential for free product mobility / migration in the focused SCM and if applicable present a strategy in the Data Gap Work Plan (described in Technical Comment 8 below) to address the items discussed above. Include in your assessment, potential preferential pathways, the adequacy of the monitoring well network, and evidence of sheen on groundwater. Alternatively, please provide justification of why the site satisfies this general criterion in the focused SCM described in Technical Comment 8 below.

3. **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 General Criteria b and d as discussed in Technical Comments 1 and 2 above, General Criteria f, and Media Specific Criteria for Vapor Intrusion to Indoor Air, Groundwater, and Direct Contact and Outdoor Air Exposure as described in Technical Comments Technical Comments 4, 5, 6, and 7, below, respectively.

4. **General Criteria f – Secondary Source Has Been Removed to the Extent Practicable –** "Secondary source" is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described in the policy. "To the extent practicable" means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy.

   At the subject site, structural and infrastructure constraints to the removal of the secondary source were encountered; namely building structural stability on the east and subsurface utility infrastructure to the west. However, as discussed above, indirect evidence of LNAPL remains present beneath the site, and despite additional subsurface work, it does not appear that the potential threat to human health due to vapor intrusion to indoor air has been adequately accessed as stated (see also Technical Comment 6 below). Additionally, the residual source appears to be contributing to the groundwater plume instability as discussed in Technical Comment 5b.

   Finally, the detection of significant concentrations of naphthalene and poly-aromatic hydrocarbons (PAHs) in grab groundwater sample B12-W, located immediately downgradient of a hydraulic hoist in May 2005 (as discussed below in Technical Comment 5f) indicate the hydraulic hoists may be an unevaluated potential source.

   Please present a strategy in the Data Gap Work Plan (described in Technical Comment 8 below) to address the items discussed above. Alternatively, please provide justification of why the site satisfies this general criterion in the focused SCM described in Technical Comment 8 below.

5. **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. **Groundwater Plume Length –** The length and lateral extent of the groundwater dissolved and free-phase plumes has not been adequately defined due to the presence of two storm drain lines in College Avenue (a 8-inch diameter local storm drain and a large through-going 90-inch flood control storm drain) and an inadequate well network. The referenced report states that the 90-inch flood control storm drain acts as a hydrologic barrier and prevents the plume from migrating further. In conflict with this position are stated conclusions that subsurface utilities in College Avenue skew the groundwater gradient southward in the winter time. This indicates that the utilities are not hydrologic barriers, but are likely "gaining and losing" conduits, and also indicates the groundwater plume is not defined to the west, and to the south beneath the immediately adjacent apartment building. These two flow directions are supported by the rose diagrams generated for the site.

Additionally, a substantial number of groundwater and soil analytical results, both current and historic, document higher concentrations of total xylenes than total benzene. Because diesel fuel contains substantially more xylenes than benzene by formulation, ACEH requests the inclusion of TPHd analysis of groundwater from all wells for a minimum of one monitoring event. ACEH recognizes that preferential degradation of benzene over xylenes can also produce this result. However, the presence, or lack thereof, of detectable TPHd at the site can affect the determination of the downgradient and lateral extent of a groundwater plume under the LTCP. The need for additional analysis for TPHd is requested to be evaluated thereafter.

b. Groundwater Plume is Not Stable – As discussed above, between 2008 and 2013 groundwater TPHg concentrations ranged between 12,000 and 75,000 µg/l, and benzene concentrations ranged between 2,400 and 14,000 µg/l in offsite well MW-1. Additionally, data collected during the last groundwater monitoring event in October 2013 indicates increasing benzene concentrations in well MW-3, and that the concentration is historically the highest concentration at 990 µg/l.

c. Nearest Water Supply Well – A well survey has been conducted using Department of Water Resources (DWR) data; however, known monitoring wells in the local vicinity were not found using the DWR data, and indicate the data set is incomplete. It appears appropriate to include the data set maintained by the Alameda County Public Works Agency (ACPWA) in order to obtain a complete data set. Additionally, ACEH requests that the results of both data sets be plotted on an area vicinity map of appropriate scale, in order quickly assess the data and to maintain owner confidentially.

d. Property Owner Willing to Accept a Land Use Restriction? – If, based on the LNAPL mobility evaluation discussed in Technical Comment 2 above, it is determined that Free Product has been removed to the maximum extent practicable, scenario 3C may be used to satisfy the groundwater media specific criterion. It is uncertain if the property owner is willing to accept a land use restriction once other impediments to closure under the groundwater media-specific criteria have been satisfied. Communicating this possibility may allow use of the scenario.

e. Sensitive Receptor Survey - The subject site is situated on the edge of a residential neighborhood. Because groundwater appears to flow to the south beneath the residential apartment building, and to the west beneath a multi-tenant commercial retail facility and other structures across College Avenue, during different times of the year, it appears appropriate to determine if basements, elevators and sumps, or other structures may be present beneath the site vicinity that can eliminate or negate any level of safety through vertical separation built into the LTCP by bioattenuation zone requirements, and for the vapor intrusion to indoor air and direct contact criterions of the LTCP.

f. Naphthalene and PAH Contamination - ACEH's review of the files indicates that naphthalene and poly-aromatic hydrocarbons (PAHs) were detected in grab groundwater sample B12-W located immediately downgradient of a hydraulic hoist in May 2005 at significant concentrations of 305,000 µg/L naphthalene, 430,000 µg/l 1,3,5-trimethylbenzene, and 127,000 µg/l 1,2,4-trimeylbenzene. Additionally, soil samples collected in June 2005 at B22, collected at a depth of 10 feet bgs immediately downgradient of the former UST excavation, contained concentrations of naphthalene up to 640 milligrams per kilogram (mg/kg), 1,2,4-trimetylbenzene up to 4,000 mg/kg, and 1,3,5-trimethylbenzene up to 5,100 mg/kg. Other volatile organic compounds (VOCs) were also detected in the grab groundwater sample. It is not clear the extent that naphthalene of other VOCs have been analyzed during groundwater monitoring events at the site as the analytical data has not been tabulated and may appear only in laboratory reports. Therefore ACEH requests that the analytical data be tabulated to enable a quick understanding of contaminant trends of these chemicals at the site.

Additionally, it does not appear that PAHs have been analyzed in groundwater monitoring wells at the site; however, if the analysis for these chemicals has been collected ACEH requests the data be similarly tabulated. Because there was a waste oil UST associated with the site, it is

appropriate to collect the data. Please also evaluate the need for continued VOC and PAH analysis in groundwater and any future borings at the site.

g. **Potential TPHmo Contamination –** Grab groundwater analysis for TPH as motor oil (TPHmo) do not appear to have been consistently analyzed in soil or groundwater at a site that contained a waste oil UST and contains hydraulic hoists. Similar to the discussion above in Technical Comment 5a, it appears appropriate to investigate the potential for motor oil contamination in groundwater at the site.

Please present a strategy in the Data Gap Work Plan (described in Technical Comment 8 below) to address the items discussed above. Based on the review of the case file it appears that information previously requested of you has not been submitted. An August 3, 2010 directive letter from ACEH approved the installation, and requested the relocation, of proposed groundwater monitoring well MW-5. The November 30, 2010 *Work Plan Addendum for Soil Gas Sampling,* relocated the proposed well location. The work was approved in a directive letter dated June 10, 2011. Additionally, previously approved well MW-4 has also not been installed, even though permits for both wells were obtained from the Alameda County Public Works Agency (ACPWA). No reason for the not undertaking the work was provided in the cited report.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Groundwater in the focused SCM described in Technical Comment 8 below.

6. **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 as follows:

a. **Onsite Risk of Vapor Intrusion -** Three soil vapor points were installed to a depth of four feet below grade surface (bgs) recently and collected useful data that has allowed an understanding of the risk of vapor intrusion to portions of the building on the site. However, the soil vapor probe locations were placed interior to the property and were not placed proximal to the source and residual LNAPL concentrations in soil and groundwater. Specifically, the vapor risk to the office, typically more enclosed than a shop floor, has not been assessed but was proposed and subsequently approved in the June 10, 2011 directive letter. It also does not appear that vapor analysis for naphthalene and PAHs has been conducted to enable an evaluation under the LTCP vapor criterion. This is appropriate at a site with a former waste oil UST and hydraulic hoists as soil, at a depth of 10 feet bgs, contains elevated concentrations of naphthalene, 1,2,4-trimetylbenzene, and 1,3,5-trimethylbenzene as noted above.

b. **Offsite Risk of Vapor Intrusion –** Depth to groundwater in offsite wells MW-1 and MW-3 has been reported to be as high as 3.08 and 3.41 feet bgs, respectively. According to the LTCP a 10 foot bioattenuation zone is required for a site with benzene concentrations between 100 and 1,000 µg/l. As previously noted, the benzene concentration in offsite well MW-3 were last reported in October 2013 at 990 µg/l, a historic high at the site. Therefore there is potential risk to offsite receptors from vapor intrusion to indoor air including the offsite apartment building, with an enclosed first floor garage, and potentially an elevator and sump. Please also be aware that the potential for vapor intrusion to the apartment building is not limited to hydrocarbon contamination, but includes potential PCE contamination previously documented at a shallow depth near the oil-water separator in the back parking lot onsite.

c. **Depth of Existing Vapor Points –** Analysis of the risk of vapor intrusion to indoor air under the LTCP evaluates vapor data collected at a depth of five feet below building foundations. The existing vapor points were installed at a depth of 4 to 5 feet bgs, but the depth of the building foundation was not discussed. These details are appropriate in order to understand the existing vapor data within the context of the LTCP. ACEH requests that foundational details be provided in the SCM discussed in Technical Comment 8 below.

Please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 8 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.

Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Vapor Intrusion to Indoor Air in a SCM that assures that exposure to petroleum and VOC (PCE) vapors in indoor air will not pose unacceptable health risks to occupants of onsite and adjacent 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.

7. **LTCP Media Specific Criteria for Direct Contact and Outdoor Air Criteria** – The LTCP describes conditions where direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air poses a low threat to human health. According to the policy, release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if the maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth bgs. Alternatively, the policy allows for a site specific risk assessment that demonstrates that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health, or controlling exposure through the use of mitigation measures, or institutional or engineering controls.

   Our review of the case files indicates that the site fails to meet the residential, commercial, or utility worker portions of this media-specific criterion due to the presence of contaminant concentrations at 9 or 10 feet bgs up to 13 mg/kg benzene, 38 mg/kg ethylbenzene, and 640 mg/kg naphthalene at offsite bore locations B2 and B22. Additionally, it does not appear that naphthalene and PAHs have been sufficiently analyzed in the source area to characterize the site under this criterion.

   Therefore, please present a strategy in the Data Gap Work Plan described in Technical Comment 8 below to collect sufficient data to satisfy the direct contact and outdoor air exposure criteria in the source area.

   Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure in the focused SCM described in Technical Comment 8 below that assures that exposure to petroleum constituents in soil will have no significant risk of adversely affecting human health.

8. **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.

   In order to expedite review, ACEH requests the focused 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 revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

   Finally, the lack of a scale on site figures complicates this analysis. ACEH requests that all future figures contain a lined scale.

9. **Groundwater Monitoring –** Please continue to conduct semi-annual groundwater monitoring events at the site and submit reports in accordance with the schedule below. However, ACEH requests the inclusion of an additional groundwater analysis due to an atypical gasoline chemical signature at the site as discussed above in Technical Comment 5.

   Additionally, as requested above, please include analysis for naphthalene, PAHs, TPHd, and TPHmo in future groundwater monitoring events. The need for additional analysis of these contaminants is requested to be evaluated thereafter.

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:

- **April 30, 2014** – Notification of Available Meeting Dates
- **June 13, 2014** – First 2014 Semi-Annual Groundwater Monitoring Event
  (File to be named: GWM_R_yyyy-mm-dd)
- **June 27, 2014** – Data Gap Investigation Plan and Focused Site Conceptual Model
  (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.

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou, email, c=US
Date: 2014.04.15 10:58:31 -07'00'

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

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

Attachment A – Site Conceptual Model Requisite Elements

cc: Brent Wheeler, Golden Gate Environmental, Inc, 1455 Yosemite Avenue, San Francisco, CA 94124 (sent via electronic mail: b.wheeler@ggtr.com)

Mark Youngkin, Golden Gate Environmental, Inc, 1455 Yosemite Avenue, San Francisco, CA 94124 (sent via electronic mail to: geomark@sbcglobal.net)

Leroy Griffin, Oakland Fire Department 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (sent via electronic mail to lgriffin@oaklandnet.com)

Dilan Roe, ACEH (sent via electronic mail to dilan.roe@acgov.org)
Mark Detterman (sent via electronic mail to mark.detterman@acgov.org)
Electronic file, GeoTracker

Attachment 1

Responsible Party(ies) Legal Requirements/Obligations

REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

Submission of reports to the ACEH FTP site is in addition to requirements for electronic submittal of information (ESI) to the State Water Resources Control Board's (SWRCB) Geotracker website. In April 2001, the SWRCB adopted 23 CCR, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1 (Electronic Submission of Laboratory Data for UST Reports). Article 12 required electronic submittal of analytical laboratory data submitted in a report to a regulatory agency (effective September 1, 2001), and surveyed locations (latitude, longitude and elevation) of groundwater monitoring wells (effective January 1, 2002) in Electronic Deliverable Format (EDF) to Geotracker. Article 12 was subsequently repealed in 2004 and replaced with Article 30 (Electronic Submittal of Information) which expanded the ESI requirements to include electronic submittal of any report or data required by a regulatory agency from a cleanup site. The expanded ESI submittal requirements for petroleum UST sites subject to the requirements of 23 CCR, Division, 3, Chapter 16, Article 11, became effective December 16, 2004. All other electronic submittals required pursuant to Chapter 30 became effective January 1, 2005. Please visit the SWRCB website for more information on these requirements: (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, 7835, 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, late 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.

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)	**REVISION DATE:** July 25, 2012
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (petroleum UST and SCP) 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
   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 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-

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

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	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). 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).	None	NA
	Site	***Geology:*** 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). ***Hydrogeology:*** 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.	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. 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.	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. 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.
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

Item	Data Gap	Proposed Investigation	Rationale	Analysis
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.	*Groundwater:* 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.	*Soil vapor* : 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.	*Groundwater:* 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.	*Groundwater:* VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance. *Soil:* 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.	*Soil vapor* : 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