**Carryl MacLeod**
Project Manager
Marketing Business Unit

**Chevron Environmental Management Company**
6101 Bollinger Canyon Road
San Ramon, CA 94583
Tel (925) 790-6506
cmacleod@chevron.com

April 22, 2013

Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577



Re: Former Chevron Service Station 209339
5940 College Avenue
Oakland, California
ACEHS Case No. RO0000466

I accept the *Response to Technical Comments and Work Plan*

I agree with the conclusions and recommendations presented in this document. The information included is accurate to the best of my knowledge, and appears to meet local agency and Regional Board guidelines. This *Response to Comments and Work Plan* was prepared by Conestoga Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

Carryl MacLeod
Project Manager

Attachment: Response to Technical Comments and Work Plan

CONESTOGA-ROVERS & ASSOCIATES

10969 Trade Center Drive, Suite 107
Rancho Cordova, California 95670
Telephone: (916) 889-8900 Fax: (916) 889-8999
www.CRAworld.com

April 19, 2013 Reference No. 311954

Mr. Mark Detterman
Alameda County Environmental Health (ACEH)
1131 Harbor Bay Parkway
Alameda, California 94502

Re: Response to Technical Comments and
Work Plan
Former Chevron Service Station 209339
5940 College Avenue
Oakland, California
ACEH Case RO0000466

Dear Mr. Detterman:

Conestoga-Rovers & Associates (CRA) is submitting this *Response to Technical Comments and Work Plan* for the site referenced above (Figure 1) on behalf of Chevron Environmental Management Company (Chevron). This letter provides responses to technical comments outlined in a letter from Alameda County Environmental Health (ACEH) dated February 8, 2013 (Attachment A), and a work plan to address remaining data gaps prior to site closure.

Retail service station operation at the site ceased 45 years ago and the former facilities were presumably removed. Subsequent site use included a parking lot for 11 years before redevelopment of the site as a two-story commercial facility 34 years ago. The site was reportedly excavated to depths of 4 to 6 feet below grade (fbg) when construction of the commercial building was undertaken. Depth to groundwater varies from 6 to 14 fbg and groundwater flow as reported on the adjacent former Shaeff's Garage site is variable, but regionally is reported westerly. A known hydrocarbon release occurred on the adjacent former Shaeff's Garage site (Case RO0000377) and groundwater beneath both sites was historically impacted by this release. Two site wells (MW-1, downgradient offsite, and MW-2, adjacent to the former underground storage tanks [USTs] onsite) have been sampled for 12 years and the most recent fourth quarter 2012 data indicates no hydrocarbons present in either well. With the exception of trace concentrations of toluene, ethylbenzene and total xylenes, no hydrocarbons were reported in soil samples collected from these well borings.

Request and rationale for site closure has been submitted twice to ACEH in CRA's August 25, 2011 *Case Closure Request* and the December 4, 2012 *Addendum to Case Closure Request*.

ACEH's technical comments (in italics) and CRA's responses, as well as a work plan to address remaining data gaps, are provided below.

**Technical Comment 1a: General Criteria b – Does the Release Consist only of Petroleum?**
*"…because naphthalene is present in both of these products, it would be appropriate to investigate residual soil contamination and determine the potential for the presence of SVOCs, including naphthalene, in any additional site investigation."*

CRA proposes advancing a shallow soil boring in the area between the former USTs and dispenser island to collect a soil sample for naphthalene analysis (Figure 2). Further details are provided in the Work Plan and Schedule section below.

It should be noted that polycyclic aromatic hydrocarbons (PAHs), including naphthalene, have been reported on the adjacent Shaeff's Garage site in both soil and groundwater. If detected in soil or groundwater on the former Chevron site, it follows that it likely originated from the former Shaeff's Garage site as did hydrocarbons historically detected on the former Chevron site.

**Technical Comment 1b: General Criteria c – Has the Unauthorized Release Been Stopped?**
*"The December 2008 Site Conceptual Model (CSM) identified several data gaps and a follow up work plan proposed the collection of additional analytical data to verify that the tanks and tank cavity materials were removed. At this time removal of the tanks or the contents of tank cavity has not been determined."*

Since submittal of the CSM in December 2008 dissolved hydrocarbon concentrations have steadily declined and are now below detection limits, suggesting that even if significant residual hydrocarbons were once present in soil, dissolved groundwater data indicate that they no longer represent a significant secondary source. Therefore, additional investigation, including advancing three additional soil borings as proposed in the 2008 work plan, is no longer warranted.

Although documentation of UST removal has not been found, it is likely that the USTs were removed either during station demolition or during subsequent excavation of the site associated with redevelopment. This assumption is based on the fact that grade in the location of the former USTs was lowered approximately 4 to 6 fbg. CRA will conduct a file review with the City of Oakland Fire Department's Hazardous Materials Division to determine if records of the UST removal are available.

**Technical Comment 1c: General Criteria e – Has an Adequate CSM Model Been Developed?**
*"…sample sump discharge (as a preferential pathway evaluation) beneath the stairway on the west side of the building."*

*"…the SCM did not address the risk of vapor intrusion at the site. Under the LTCP the vapor intrusion can be approached in three ways; groundwater concentrations coupled with sufficient soil analytical data, a risk assessment requiring sufficient analytical robustness, or direct sampling of soil vapor. There is insufficient data for each of these three approaches at this site."*

To confirm the depth of the excavation and construction of the sump below the entrance stairway, CRA will conduct a record search of the City of Oakland Building Services' permit archives to obtain building plans, grading permits, and any other pertinent documentation detailing the depth of the excavation and design of the sump. If groundwater appears to be in connection with the sump (making it a potential preferential pathway), CRA will sample the sump discharge and provide the results to the ACEH (further details are provided below in the *Path to Closure Schedule* section). However, it is more likely that the sump is not in connection with groundwater and is used to discharge surface water runoff to the storm drain system that collects in the below-grade building entrance. If this is confirmed, the sump would not represent a potential preferential pathway and therefore will not be sampled.

To address the vapor intrusion data gap, CRA proposes installation of two sub-slab vapor points and performance of an indoor and outdoor (ambient) air survey. One sub-slab vapor point would be located inside Barclay's Restaurant (near SB-4) and the other inside the northwestern portion of the building near the former dispenser island (Figure 2). Further details are discussed in the Work Plan and Schedule section below.

**Technical Comment 1d: Vapor Intrusion Media Specific Criteria**
*"Because soil analytical data is exceptionally limited at the site, and because the soil smear zone is not characterized onsite, data that would support this Media Specific Criteria under the LTCP is not available. Additionally, it appears that the level of protection from vapor intrusion cannot be determined; in particular because of the lowered original site grade that eliminates a substantial portion of the soil buffer zone described in the LTCP. As noted above, there is insufficient data to determine the risk of vapor intrusion at the site. For full details, please see the attached DGIT checklist form."*

Site soil and groundwater analytical data, shallow groundwater conditions, and site excavation during redevelopment support that a significant source associated with a potential vapor risk related to Chevron's past operations 45 years ago is not present at the site. However, as stated in the response to Technical Comment 1c, CRA proposes to collect sub-slab vapor and perform an indoor and outdoor air survey to address potential vapor intrusion.

**Technical Comment 1e: Direct Contact and Outdoor Air Exposure Media Specific Criteria**
*"Because of the exceptionally limited "onsite" soil analytical data, it appears that these criteria also cannot be accurately determined. For full details, please see the attached DGIT checklist form."*

Site soil and groundwater analytical data, shallow groundwater conditions, and site excavation during redevelopment support that a significant source associated with potential risk through direct contact or outdoor air exposure related to Chevron's past operations 45 years ago are likely not present at the site. Additionally, the site is capped with a concrete structure and walkways further minimizing these risks to the public. Direct contact and/or exposure to vapor could occur with a construction or utility worker in a trench, but groundwater concentrations indicative of a significant source have not been reported onsite. As stated in the response to Technical Comments 1a and 1c, CRA proposes to collect an additional soil sample and perform an indoor and outdoor air survey to address direct contact and potential outdoor vapor exposure.

## WORK PLAN AND SCHEDULE

Per phone communication between CRA and ACEH on April 17, 2013, Chevron does not currently have an access agreement in place to perform any onsite work. All previous work performed by Chevron has been conducted in the City of Oakland right-of-way. Therefore, the proposed location and schedule for installation and sampling of the sub-slab vapor points, advancement of the soil boring, soil vapor, indoor and outdoor air sampling cannot be determined at this time. Once the access agreement is signed by the property owner and Chevron, CRA will submit an addendum outlining the details and schedule for installation and sampling of the sub-slab vapor points, advancement of the soil boring, soil vapor, indoor and outdoor air sampling. Additionally, periodic updates will be provided to ACEH on the status of the access agreement negotiations.

Below is a list of proposed activities, including estimated timeframe (if task is not dependant on completion of the access agreement), to complete the path to site closure. Each scheduled timeframe for the completion of the tasks below takes into account the estimated time for ACEH to review and comment (approximately 60 days). All dates are dependent on receipt of approval from ACEH and are subject to change dependent on response times.

***Preferential Pathway Study***

CRA will schedule and conduct a file review with the City of Oakland Building Services Department to determine whether the sump is potentially in communication with groundwater. This review will be conducted concurrently along with a file review to verify depth of the site redevelopment excavation by May 31, 2013.

CRA will also conduct a file review with the Oakland Fire Department's Hazardous Waste Division to obtain a permit (if available) of the UST and product piping removal likely conducted in 1968 or thereafter. CRA will conduct these file reviews by May 31, 2013.

If the results of the file review indicate that a conduit may exist between groundwater and the sump, CRA will sample the sump discharge after the access agreement is in place.

***Sub-Slab Vapor Point Installation***

The proposed sub-slab vapor points (Figure 2) will be installed using a rotary hammer drill to create a 1-inch deep "outer" hole that partially penetrates the concrete slab. A small portable vacuum cleaner will be used to remove cuttings from the hole. A smaller 5/16-inch diameter "inner" hole will then be advanced through the remainder of the concrete slab and into the substrate. The sub-slab vapor probes will be constructed using stainless steel tubing and compression fittings to ensure that construction materials were not a potential source of volatile organic compounds (VOCs). The probes will be set in the holes and completed flush with the slab. Cement grout will be placed into the annular space between the probe and the edge of the "outer" hole and allowed to cure for a minimum of one week before sampling. A schedule will be provided for this activity after the access agreement is in place.

***Vapor Sampling and Indoor/Outdoor Air Survey***

Sub-slab vapor samples will be collected using a flow meter set at 100 milliliters per minute and 1-liter Summa™ canisters connected to the sampling tubes. While sampling, the vacuum of the Summa™ canister will be used to draw air through the flow controller until a negative pressure of approximately 5 inches of mercury is observed on the Summa™ canister vacuum gauge. Additionally, a field duplicate sample will be collected from one of the locations. Leak testing will be performed during sampling using helium.

Two indoor air samples near each sub-slab vapor point location and one outdoor ambient air sample will also be collected. The exact location of the outdoor (ambient air sample) will be determined during a site meeting with the property owner/residents. All air samples will be collected using 100 percent lab-certified 6-liter Summa™ canisters connected to flow controllers set to 11.5 milliliters per minute. While sampling, the vacuum of the Summa™ canister will be used to draw air through the flow controller until a negative pressure of approximately 5 inches of mercury is observed on the Summa™ canister vacuum gauge. Indoor and outdoor air samples will be collected in the breathing zone.

Sub-slab, indoor, and outdoor samples will be transported under chain-of-custody to Eurofins Air Toxics, LTD, a California-certified laboratory in Folsom, CA for the following analyses:

- TPHg, BTEX, MTBE and naphthalene by EPA Method TO-15 SIM (GC/MS)
- Air Phase Hydrocarbon (APH) Fractions (Sp) Aromatics C8-C12 Modified TO-15 GC/MS Full Scan
- APH Fractions (Sp) Aliphatics C5-C12 Modified TO-15 GC/MS Full Scan

- Oxygen, carbon dioxide, nitrogen, methane, and helium by American Society for Testing and Materials (ASTM) D-1946

A schedule will be provided for this activity after the access agreement is in place.

***Soil Boring Installation***
The proposed boring (Figure 2) will be advanced with a hand auger to 5 fbg and the soil cuttings will be logged and screened with a PID. A slide hammer will be used to collect a relatively undisturbed soil sample in a brass or stainless steel sleeve. The sample will be capped with Teflon squares and plastic end caps, labeled, placed on ice, and shipped under COC protocol to a state-certified analytical laboratory where it will be analyzed for naphthalene by EPA Method 8270. A schedule will be provided for this activity after the access agreement is in place.

***Addendum to Conceptual Site Model***
Upon completion of the file review and sampling detailed above and receipt of the final analytical data, CRA will prepare an Addendum to CSM. A schedule will be provided for this activity after the access agreement is in place.

***Public Participation Program***
Upon receipt of a regulatory approval to proceed with the public notification, CRA will submit a Fact Sheet for distribution to the public that will be available for public viewing within 30 days.

***Case Closure Tasks***
Following completion of the public comment period and regulatory approval to proceed with well destruction activities, CRA will commence with permitting and coordination of field work. Waste generated during well destruction activities will be removed from site within 45 days of generation and a well destruction report will be prepared and submitted within 60 days of completion of field activities.

Please contact Brian Silva at (916) 889-8908 if you have any questions or need any additional information.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Brian Silva

Greg Barclay, PG 6260

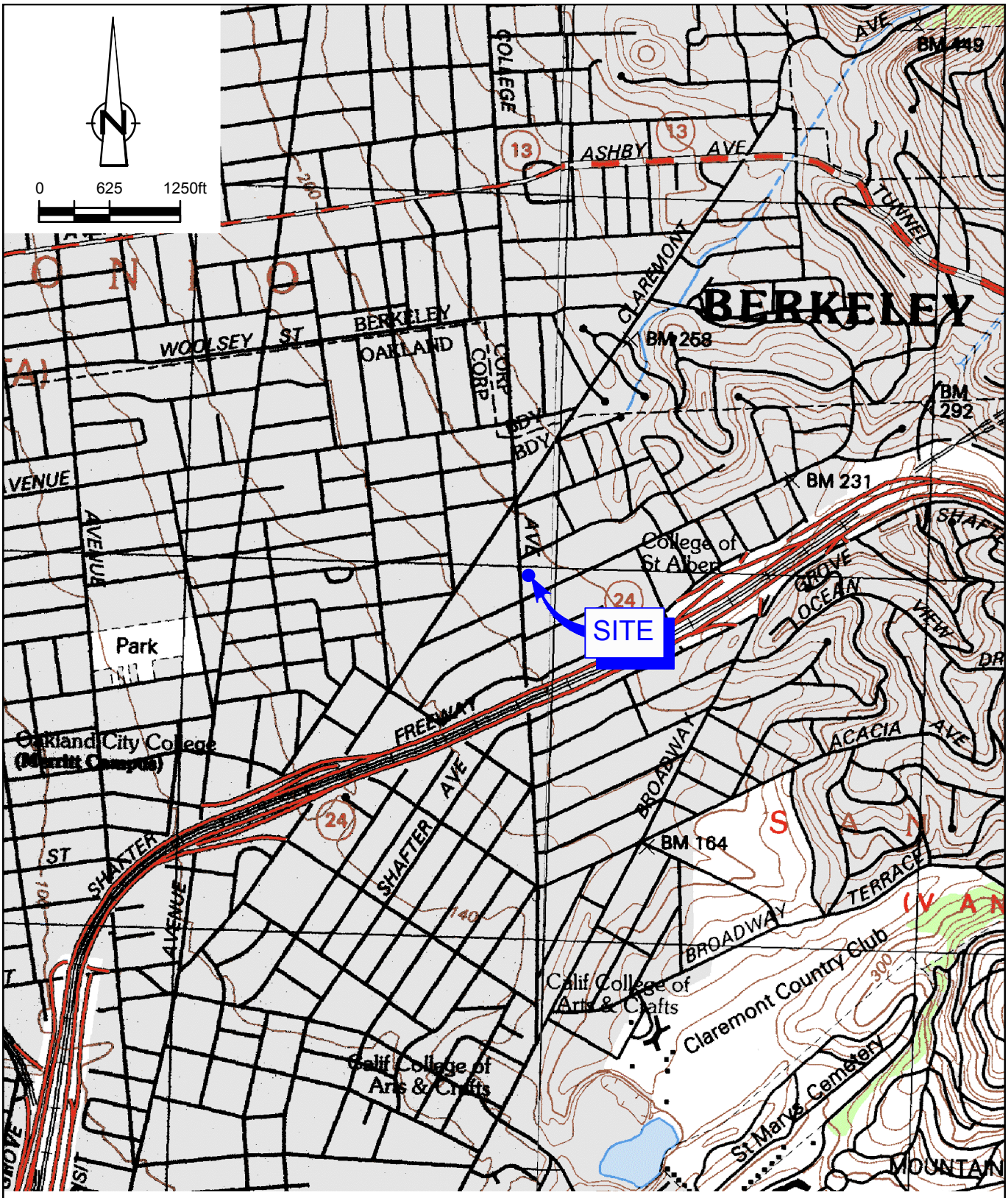

WM/de/13
Encl.

Figure 1 Vicinity Map
Figure 2 Site Plan

Attachment A ACWD Correspondence

cc: Ms. Carryl Macleod, Chevron (electronic copy only)
Mr. Donald Sweet, San Francisco Property MGMT
Mr. Patrick Elwood, College Square Associates

# FIGURES




SOURCE: USGS QUADRANGLE MAPS: OAKLAND WEST, CA. & OAKLAND EAST, CA.

figure 1

VICINITY MAP
FORMER CHEVRON SERVICE STATION 209339
5940 COLLEGE AVENUE
*Oakland, California*

311954-2012.3(013)GN-WA001 APR 18/2013

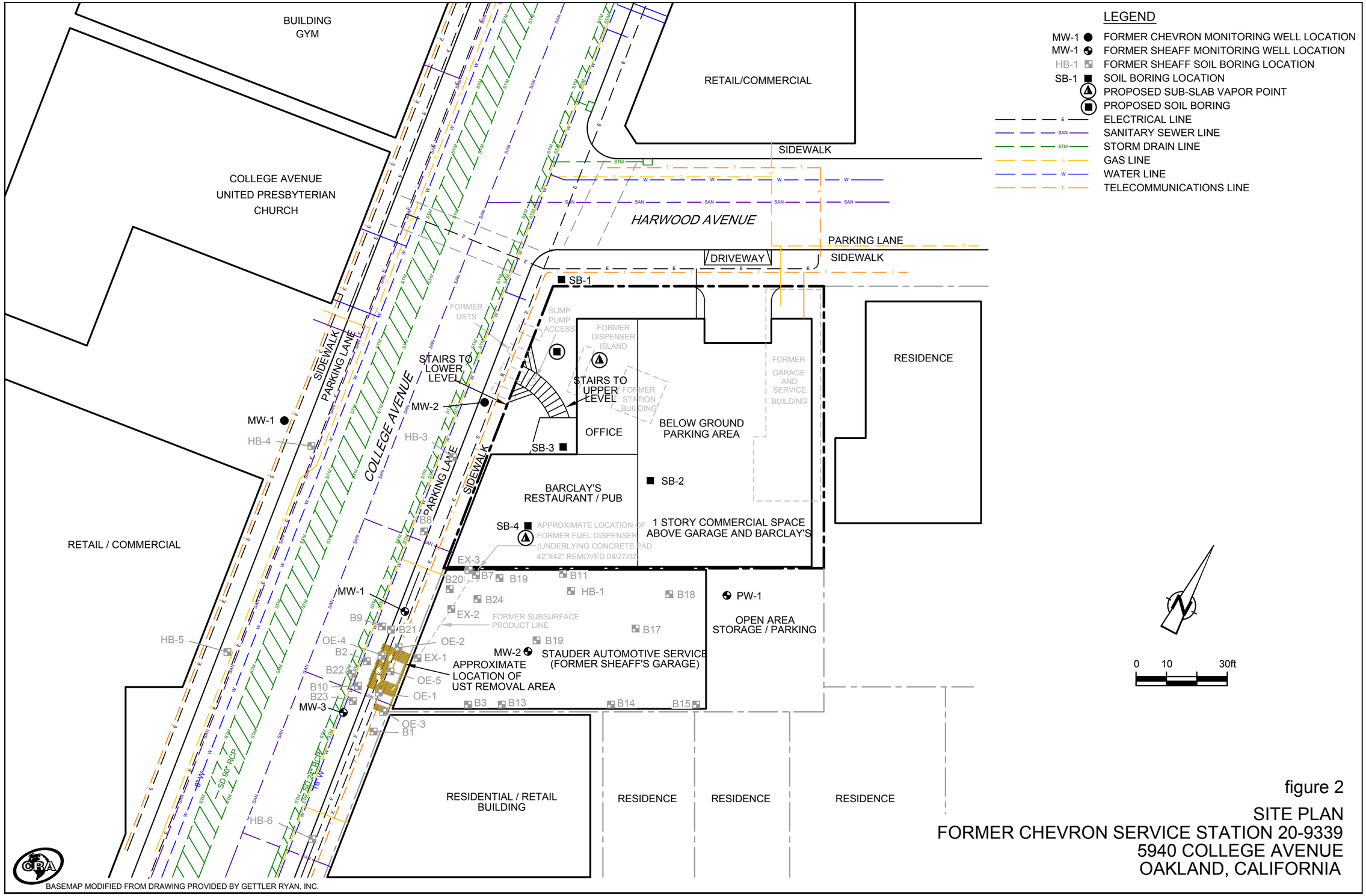



figure 2

SITE PLAN
FORMER CHEVRON SERVICE STATION 20-9339
5940 COLLEGE AVENUE
OAKLAND, CALIFORNIA

BASEMAP MODIFIED FROM DRAWING PROVIDED BY GETTLER RYAN, INC.

311954-2012.3(013)GN-WA002 APR 18/2013

ATTACHMENT A

ACWD CORRESPONDENCE

ALAMEDA COUNTY
**HEALTH CARE SERVICES**
AGENCY
ALEX BRISCOE, Agency Director

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

February 8, 2013

Mr. Carryl MacLeod
Chevron Environmental Management Co.
6101 Bollinger Canyon Road
San Ramon, CA 94583
(Sent via electronic mail to:
cmacleod@chevron.com)

Mr. Patrick Elwood
College Square Associates
1345 Grand Avenue
Piedmont, CA 94611

Mr. Donald Sweet
San Francisco Property Mgmt Co.
1375 Sutter Street, Suite 308
San Francisco, CA 941095

Subject: Request for a Data Gap Work Plan and Path to Closure Implementation Schedule; Fuel Leak Case No. RO0000466 and Geotracker Global ID T06019752694, Chevron #20-9339, 5940 College Avenue, Oakland, CA 94618

Dear Messrs. MacLeod, Elwood, and Sweet:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Case Closure Request,* dated August 25, 2011, the *Addendum to Case Closure Request,* dated December 4, 2012, and the *Second Semi-Annual 2012 Groundwater Monitoring Report,* dated December 11, 2012. The reports were prepared and submitted on your behalf by Conestoga-Rovers & Associates (CRA). Thank you for submitting the reports.

In the report CRA finds that the subject site meets the General and Media Specific Criteria of the recently adopted Low-Threat Closure Policy (LTCP). ACEH has also reviewed the site against the recently enacted policy and finds that the site does currently not meet the policy; therefore, ACEH cannot consider case closure for the subject site at this time. This decision to deny closure is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to Section 25299.39.2(b) of the Health and Safety Code (Thompson-Richter Underground Storage Tank Reform Act - Senate Bill 562). Please contact the SWRCB Underground Storage Tank Program at (916) 341-5851 for information regarding the appeals process.

Based on the review of the case file ACEH requests that you address the following technical comments and send us the documents requested below. This is intended to act as a "Path to Closure" that will collect sufficient information to assess the site against the new policy as discussed further below.

**TECHNICAL COMMENTS**

1. **Request for a Data Gap Work Plan** – The December 4, 2012 report cited above indicates that the site meets all General and Media Specific criteria of the LTCP. ACEH is not in agreement with this assessment and attaches the Geotracker LTCP Checklist and the ACEH *Data Gap Identification Tool* (DGIT) checklist to document data gaps identified by ACEH when the site is compared to the LTCP criteria, and to initiate a "Path to Closure" dialogue between ACEH and Responsible Parties. In order to continue this dialogue, ACEH requests that a data gap work plan be submitted by the date identified below. In ACEH's analysis of the site, the following data gaps are present:

    a. **General Criteria b – Does the Release Consist only of Petroleum?** – ACEH is in agreement that the release likely consists only of petroleum (which includes products associated with waste oils); however, because of the era the service station occupied the site (1938 to 1968), ACEH would generally anticipate the potential for both diesel and waste oil products to have been present and potentially released (It is understood that the upper four and six feet of soil has been removed from the site, thus removing near surface contaminants). However, because naphthalene is present in both of these products, it would be appropriate to investigate residual soil contamination

and determine the potential for the presence of SVOCs, including naphthalene, in any additional site investigation.

b. **General Criteria c – Has the Unauthorized Release been Stopped?** – The December 2008 Site Conceptual Model (CSM) identified several data gaps and a followup work plan proposed the collection of additional analytical data to verify that the tanks and tank cavity materials were removed. At this time removal of the tanks or the contents of tank cavity has not been determined.

c. **General Criteria e – Has an Adequate CSM Model Been Developed? -** The existing SCM identified several data gaps including the collection of additional analytical data to further characterize soil and grab groundwater contamination, to verify that the tanks and tank cavity materials were removed, to search governmental records in regards to the depth of building sub-excavation conducted at the time of redevelopment in 1979, and to sample the sump discharge (as a preferential pathway evaluation) beneath the stairway on the west side of the building. The answer to each of these data gaps affects site interpretation under the LTCP.

Additionally, the SCM did not address the risk of vapor intrusion at the site. Under the LTCP the vapor intrusion can be approached in three ways; groundwater concentrations coupled with sufficient soil analytical data, a risk assessment requiring sufficient analytical robustness, or direct sampling of soil vapor. There is insufficient data for each of these three approaches at this site.

d. **Vapor Intrusion Media Specific Criteria** – The subject site was occupied by a service station until approximately 1968, was used for a period as a parking lot, and then was redeveloped in 1979 in its current configuration. The subject building is reported to be predominately approximately 4 feet below surface grade (bgs), and the associated and attached parking structure is up to 6 feet bgs. The extent of additional sub-excavation, if any, has been investigated, but is unknown.

The extent of soil contamination characterization is limited to three soil samples, two of which were collected offsite and cross-gradient by approximately 70 feet distant, and the remaining single soil sample was collected offsite (beneath the sidewalk), above groundwater, at a (shallow) depth of 4.5 feet but within approximately 5 feet of the UST locations (presumed but not documented to be removed). All three samples were non-detectable for TPHg, benzene, and MTBE, but the closest soil sample had trace detections for toluene, ethylbenzene, and total xylenes.

Four other soil bores were installed at the site; however, no soil samples were collected. The bore logs indicate that petroleum contamination (as recorded by PID readings and discolored soil) was generally encountered at the approximate depth of groundwater, approximately 9 to 10 feet bgs. Because soil analytical data is exceptionally limited at the site, and because the soil smear zone is not characterized onsite, data that would support this Medial Specific Criteria under the LTCP is not available. Additionally, it appears that the level of protection from vapor intrusion cannot be determined; in particular because of the lowered original site grade that eliminates a substantial portion of the soil buffer zone described in the LTCP. As noted above, there is insufficient data to determine the risk of vapor intrusion at the site. For full details, please see the attached DGIT checklist form.

e. **Direct Contact and Outdoor Air Exposure Medial Specific Criteria** – Because of the exceptionally limited "onsite" soil analytical data, it appears that these criteria also cannot be accurately determined. For full details, please see the attached DGIT checklist form.

2. **Request for Groundwater Monitoring Cessation** – The collection of additional groundwater monitoring data does not appear appropriate at the site. As a consequence, ACEH requests that groundwater monitoring be suspended at this time, and any unreported data be reported.

3. **Baseline Environmental Project Schedule -** The State Water Resources Control Board passed Resolution No. 2012-0062 on November 6, 2012 which requires development of a "Path to Closure Plan" by December 31, 2013 that addresses the impediments to closure for the site. The Path to Closure must have milestone dates to calendar quarter which will achieve site cleanup and case closure in a timely and efficient manner that minimizes the cost of corrective action. The Project Schedule should include, but not be limited to, the following key environmental elements and milestones as appropriate:

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

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

Please use a critical path methodology/tool to construct a schedule with sufficient detail to support a realistic and achievable Path to Closure Schedule. The schedule is to include at a minimum:

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

Please submit an electronic copy of the Path to Closure Schedule by the date listed below. ACEH will review the schedule to ensure that all key elements are included.

## TECHNICAL REPORT REQUEST

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

- **February 22, 2013** – Data Gap Work Plan and Path to Closure Schedule
  File to be named: RO466_WP_R_yyyy-mm-dd

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

Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm. If your email address is not listed on the first page of this letter, or in the list of cc's listed below, ACEH is requesting your email address to help expedite communications and to help lower overall costs.

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Digitally signed by Mark Detterman
DN: cn=Mark Detterman, o, ou, email=mark.detterman@acgov.org, c=US
Date: 2013.02.08 14:39:16 -08'00'

Mark Detterman, PG, CEG
Senior Hazardous Materials Specialist
Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations
Electronic Report Upload (ftp) Instructions

cc: Celina Hernandez, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A, Emeryville, CA 94608 (sent via electronic mail to CHernandez@craworld.com)

Brandon Wilken, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A, Emeryville, CA 94608 (sent via electronic mail to BWilken@craworld.com)

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

Donna Drogos, (sent via electronic mail to donna.drogos@acgov.org)
Mark Detterman (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic Files

## 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.

LTCP Checklist Go

GEOTRACKER HOME | MANAGE PROJECTS | REPORTS | SEARCH | LOGOUT

**CHEVRON #20-9339 / COLLEGE SQUARE (T06019752694)** - MAP THIS SITE

*OPEN - SITE ASSESSMENT*

5940 COLLEGE AVENUE
OAKLAND , CA 94618
ALAMEDA COUNTY

ACTIVITIES REPORT
PUBLIC WEBPAGE

VIEW PRINTABLE CASE SUMMARY FOR THIS SITE

**CLEANUP OVERSIGHT AGENCIES**
ALAMEDA COUNTY LOP *(LEAD)* - *CASE #: RO0000466*
*CASEWORKER:* MARK DETTERMAN - *SUPERVISOR:* DONNA DROGOS
SAN FRANCISCO BAY RWQCB (REGION 2) - *CASE #: NA*

THIS PROJECT WAS LAST MODIFIED BY MARK DETTERMAN ON 2/8/2013 11:09:38 AM - HISTORY

THIS SITE HAS SUBMITTALS. CLICK HERE TO OPEN A NEW WINDOW WITH THE SUBMITTAL APPROVAL PAGE FOR THIS SITE.

## CLOSURE POLICY

***THIS VERSION IS FINAL AS OF 2/8/2013***

CLOSURE POLICY HISTORY

**General Criteria** - *The site satisfies the policy general criteria* - CLEAR SECTION ANSWERS — **NO**

a. Is the unauthorized release located within the service area of a public water system? — (•) YES ( ) NO
Name of Water System : EBMUD

b. The unauthorized release consists only of petroleum (info). — (•) YES ( ) NO

c. The unauthorized ("primary") release from the UST system has been stopped. — ( ) YES (•) NO
Explain : Removal of USTs is undocumented, is an identified data gap.

d. Free product has been removed to the maximum extent practicable (info). — ( ) FP Not Encountered (•) YES ( ) NO

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed (info). — ( ) YES (•) NO
Description (Check all that Apply):
- [ ] GW Not Evaluated
- [ ] Groundwater Assessment Incomplete - Aerial Extent of Contamination Not Defined
- [ ] Groundwater Assessment Incomplete - Depth of Contamination Not Defined
- [ ] Hydrogeology Not Adequately Defined
- [ ] Potential Receptors Not Identified
- [ ] Soil Assessment Incomplete - Aerial Extent Not Defined
- [x] Soil Assessment Incomplete - Depth Unknown
- [ ] Soil Vapor Not Evaluated
- [ ] Other -

f. Secondary source has been removed to the extent practicable (info). — ( ) YES (•) NO
Impediment to Removing Secondary Source (Check all that Apply):
- [ ] Remediation Has Not Been Attempted
- [ ] Remediation Was Designed Incorrectly
- [ ] Remediation Was Shut Off Prematurely
- [ ] Poor Remediation O&M
- [x] Other - One offsite soil sample has been collected

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

h. Does a nuisance exist, as defined by Water Code section 13050. — ( ) YES (•) NO

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

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

**Does the site meet any of the Groundwater specific criteria scenarios?** — (•) YES ( ) NO

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

**2. Media Specific Criteria: Petroleum Vapor Intrusion to Indoor Air** - *The site is considered low-threat for the vapor-intrusion-to-air pathway if site-specific conditions satisfy items 2a, 2b, or 2c* - CLEAR SECTION ANSWERS — **NO**

EXEMPTION - Active Commercial Petroleum Fueling Facility — ( ) YES (•) NO

**Does the site meet any of the Petroleum Vapor Intrusion to Indoor Air specific criteria scenarios?** — ( ) YES (•) NO

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

**Soil Gas Samples :**
( ) No Soil Gas Samples ( ) Taken Incorrectly

**Exposure Type :**
( ) Residential (•) Commercial

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

**TPH in the Bioattenuation Zone :**
( ) ≥ 100 mg/kg ( ) Unknown (•) Soil samples not taken at two depths within 5 ft. zone (only for Scenario 4 with BioZone)

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

**O2 Data in Bioattenuation Zone :**
(•) No $O_2$ Data ( ) $O_2$ < 4% ( ) $O_2$ ≥ 4%

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

**Soil Gas Benzene :**
( ) ≥ 85 µg/m$^3$ and < 280 µg/m$^3$ ( ) ≥ 280 µg/m$^3$ and < 85,000 µg/m$^3$ ( ) ≥ 85,000 µg/m$^3$ and < 280,000 µg/m$^3$ ( ) ≥ 280,000 µg/m$^3$ (•) Unknown

**Soil Gas EthylBenzene :**
( ) ≥ 1,100 µg/m$^3$ and < 3,600 µg/m$^3$ ( ) ≥ 3,600 µg/m$^3$ and < 1,100,000 µg/m$^3$ ( ) ≥ 1,100,000 µg/m$^3$ and < 3,600,000 µg/m$^3$ ( ) ≥ 3,600,000 µg/m$^3$ (•) Unknown

**Soil Gas Naphthalene :**
( ) ≥ 93 µg/m$^3$ and < 310 µg/m$^3$ ( ) ≥ 310 µg/m$^3$ and < 93,000 µg/m$^3$ ( ) ≥ 93,000 µg/m$^3$ and < 310,000 µg/m$^3$ ( ) ≥ 310,000 µg/m$^3$ (•) Unknown

**3. Media Specific Criteria: Direct Contact and Outdoor Air Exposure** - *The site is considered low-threat for direct contact and outdoor air exposure if it meets 1, 2, or 3 below.* - CLEAR SECTION ANSWERS — **NO**

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

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

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

**Exposure Type :**

○ Residential ● Commercial ○ Utility Worker

**Petroleum Constituents in Soil :**

○ ≤ 5 Feet bgs ○ >5 Feet bgs and ≤10 Feet bgs ● Unknown

**Soil Concentrations of Benzene :**

○ > 1.9 mg/kg and ≤ 2.8 mg/kg ○ > 2.8 mg/kg and ≤ 8.2 mg/kg ○ > 8.2 mg/kg and ≤ 12 mg/kg ○ > 12 mg/kg and ≤ 14 mg/kg ○ > 14 mg/kg ● Unknown

**Soil Concentrations of EthylBenzene :**

○ > 21 mg/kg and ≤ 32 mg/kg ○ > 32 mg/kg and ≤ 89 mg/kg ○ > 89 mg/kg and ≤ 134 mg/kg ○ > 134 mg/kg and ≤ 314 mg/kg ○ > 314 mg/kg ● Unknown

**Soil Concentrations of Naphthalene :**

○ > 9.7 mg/kg and ≤ 45 mg/kg ○ > 45 mg/kg and ≤ 219 mg/kg ○ > 219 mg/kg ● Unknown

**Soil Concentrations of PAH :**

○ > 0.063 mg/kg and ≤ 0.68 mg/kg ○ > 0.68 mg/kg and ≤ 4.5 mg/kg ○ > 4.5 mg/kg ● Unknown

**Area of Impacted Soil :**

○ Area of Impacted Soil > 82 by 82 Feet ● Unknown

**Additional Information**

This case should be closed in spite of NOT meeting policy criteria. ○ YES ● NO

SPELL CHECK

Save in Progress | Save as Final

LOGGED IN AS MARKDETT

CONTACT GEOTRACKER HELP

**ALAMEDA COUNTY ENVIRONMENTAL HEALTH**
**LOW THREAT UST CASE CLOSURE POLICY COMPLIANCE AND**
**IDENTIFICATION OF IMPEDIMENTS TO CASE CLOSURE CHECKLIST**

| | |
|---|---|
| Agency Name : Alameda County Environmental Health | Date: February 8, 2013 |
| Case Worker: Mark Detterman | Fuel Leak Case No: RO0000466 |
| Site Name: Chevron #20-9339 | GeoTracker Global ID: T06019752694 |
| Site Address:<br>5940 College Avenue, Oakalnd, CA 94618 | USTCF Claim No: NA |

Alameda County Environmental Health (ACEH) has reviewed the above listed site for consideration of case closure using the framework provided by the State Water Resources Control Board (SWRCB) Low-Threat Underground Storage Tank Case Closure Policy (LTCP), adopted on May 1, 2012, and effective August 17, 2012. The results of ACEH's case review indicates that the site ☐ PASSES ☒ FAILS the LTCP criteria.

Section 25296.10 of the California Health and Safety Code (H&SC) requires that sites be cleaned up to protect human health, safety, and the environment. The current conceptual site model ☐ is ☒ is not adequate to determine that residual petroleum constituents at the site do not pose a significant risk to human health, safety, or the environment. A complete record of the case files (i.e., regulatory directives and correspondence, reports, data submitted in electronic deliverable format [EDF], etc.) can be obtained through review of both the SWRCB's Geotracker database, and the ACEH website at http://www.acgov.org/aceh/index.htm.

**Application of Case Review Tools**

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

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

ACEH also utilized other case review tools developed by the SWRCB to aid in determining compliance of the subject fuel leak site with LTCP criteria, including both paper and electronic policy checklists. While ACEH has found the CA LUFT Manual to be a valuable tool, we are concerned that the over simplification of the SWRCB checklist can result in erroneous conclusions regarding recommendations for case closure and a lack of transparency regarding the decision making process. Therefore, to attempt to address this issue, ACEH staff have enhanced the LTCP checklist by integrating the requisite level of questioning to enable consistent application of the LTCP, ensure that decisions are founded in appropriate technical basis, identify impediments to closure, improve the efficiency of the UST cleanup program, and document the decision making process as transparently as possible for all interested parties. This enhanced checklist, entitled the ***Low-Threat UST Case Closure Policy Compliance and Identification of Impediments to Case Closure Checklist***, was utilized by ACEH staff during our evaluation of this site and is presented in the subsequent pages of this document.

## LOW THREAT CLOSURE POLICY - GENERAL CRITERIA A

| **General Criteria a:** **Is the Unauthorized Release Located within the Service Area of a Public Water System?** | ☒ YES | ☐ NO | ☐ NE |
|---|---|---|---|

**LTCP Statement:** "This policy is protective of existing water supply wells. New water supply wells are unlikely to be installed in the shallow groundwater near former UST release sites. However, it is difficult to predict, on a statewide basis, where new wells will be installed, particularly in rural areas that are undergoing new development. This policy is limited to areas with available public water systems to reduce the likelihood that new wells in developing areas will be inadvertently impacted by residual petroleum in groundwater. Case closure outside of areas with a public water system should be evaluated based upon the fundamental principles in this policy and a site specific evaluation of developing water supplies in the area. For purposes of this policy, a public water system is a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year."

| **Does the public water system have 15 or more service connection or regularly serves at least 25 individuals daily at least 60 days of the year?** | ☒ **Yes** | ☐ **No** | |
|---|---|---|---|
| Name of public water system agency? | | | |
| East Bay Municipal Utility District | ☒ Yes | | |
| Zone 7 Water Agency | ☐ Yes | | |
| City of Hayward Water | ☐ Yes | | |
| Alameda County Water District | ☐ Yes | | |

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria a?** | ☒ **Yes** | ☐ **No** | |
|---|---|---|---|
| Has confirmation that the property has a hook-up and uses the public water system been provided? | ☐ Yes | ☐ NE | ☒ NA |
| Has a well search been conducted to identify wells located within 2,000 feet of the site? | ☒ Yes | ☐ NE | ☐ NA |
| Are there existing water supply wells or other sources of water in the vicinity of the site? | ☒ Yes | ☐ NE | ☐ NA |
| Domestic Water Supply Wells | ☐ Yes | ☐ No | ☐ NA |
| Irrigation Wells | ☐ Yes | ☐ No | ☐ NA |
| Other Capture Systems | ☐ Yes | ☐ No | ☐ NA |
| Are existing supply wells or other sources of water used by property owners/tenants in the vicinity of the site? | ☐ Yes | ☐ NE | ☒ NA |
| Have existing supply wells or other sources of water been sampled for chemicals of concern associated with the release site? | ☐ Yes | ☐ NE | ☒ NA |
| Have existing supply wells or other sources of water been properly abandoned and well destruction records been provided? | ☐ Yes | ☐ NE | ☒ NA |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Case Notes**

In work conducted by the Responsible Party for the adjacent site (Sheaff's Garage; RO0000377), existing water supply wells have been documented only in the upgradient direction; therefore the wells are not considered potential receptors for any site contamination.

*****End of General Criteria a Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria b: Does the Unauthorized Release Consist only of Petroleum? | ☐ YES | ☐ NO | ☒ NE |
|---|---|---|---|

**LTCP Statement:** "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."

**Site Contaminants Dectected in Soil, Soil Gas, Groundwater, and Surface Water**

| | | | | ☒ Yes | ☐ No | ☐ NE |
|---|---|---|---|---|---|---|
| **Petroleum** | | | | | | |
| Motor fuels | ☐ Yes | ☒ No | ☐ NE | | | |
| TPH middle distillates | ☐ Yes | ☐ No | ☒ NE | | | |
| Residual fuels | ☐ Yes | ☐ No | ☐ NE | | | |
| Fuel oxygenates | ☒ Yes | ☐ No | ☐ NE | | | |
| Lead scavengers | ☐ Yes | ☐ No | ☐ NE | | | |
| Aromatic compounds | ☒ Yes | ☐ No | ☐ NE | | | |
| TPH middle distillates | ☐ Yes | ☐ No | ☐ NE | | | |
| **Non Petroleum Contaminants** | | | | ☐ Yes | ☐ No | ☒ NE |
| VOCs | ☐ Yes | ☐ No | ☐ NE | | | |
| SVOCs | ☐ Yes | ☐ No | ☐ NE | | | |
| Dioxans & Furans | ☐ Yes | ☐ No | ☐ NE | | | |
| Other PAHs | ☐ Yes | ☐ No | ☐ NE | | | |
| PCBs | ☐ Yes | ☐ No | ☐ NE | | | |
| Phenols | ☐ Yes | ☐ No | ☐ NE | | | |
| Metals | ☐ Yes | ☐ No | ☐ NE | | | |

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria b?** | ☐ Yes | ☒ No | |
|---|---|---|---|
| Description of the site history? | ☒ Yes | ☐ No | ☐ NA |
| Types of products or chemicals used at the site? | ☐ Yes | ☒ No | ☐ NA |
| History of types of releases other than petroleum? | ☐ Yes | ☒ No | ☐ NA |
| Presentation of sampling results for all chemicals other than petroleum such as volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), phenol, 1,4-dioxane, dibenzofurans, or dioxins? | ☐ Yes | ☒ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Case Notes**

The release at the subject site appears to consist only of petroleum compounds; however, no data has been collected to determine if diesel or waste oil were released at the site, and thus the concentration, if any, of naphthalene has not been addressed per the LTCP. Because of the era the service station occupied the site (1938 to 1968), ACEH would generally anticipate the potential for both.

*****End of General Criteria b Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria c: Has the Unauthorized ("Primary") Release from the UST System been Stopped? | ☐ YES | ☐ NO | ▪ NE |
|---|---|---|---|

**LTCP Statement:** "The tank, pipe, or other appurtenant structure that released petroleum into the environment (i.e. the primary source) has been removed, repaired or replaced. It is not the intent of this policy to allow sites with ongoing leaks from the UST system to qualify for low-threat closure."

| | | | |
|---|---|---|---|
| Have the tank(s), piping, dispenser islands, or other appurtenant structures that released petroleum into the environment been removed, repaired or replaced? | ☐ Yes | ☐ No | ☐ NE |
| Tanks? | ☐ Yes | ☐ No | ▪ NE |
| Product piping? | ☐ Yes | ☐ No | ▪ NE |
| Dispenser islands? | ▪ Yes | ☐ No | ☐ NE |
| Other structures? | ▪ Yes | ☐ No | ☐ NE |
| Have the tanks, piping, and/or dispenser islands been moved to a different location at the site? | ☐ Yes | ▪ No | ☐ NE |
| Were/are the tanks permitted by a local regulatory agency having jurisdiction over USTs? | ☐ Yes | ▪ No | ☐ NE |
| Have the operating records been reviewed (i.e., operating permit, types of products dispensed, tanks construction, tank capacity, tank tightness tests, etc)? | ☐ Yes | ☐ No | ☐ NE |
| Was a tank removal permit issued by the local regulatory agency? | ☐ Yes | ☐ No | ☐ NE |
| Was a tank removal report submitted? | ☐ Yes | ☐ No | ☐ NE |
| Is there indication that new release(s) have occurred subsequent to the initial release? | ☐ Yes | ▪ No | ☐ NE |
| Are there spikes or increasing concentration trends in historic data subsequent to the initial release? | ☐ Yes | ☐ No | ☐ NE |
| Are there new detections of free product subsequent to the initial release in historic data? | ☐ Yes | ☐ No | ☐ NE |
| Have new contaminants been detected in historic data subsequent to the initial release? | ☐ Yes | ☐ No | ☐ NE |
| Have new petroleum hydrocarbons or other hazardous products been dispensed of at the site since the initial release occurred? | ☐ Yes | ▪ No | ☐ NE |
| Is there indication of new impacts from offsite sources? | ▪ Yes | ☐ No | ☐ NE |

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## CSM Minimum Requirements

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria c?** | **☒ Yes** | **☐ No** | |
|---|---|---|---|
| Description of the history of releases and the actions taken to stop each release? | ☒ Yes | ☐ No | ☐ NA |
| Evaluation and accounting for changing contaminant concentrations over the full time period of site investigations? | ☐ Yes | ☐ No | ☒ NA |
| Data from other sites in the vicinity with unauthorized releases of petroleum hydrocarbons or other hazardous materials | ☒ Yes | ☐ No | ☐ NA |
| Hazardous Materials Business Plans (historic and current) | ☐ Yes | ☐ No | ☒ NA |
| CUPA UST permits and inspection reports | ☐ Yes | ☐ No | ☒ NA |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**Case Notes:**

The December 2008 Site Conceptual Model (CSM) identified several data gaps and a followup work plan proposed the collection of additional analytical data to verify that the tanks and tank cavity materials were removed. At this time removal of the tanks or the contents of tank cavity has not been determined.

*****End of General Criteria c Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria d: Has Free Product been Removed to the Maximum Extent Practicable? | ☒ YES | ☐ NO | ☐ NE | ☐ NA |
|---|---|---|---|---|

**LTCP Statement:** "At petroleum unauthorized release sites where investigations indicate the presence of free product, free product shall be removed to the maximum extent practicable. In meeting the requirements of this section:

(a) Free product shall be removed 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;

(b) Abatement of free product migration shall be used as a minimum objective for the design of any free product removal system; and

(c) Flammable products shall be stored for disposal in a safe and competent manner to prevent fires or explosions."

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria d?** | ☒ **Yes** | ☐ **No** | |
|---|---|---|---|
| Has the presence of free product been evaluated? | ☒ Yes | ☐ No | ☐ NA |
| Has a description of investigation and monitoring activities that have been undertaken to assess whether free product is present been provided? | ☒ Yes | ☐ No | ☐ NA |
| Has a preferential pathway study been conducted to determine the probability of free product encountering geologic and anthropogenic preferential pathways and conduits that can act as contaminant migration pathways to or from the site? | ☒ Yes | ☐ No | ☐ NA |
| Has tabulation and an evaluation of historic groundwater levels and flow direction and identification of a smear zone been provided? | ☒ Yes | ☐ No | ☐ NA |
| Has data including tables and figures showing any observation and measurements of free product been provided? | ☒ Yes | ☐ No | ☐ NA |
| Has an evaluation of the adequacy of the monitoring well network and appropriateness of screen interval to detect free product been conducted? | ☒ Yes | ☐ No | ☐ NA |
| Has an evaluation of whether free product removal is practicable, or if not practicable, a description of the conditions that prevent free product removal been conducted? | ☒ | ☐ | ☐ |
| Has free product removal been implemented? | ☐ Yes | ☐ No | ☒ NA |
| Has a description of corrective action(s) that were taken to remove product, dates of removal actions, and volumes removed been provided? | ☐ Yes | ☐ No | ☒ NA |
| Is free product removal still being conducted? | ☐ Yes | ☐ No | ☒ NA |
| Does data indicate rebound of free product subsequent to product removal? | ☐ Yes | ☐ No | ☒ NA |

| Has free product removal been implemented? | | |
|---|---|---|
| Absorbent Materials | ☐ Yes | ☐ No |
| Bailing | ☐ Yes | ☐ No |
| Skimmer | ☐ Yes | ☐ No |
| HVDPE | ☐ Yes | ☐ No |
| Other Methods: | ☐ Yes | ☐ No |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## LOW THREAT CLOSURE POLICY - GENERAL CRITERIA D

**Case Notes**

Free Product has not been encountered at the site.

*****End of General Criteria d Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria e: Has a Conceptual Site Model that Adequately Assesses the Nature, Extent, and Mobility of the Release been Developed? | ☐ YES | ☒ NO | ☐ NE |
|---|---|---|---|

**LTCP Statement:** "The Conceptual Site Model (CSM) is a fundamental element of a comprehensive site investigation. The CSM 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 CSM is relied upon by practitioners as a guide for investigative design and data collection. Petroleum release sites in California occur in a wide variety of hydrogeologic settings. As a result, contaminant fate and transport and mechanisms by which receptors may be impacted by contaminants vary greatly from location to location. Therefore, the CSM is unique to each individual release site. All relevant site characteristics identified by the CSM 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. The supporting data and analysis used to develop the CSM are not required to be contained in a single report and may be contained in multiple reports submitted to the regulatory agency over a period of time."

| | | | | | |
|---|---|---|---|---|---|
| Has a CSM that adequately assesses the nature, extent, and mobility of the release in affected media in the vicinity of the site been developed? | | | | ☐ Yes | ☒ No |
| Groundwater assessment? | ☒ Yes | ☐ No | ☐ NA | | |
| Surface water assessment? | ☒ Yes | ☐ No | ☐ NA | | |
| Soil assessment? | ☐ Yes | ☒ No | ☐ NA | | |
| Soil vapor assessment? | ☐ Yes | ☒ No | ☐ NA | | |
| Indoor Air assessment? | ☐ Yes | ☒ No | ☐ NA | | |
| Has the CSM been developed in accordance with industry standards? | | | | ☒ Yes | ☐ No |
| SWRCB CA LUFT Manual, September 2012 | ☐ Yes | ☐ No | ☐ NA | | |
| ITRC Vapor Intrusion Pathway: A Practical Guideline (ITRC 2007) | ☐ Yes | ☐ No | ☐ NA | | |
| ASTM Method 1689-95 - Standard Guide for Developing Conceptual Site Models for Contaminated Sites | ☐ Yes | ☐ No | ☐ NA | | |
| ASTM Method 2531-6 - Standard Guide for Development of Conceptual Models for Light Nonaqueous-Phase Liquids Released to the Subsurface | ☐ Yes | ☐ No | ☐ NA | | |
| DTSC Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (October 2011) | ☐ Yes | ☐ No | ☐ NA | | |
| Is the CSM presented in one comprehensive document or has a summary document been submitted that identifies the documents where the requisite CSM elements are located? | | | | ☒ Yes | ☐ No |
| Is the CSM representative of current site conditions? | | | | ☒ Yes | ☐ No |
| Does the final closure review validate the CSM? | | | | ☐ Yes | ☐ No |

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Case Notes

| Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria e? | ☐ Yes | ☒ No | |
|---|---|---|---|
| Site history? | ☒ Yes | ☐ No | ☐ NA |
| Receptor survey? | ☒ Yes | ☐ No | ☐ NA |
| Description of releases? | ☐ Yes | ☐ No | ☒ NA |
| Geologic and hydrogeologic assessment? | ☒ Yes | ☐ No | ☐ NA |
| Identified stratigraphic and manmade migration pathways? | ☒ Yes | ☐ No | ☐ NA |
| Identified controls on contaminant migration? | ☒ Yes | ☐ No | ☐ NA |
| Delineation of the lateral and vertical extent of contamination in all affected media? | ☐ Yes | ☒ No | ☐ NA |
| Assessment of vapor intrusion pathways? | ☐ Yes | ☒ No | ☐ NA |
| Groundwater monitoring and evaluation of plume stability? | ☒ Yes | ☐ No | ☐ NA |
| Description of the type and effectiveness of corrective actions? | ☐ Yes | ☐ No | ☒ NA |
| Identification of data gaps? | ☐ Yes | ☒ No | ☐ NA |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**Case Notes:**

The existing SCM identified the following data gaps:

1) A need to verify source area (installation of three soil bores has been proposed).
2) A need to search further for building excavation and construction details.
3) A need to obtain details and discharge location for sump pump below stairs at site.

The existing SCM did not address the risk of vapor intrusion at the site.

ACEH also finds insufficient data to characterize the magnitude of residual soil contamination, the potential for petroleum vapor intrusion to the building (founded approximately four feet below original surface grade), and to determine if direct contact or outdoor air exposures are protective. Site redevelopment in 1979 removed a substantial portion of the soil buffer between groundwater and potential receptors, especially for vapor intrusion. These are the principal reasons the site does not appear to meet the LTCP.

*****End of General Criteria e Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria f: Has Secondary Source been Removed to the Extent Practicable? | ☐ YES | ☐ NO | ☒ NE |
|---|---|---|---|

**LTCP Statement:** "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 herein. "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."

| | | | | ☐ Yes | ☐ No | ☒ NE |
|---|---|---|---|---|---|---|
| Has secondary source been removed to the extent practicable? | | | | | | |
| | Petroleum-impacted soil? | ☐ Yes | ☐ No | ☒ NE | | |
| | Petroleum-impacted groundwater? | ☒ Yes | ☐ No | ☐ NE | | |
| Is corrective action currently in progress to remove or destroy-in-place the most readily recoverable fraction of source-area mass? | | | | ☐ Yes | ☒ No | ☐ NE |
| | Petroleum-impacted soil remediation? | ☐ Yes | ☐ No | ☐ | | |
| | Petroleum-impacted groundwater remediation? | ☐ Yes | ☐ No | ☐ | | |
| | Have the current site remediation efforts been in progress for more than one year? | ☐ Yes | ☐ No | ☐ | | |
| | Petroleum-impacted soil? | ☐ Yes | ☐ No | | | |
| | Petroleum-impacted groundwater? | ☐ Yes | ☐ No | | | |
| | Is site remediation cost effective? | ☐ Yes | ☐ No | ☐ NE | | |
| | Is site remediation progressing adequately? | ☐ Yes | ☐ No | ☐ NE | | |
| Are additional removal or active remedial actions necessary to remove or abate a demonstrated threat to human health? | | | | ☐ Yes | ☐ No | ☒ NE |
| | Petroleum-impacted soil? | ☐ Yes | ☐ No | ☒ NE | | |
| | Petroleum-impacted groundwater? | ☐ Yes | ☒ No | ☐ NE | | |

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria f?** | ☐ **Yes** | ☒ **No** | |
|---|---|---|---|
| History of corrective actions for the site including the types of cleanup actions taken, dates of the actions, and mass removed? | ☒ Yes | ☐ No | ☐ NA |
| Figures depicting the location(s) of the removal action? | ☒ Yes | ☐ No | ☐ NA |
| Confirmation sampling results which demonstrate the effectiveness of secondary source removal? | ☐ Yes | ☒ No | ☐ NA |
| Narrative description of the actions and areas of success or infeasibility of actions? | ☐ Yes | ☒ No | ☐ NA |
| For in-situ corrective actions, presentation of long-term monitoring data that demonstrate that concentration have not rebounded following the cessation of corrective action? | ☐ Yes | ☐ No | ☒ NA |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Case Notes**

The subject site was occupied by a service station until approximately 1968, was used for a period as a parking lot, and then was redeveloped in 1979 in its current configuration. The subject building is reported to be predominately approximately 3 to 4 feet below surface grade (bgs), and the associated and attached parking structure is up to 6 feet bgs. The extent of additional sub-excavation, if any, is unknown, but has been investigated.

ACEH judges that additional soil removal is infeasible as the site is currently developed; however, ACEH cannot determine if residual contamination is protective of current use and occupants as more fully outlined elsewhere in this document.

*****End of General Criteria f Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria g: Has Soil or Groundwater been Tested for MTBE and Results Reported in Accordance with Health and Safety Code Section 25296.15? | ☒ YES | ☐ NO | ☐ NE |
|---|---|---|---|

**LTCP Statement:** "Health and Safety Code section 25296.15 prohibits closing a UST case unless the soil, groundwater, or both, as applicable have been tested for MTBE and the results of that testing are known to the Regional Water Board. The exception to this requirement is where a regulatory agency determines that the UST that leaked has only contained diesel or jet fuel. Before closing a UST case pursuant to this policy, the requirements of section 25296.15, if applicable, shall be satisfied."

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria g?** | ☒ **Yes** | ☐ **No** | |
|---|---|---|---|
| Presentation of sufficient data to assess whether MTBE is or was present in soil at or in the vicinity of the site? | ☒ Yes | ☐ No | ☐ NE |
| Presentation of sufficient data to assess whether MTBE is or was present in groundwater at or in the vicinity of the site? | ☒ Yes | ☐ No | ☐ NE |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**Case Notes:**

*****End of General Criteria g Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| General Criteria h: Does a Nuisance as Defined by Water Code Section 13050 Exist at the Site? | ☐ YES | ☐ NO | ☒ NE |
|---|---|---|---|

**LTCP Statement:** "Water Code section 13050 defines "nuisance" as anything which meets all of the following requirements:

(1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

(2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

(3) Occurs during, or as a result of, the treatment or disposal of wastes.

For the purpose of this policy, waste means a petroleum release."

| **Does a nuisance condition currently exist (or potentially could exist) as defined by the LTCP above?** | ☐ **Yes** | ☐ **No** | ☒ **NE** |
|---|---|---|---|
| Is injurious to health? | ☐ Yes | ☐ No | ☒ NE |
| Is indecent or offensive to the senses? | ☐ Yes | ☐ No | ☒ NE |
| Is an obstruction to the free use of property so as to interfere with the comfortable enjoyment of life or property? | ☐ Yes | ☐ No | ☒ NE |
| Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal? | ☐ Yes | ☐ No | ☒ NE |
| Is a result of the treatment or disposal of waste? | ☐ Yes | ☐ No | ☒ NE |

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria h?** | ☐ **Yes** | ☒ **No** | |
|---|---|---|---|
| Description of whether site contamination is present in locations that have the potential to pose nuisance conditions during common or reasonably expected site activities? | ☐ Yes | ☒ No | ☐ NA |
| Surface soils? | ☐ Yes | ☐ No | ☐ NE |
| Near surface soils? | ☐ Yes | ☐ No | ☐ NE |
| Utility corridors? | ☐ Yes | ☐ No | ☐ NE |
| Groundwater? | ☐ Yes | ☐ No | ☐ NE |
| Surface water? | ☐ Yes | ☐ No | ☐ NE |
| Soil gas? | ☐ Yes | ☐ No | ☐ NE |
| Basements or other subsurface structures? | ☐ Yes | ☐ No | ☒ NE |
| Descriptions of the type and vertical and lateral extent of shallow soil? | ☐ Yes | ☐ No | ☐ NE |
| Descriptions of the lateral extent of surface soil contamination, and depths to contamination? | ☐ Yes | ☐ No | ☐ NE |
| Presentation of analytical results for surface soil, shallow soil, soil gas, groundwater, and surface water samples? | ☐ Yes | ☐ No | ☐ NE |
| Discussion of odors or visual evidence of contamination? | ☐ Yes | ☐ No | ☐ NE |
| Presentation of preferential pathway and utility conduit surveys? | ☐ Yes | ☐ No | ☐ NE |
| Evaluation of potential points for exposure such as groundwater or free product seeps into basements or surface water bodies or conveyances? | ☐ Yes | ☒ No | ☐ NE |
| Description of surface water runoff from the property to storm drains, other sites, or other surface water body receptors? | ☐ Yes | ☐ No | ☐ NE |
| Description of the current and expected future use of the site and impacted or potentially impacted property in the site vicinity? | ☐ Yes | ☐ No | ☐ NE |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Case Notes**

The risk of vapor intrusion in to site buildings has not been adequately evaluated under the LTCP. Soil analytical data is exceptionally limited at the site (two samples offsite by approximately 70 feet, and one offsite, but proximal to the presumed former UST basin), and a portion of the soil buffer zone between groundwater and the surface has been removed.

*****End of General Criteria h Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| Does the site meet the LTCP criteria for groundwater, or does the site qualify for the Soil Only Case exemption? | ☒ YES | ☐ NO |
|---|---|---|

**LTCP Statement:** "This policy describes criteria on which to base a determination that threats to existing and anticipated beneficial uses of groundwater have been mitigated or are de minimis, including cases that have not affected groundwater.

State Water Board Resolution 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304* is a state policy for water quality control and applies to petroleum UST cases. Resolution 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. Any alternative level of water quality less stringent than background must be consistent with the maximum benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located. Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.

Water quality control plans (Basin Plans) generally establish "background" water quality as a restorative endpoint. This policy recognizes the regulatory authority of the Basin Plans but underscores the flexibility contained in Resolution 92-49.

It is a fundamental tenet of this low-threat closure policy that if the closure criteria described in this policy are satisfied at a petroleum unauthorized release site, attaining background water quality is not feasible, establishing an alternate level of water quality not to exceed that prescribed in the applicable Basin Plan is appropriate, and that water quality objectives will be attained through natural attenuation within a reasonable time, prior to the expected need for use of any affected groundwater.

If groundwater with a designated beneficial use is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed below. A plume that is "stable or decreasing" is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration."

**"Sites with Releases that Have Not Affected Groundwater** - Sites with soil that does not contain sufficient mobile constituents [leachate, vapors, or light non-aqueous-phase liquids (LNAPL)] to cause groundwater to exceed the groundwater criteria in this policy shall be considered low-threat sites for the groundwater medium. Provided the general criteria and criteria for other media are also met, those sites are eligible for case closure. For older releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source for groundwater pollution."

| | | |
|---|---|---|
| **Does the site qualify for the Soil Only Case EXEMPTION?** | ☐ Yes | ☒ No |
| **If the site does not qualify for the soil only exemption, then, is the contaminant plume stable or decreasing in areal extent?** | ☒ Yes | ☐ No |
| **If the contaminant plume is stable or decreasing, then does it meet all of the additional characteristics of one of the five (5) LTCP classes?** | ☒ Yes | ☐ No |

| | | |
|---|---|---|
| Class 1 | ☐ Yes | ☐ No |
| Class 2 | ☒ Yes | ☐ No |
| Class 3 | ☐ Yes | ☐ No |
| Class 4 | ☐ Yes | ☐ No |
| Class 5 | ☐ Yes | ☐ No |

(Refer to Next Page for Contaminant Plume Classification Characteristics)

(Media Specific Criteria for Groundwater Evaluation Continued on Next Page)

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Groundwater Contaminant Plume Classification Characteristics

| **If the Contaminant Plume is Stable or Decreasing, then**<br>**Does the contaminant plume meet <u>all of the additional characteristics</u> of one of the five (5) LTCP classes listed below?** | **☒ Yes** | **☐ No** | **☐ NE** |
|---|---|---|---|
| **Class 1** | **☐ Yes** | **☐ No** | **☐ NE** |
| Is < 100 feet in length | ☐ Yes | ☐ No | ☐ NE |
| There is no free product | ☐ Yes | ☐ No | ☐ NE |
| The nearest existing water supply well is > 250 feet from the defined plume boundary | ☐ Yes | ☐ No | ☐ NE |
| The nearest existing surface water body is > 250 feet from the defined plume boundary | ☐ Yes | ☐ No | ☐ NE |
| **Class 2** | **☒ Yes** | **☐ No** | **☐ NE** |
| Is < 250 feet in length | ☒ Yes | ☐ No | ☐ NE |
| There is no free product | ☒ Yes | ☐ No | ☐ NE |
| The nearest existing water supply well is > 1,000 feet from the defined plume boundary | ☒ Yes | ☐ No | ☐ NE |
| The nearest existing surface water body is > 1,000 feet from the defined plume boundary | ☒ Yes | ☐ No | ☐ NE |
| The dissolved concentration of benzene is <3,000 µg/L | ☒ Yes | ☐ No | ☐ NE |
| The dissolved concentration of MTBE is <1,000 µg/L | ☒ Yes | ☐ No | ☐ NE |
| **Class 3** | **☐ Yes** | **☐ No** | **☐ NE** |
| Is < 250 feet in length | ☐ Yes | ☐ No | ☐ NE |
| Free product has been removed to the maximum extent practicable, may still be present below the site where the release originated, but does not extend off-site | ☐ Yes | ☐ No | ☐ NE |
| The plume has been stable or decreasing for a minimum of 5 years | ☐ Yes | ☐ No | ☐ NE |
| The nearest existing water supply well is > 1,000 feet from the defined plume boundary | ☐ Yes | ☐ No | ☐ NE |
| The nearest existing surface water body is > 1,000 feet from the defined plume boundary | ☐ Yes | ☐ No | ☐ NE |
| The property owner is willing to accept a land use restriction if the regulatory agency requires a land use restriction as a condition for closure | ☐ Yes | ☐ No | ☐ NE |
| **Class 4** | **☐ Yes** | **☐ No** | **☐ NE** |
| Is < 1,000 feet in length | ☐ Yes | ☐ No | ☐ NE |
| There is no free product | ☐ Yes | ☐ No | ☐ NE |
| The nearest existing water supply well or surface water body is > 1,000 feet from the defined plume boundary | ☐ Yes | ☐ No | ☐ NE |
| The nearest existing surface water body is > 1,000 feet from the defined plume boundary | ☐ Yes | ☐ No | ☐ NE |
| The dissolved concentration of benzene is <1,000 µg/L | ☐ Yes | ☐ No | ☐ NE |
| The dissolved concentration of MTBE is <1,000 µg/L | ☐ Yes | ☐ No | ☐ NE |
| **Class 5** | **☐ Yes** | **☐ No** | **☐ NE** |
| Based on an analysis of site specific conditions at the site under current and reasonable anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame | ☐ Yes | ☐ No | ☐ NE |

**(Media Specific Criteria for Groundwater Evaluation Continued on Next Page)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Sites Not Meeting the Characteristics of the Five Groundwater Plume Classes

**Indicate those conditions that do not meet the characteristics of one of the five classes of sites listed in the LTCP.**

| | | | |
|---|---|---|---|
| **Plume Length (That Exceeds Water Quality Objectives)** | | | |
| ≥ 100 feet and < 250 feet | ☐ Yes | | |
| ≥ 250 feet and < 1,000 feet | ☐ Yes | | |
| ≥ 1,000 feet | ☐ Yes | | |
| Unknown | ☐ Yes | | |
| **For Sites with Free Product** | | | |
| Free product in groundwater | ☐ Yes | ☐ No | ☐ UNK |
| Free product has been removed to the maximum extent practicable | ☐ | ☐ No | ☐ UNK |
| The plume has been stable or decreasing for 5-Years | ☐ | ☐ No | ☐ UNK |
| The owner is willing to accept a Land Use Restriction (if required) | ☐ | ☐ No | ☐ UNK |
| Free product extends offsite | ☐ Yes | ☐ | ☐ UNK |
| **Benzene Concentration** | | | |
| ≥ 1,000 µg/L and < 3,000 µg/L | ☐ Yes | | |
| ≥ 3,000 µg/L | ☐ Yes | | |
| Unknown | ☐ Yes | | |
| **MTBE Concentration** | | | |
| ≥ 1,000 µg/L | ☐ Yes | | |
| Unknown | ☐ Yes | | |
| **Nearest Supply Well (From Plume Boundary)** | | | |
| ≤ 250 Feet | ☐ Yes | | |
| > 250 Feet and ≤ 1,000 Feet | ☐ Yes | | |
| Unknown | ☐ Yes | | |
| **Nearest Surface Water Body (From Plume Boundary)** | | | |
| ≤ 250 Feet | ☐ Yes | | |
| > 250 Feet and ≤ 1,000 Feet | ☐ Yes | | |
| Unknown | ☐ Yes | | |

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## CSM Minimum Required Information

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with Media Specific Criteria for Groundwater?** | **☒ Yes** | **☐ No** | |
|---|---|---|---|
| Sufficient data been presented to demonstrate that site characterization activities have defined the horizontal and vertical extent of the plume? | ☒ Yes | ☐ No | ☐ NA |
| Demonstration of plume stability using a valid technical analysis that considers the accuracy of data from the wells, well placement within the plum, and changes in horizontal and vertical extent of the plume? | ☒ Yes | ☐ No | ☐ NA |
| Evaluation of factors such as seasonal variability, water level changes, sampling methods, well construction, and other factors that can affect data quality? | ☒ Yes | ☐ No | ☐ NA |
| A recent well survey that uses all available well information from both the Department of Water Resources and local agencies (Zone 7 Water Agency of Alameda County Public Works as appropriate)? | ☒ Yes | ☐ No | ☐ NA |
| The location of surface water bodies and water supply wells located within 2,000 feet of the site presented on a site figure with benzene and MTBE isoconcentration contours? | ☒ Yes | ☐ No | ☐ NA |
| A table identifying each water supply well along with the well construction details? | ☒ Yes | ☐ No | ☐ NA |
| A discussion of surface water bodies within 2,000 feet of the site and details on hydraulic connection with the groundwater plume? | ☐ Yes | ☐ No | ☒ NA |
| A discussion of current and reasonable anticipated near-term future scenarios at the site and in the vicinity of the site and possible Land Use Restrictions? | ☒ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Case Notes**

In work conducted for the adjacent site (Sheaff's Garage; RO0000377), existing water supply wells have been documented only in the upgradient direction; therefore the wells are not considered potential receptors for site contamination.

*****End of Groundwater Criteria Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| **Does the site meet one of the three petroleum vapor intrusion to indoor air specific criteria (a, b, or c), or qualify for the active commercial fueling facility exemption?** | ☐ YES | ☒ NO |
|---|---|---|

**LTCP Statement:** "Exposure to petroleum vapors migrating from soil or groundwater to indoor air may pose unacceptable human health risks. This policy describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks. In many petroleum release cases, potential human exposures to vapors are mitigated by bioattenuation processes as vapors migrate toward the ground surface. For the purposes of this section, the term "bioattenuation zone" means an area of soil with conditions that support biodegradation of petroleum hydrocarbon vapors.

The low-threat vapor-intrusion criteria described below apply to sites where the release originated and impacted or potentially impacted adjacent parcels when:

(1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or

(2) buildings for human occupancy are reasonably expected to be constructed in the future.

Appendices 1 through 4 (attached) illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario. Petroleum release sites shall satisfy the media-specific criteria for petroleum vapor intrusion to indoor air and be considered low-threat for the vapor-intrusion-to-indoor-air pathway if:

a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4 as applicable; or

b. A site-specific risk assessment for the vapor intrusion pathway is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency; or

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

Exception: Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk."

| **Does the site qualify for an EXEMPTION from the Petroleum Vapor Intrusion to Indoor Air criteria (i.e., the site is an active commercial petroleum fueling facility?** | | | | ☐ Yes | ☒ No |
|---|---|---|---|---|---|
| Are release characteristics reasonably believed to pose an unacceptable health risk to facility users or nearby facilities? | ☐ Yes | ☐ No | ☐ NE | | |
| **a. Do site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4?** | | | | ☐ Yes | ☒ No |
| Scenario 1: Unweathered LNAPL in groundwater | ☐ Yes | ☒ No | | | |
| Scenario 2: Unweathered LNAPL in soil | ☐ Yes | ☒ No | | | |
| Scenario 3: Dissolved benzene concentrations in groundwater (oxygen ≥ 4%) | ☐ Yes | ☒ No | | | |
| Scenario 4: Dissolved phase benzene concentrations in groundwater (oxygen < 4%) | ☐ Yes | ☒ No | | | |
| **b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?** | | | | ☐ Yes | ☒ No |
| **c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?** | | | | ☐ Yes | ☒ No |

(Refer to Next Page for Scenario 1 through 4 Characteristics)

(Media Specific Criteria for Vapor Intrusion to Indoor Air Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

## Scenarios 1 through 3: Bioattenuation Zone Characteristics

| Scenario 1: Unweathered LNAPL in Groundwater | | | | |
|---|---|---|---|---|
| The bioattenuation zone is a continuous zone provides a separation of at least 30 feet vertically between the LNAPL in groundwater and the foundation of existing or potential buildings; and | ☐ Yes | ☒ No | ☐ NE | ☐ NA |
| Total TPH (TPH-g and TPH-d combined) are less than 100 mg/kg throughout the entire depth of the bioattenuation zone | ☐ Yes | ☐ No | ☒ NE | ☐ NA |

| Scenario 2: Unweathered LNAPL in Soil | | | | |
|---|---|---|---|---|
| The bioattenuation zone is a continuous zone that provides a separation of at least 30 feet vertically between the LNAPL in soil and the foundation of existing or potential buildings; and | ☐ Yes | ☒ No | ☐ NE | ☐ NA |
| Total TPH (TPH-g and TPH-d combined) are <100 mg/kg throughout the entire lateral and vertical extent of the bioattenuation zone | ☐ Yes | ☐ No | ☒ NE | ☐ NA |

| Scenario 3: Dissolved Phase Benzene Concentrations in Groundwater | | | | |
|---|---|---|---|---|
| **Sites without oxygen data or where oxygen is <4% and benzene concentrations < 100 µg/l (Figure A)** | ☐ **Yes** | ☐ **No** | ☒ **NE** | ☐ **NA** |
| The bioattenuation zone is a continuous zone that provides a separation of at least 5 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings; and | ☐ Yes | ☐ No | ☒ NE | ☐ NA |
| Contains total TPH (TPH-g and TPH-d combined) < 100 mg/kg throughout the entire depth of the bioattenuation zone | ☐ Yes | ☐ No | ☒ NE | ☐ NA |
| **Sites without oxygen data or where oxygen is <4% and benzene concentrations ≥ 100 µg/L but < 1,000 µg/L (Figure B)** | ☐ **Yes** | ☒ **No** | ☐ **NE** | ☐ **NA** |
| The bioattenuation zone is a continuous zone that provides a separation of at least 10 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings | ☐ Yes | ☒ No | ☐ NE | ☐ NA |
| **Sites with oxygen ≥ 4% and benzene concentrations < 1,000 µg/L (Figure C)** | ☐ **Yes** | ☒ **No** | ☐ **NE** | ☐ **NA** |
| A continuous zone that provides a separation of at least 10 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings | ☐ Yes | ☒ No | ☐ NE | ☐ NA |
| Contains total TPH (TPH-g and TPH-d combined) < 100 mg/kg throughout the entire depth of the bioattenuation zone | ☐ Yes | ☐ No | ☒ NE | ☐ NA |

**(LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air Evaluation Continued on Next Page)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Scenario 4 Characteristics: Direct Measurement of Soil Gas Concentrations (No Bioattenuation Zone)

| | | | | |
|---|---|---|---|---|
| **Were soil gas samples obtained from the required locations?** | ☐ **Yes** | ☒ **No** | ☐ **NE** | ☐ **NA** |
| **Beneath or adjacent to an existing building:** Soil gas samples collected at least 5 feet below the bottom of the building foundation | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| **Future construction:** Soil gas samples from at least five feet below ground surface | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| **Were soil gas samples collected in accordance with DTSC Advisory with DTSC Advisory – Active Soil Gas Investigations (April 2012)?** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |

| | | | | |
|---|---|---|---|---|
| **Are all of the following criteria for a bioattenuation zone satisfied?** | ☐ **Yes** | ☐ **No** | ☒ **NE** | ☐ **NA** |
| There is a minimum of five vertical feet of soil between the soil vapor measurements and the foundation of an existing building or ground surface of future construction; and | ☐ Yes | ☐ No | ☒ NE | ☐ NA |
| TPH (TPHg + TPHd) is less than 100 mg/kg (measured in at least two depths within the five-foot zone; and | ☐ Yes | ☐ No | ☒ NE | ☐ NA |
| Oxygen is ≥ 4% measured at the bottom of the five-foot zone | ☐ Yes | ☐ No | ☒ NE | ☐ NA |

| | | | | |
|---|---|---|---|---|
| **If the bioattenuation zone criteria are all satisfied, then do soil gas concentrations meet the following criteria?** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |
| **Residential** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |
| Benzene <85,000 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Ethylbenzene <1,100,000 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Napthalene <93,000 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| **Commercial** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |
| Benzene <280,000 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Ethylbenzene <3,600,000 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Napthalene <310,000 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |

| | | | | |
|---|---|---|---|---|
| **If the bioattenuation zone criteria are not satisfied, then do soil gas concentrations meet the following criteria?** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |
| **Residential** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |
| Benzene <85 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Ethylbenzene <1,100 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Napthalene <93 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| **Commercial** | ☐ **Yes** | ☐ **No** | ☐ **NE** | ☐ **NA** |
| Benzene <280 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Ethylbenzene <3,600 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |
| Napthalene <310 µg/m$^3$ | ☐ Yes | ☐ No | ☐ NE | ☐ NA |

**(LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air Evaluation Continued on Next Page)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Additional questions for sites that do not meet the LTCP Criteria (a, b, or c):**

| | |
|---|---|
| **Soil Gas Samples** | |
| Insufficient number to be representative | ☐ Yes |
| Temporal variability not evaluated | ☐ Yes |
| No soil gas samples | ☒ Yes |
| Taken incorrectly | ☐ Yes |
| Not taken at two depths within 5 foot zone | ☐ Yes |
| High spatial or temporal variability | ☐ Yes |
| Insufficient analytes | ☐ Yes |
| **Exposure Type** | |
| Residential | ☐ Yes |
| Commercial | ☒ Yes |
| **Free Product** | |
| In groundwater | ☐ Yes |
| In soil | ☐ Yes |
| Unknown | ☐ Yes |
| **TPH in the Bioattenuation Zone** | |
| < 5 feet (No Biozone) | ☐ Yes |
| ≥ 5 feet and < 10 feet | ☐ Yes |
| ≥ 10 feet and < 30 feet | ☐ Yes |
| ≥ 30 Feet | ☐ Yes |
| 30 Feet BioZone compromised (TPH>100 µg/L) | ☐ Yes |
| Unknown | ☒ Yes |
| **Oxygen Data in Bioattenuation Zone** | |
| No oxygen data | ☒ Yes |
| Oxygen < 4% | ☐ Yes |
| Oxygen ≥ 4% | ☐ Yes |
| **Benzene in Groundwater** | |
| ≥ 100 µg/L and < 1,000 µg/L | ☐ Yes |
| ≥ 1,000 µg/L | ☐ Yes |
| Unknown | ☐ Yes |
| **Soil Gas Benzene** | |
| ≥ 85 µg/$m^3$ and < 280 µg/$m^3$ | ☐ Yes |
| ≥ 280 µg/$m^3$ and < 85,000 µg/$m^3$ | ☐ Yes |
| ≥ 85,000 µg/$m^3$ and < 280,000 µg/$m^3$ | ☐ Yes |
| ≥ 280,000 µg/$m^3$ | ☐ |
| Unknown | ☒ Yes |
| **Soil Gas Ethylbenzene** | |
| ≥ 1,100 µg/$m^3$ and < 3,600 µg/$m^3$ | ☐ Yes |
| ≥ 3,600 µg/$m^3$ and < 1,100,000 µg/$m^3$ | ☐ Yes |
| ≥ 1,100,000 µg/$m^3$ and < 3,600,000 | ☐ Yes |
| ≥ 3,600,000 µg/$m^3$ | ☐ Yes |
| Unknown | ☒ Yes |
| **Soil Gas Napthalene** | |
| ≥ 93 µg/$m^3$ and < 310 µg/$m^3$ | ☐ Yes |
| ≥ 310 µg/$m^3$ and < 93,000 µg/$m^3$ | ☐ Yes |
| ≥ 93,000 µg/$m^3$ and < 310,000 µg/$m^3$ | ☐ Yes |
| ≥ 310,000 µg/$m^3$ | ☐ Yes |
| Unknown | ☒ |

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## CSM Minimum Required Information

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with the Media Specific Criteria for Vapor Intrusion to Indoor Air?** | **☐ Yes** | **☒ No** | |
|---|---|---|---|
| Sufficient data to demonstrate that site characterization is complete and that the data demonstrate that the site-specific conditions satisfy all the assumptions, characteristics, and screening criteria of scenarios 1 through 3, or all the assumptions, characteristics, and screening criteria of scenario 4? | ☐ Yes | ☒ No | ☐ NA |
| Evidence of unweathered LNAPL in soil or groundwater? | ☐ Yes | ☐ No | ☒ NA |
| Soil data to demonstrate that total TPH concentrations (TPH-g and TPH-d combined) in soil are < 100 mg/kg throughout the specified bioattenuation zone depth? | ☐ Yes | ☒ No | ☐ NA |
| Depth of foundation of existing or potential buildings? | ☐ Yes | ☒ No | ☐ NA |
| Soil gas data to demonstrate that a continuous bioattenuation zone is or is not present? | ☐ Yes | ☒ No | ☐ NA |
| Concentrations of benzene in groundwater? | ☒ Yes | ☐ No | ☐ NA |
| Oxygen data in the bioattenuation zone? | ☐ Yes | ☒ No | ☐ NA |
| Results and evaluation of preferential pathway and utility conduit surveys to determine whether a continuous bioattenuation zone is present? | ☐ Yes | ☒ No | ☐ NA |
| Evaluation of data representativeness, quality, spatial distribution, and temporal variability relative to current or potential receptors and sources? | ☐ Yes | ☒ No | ☐ NA |
| Evaluation to assess whether nearby facilities potentially may be impacted by petroleum vapor intrusion? | ☐ Yes | ☐ No | ☒ NA |
| Sufficient data to demonstrate that through the use of mitigation measures or institutional controls, exposure to petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health? | ☐ Yes | ☒ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | | | |
| | | | |
| | | | |

**(Refer to Att. 1 - CSM Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

**Case Notes**

The subject site was occupied by a service station until approximately 1968, was used for a period as a parking lot, and then was redeveloped in 1979 in its current configuration. The subject building is reported to be predominately approximately 4 feet below surface grade (bgs), and the associated and attached parking structure is up to 6 feet bgs. The extent of additional sub-excavation, if any, has been investigated, but is unknown.

The extent of soil contamination characterization is limited to three soil samples, two of which were collected offsite and cross-gradient by approximately 70 feet distant, and the remaining soil sample was collected offsite (beneath the sidewalk), above groundwater, at a (shallow) depth of 4.5 feet but within approximately 5 feet of the UST locations (presumed but not documented to be removed). All three samples were non-detectable for TPHg, benzene, and MTBE, but the closest soil sample had trace detections for toluene, ethylbenzene, and total xylenes.

Four other soil bores were installed at the site; however, no soil samples were collected. The bore logs indicate that petroleum contamination (as recorded by PID readings and discolored soil) was generally encountered at the approximate depth of groundwater, approximately 9 to 10 feet bgs. Because soil analytical data is exceptionally limited at the site, and because the soil smear zone is not characterized onsite, data that would support this criteria under the LTCP is not available. Additionally, it appears that the level of protection from vapor intrusion cannot be determined; in particular because of the lowered original site grade that eliminates a portion of the soil buffer zone described in the LTCP.

*****End of Vapor Intrusion to Indoor Air Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

| Does the site satisfy the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure, or does the site qualify for the exemption? | ☐ YES | ☒ NO |
|---|---|---|

**LTCP Statement:** "This policy describes conditions where direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air poses a low threat to human health. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

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

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

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

| | | |
|---|---|---|
| **Does the site qualify for an EXEMPTION from Direct Contact and Outdoor Air Exposure Criteria (i.e., is the upper 10 feet of soil free of petroleum contamination)?** | ☐ Yes | ☒ No |
| **If the site does not qualify for the exemption, then does the site satisfy the media-specific criteria (a, b, or c) for direct contact and outdoor air exposure?** | ☐ Yes | ☒ No |

| | | |
|---|---|---|
| a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth bgs? **(Refer to Next Page for Concentrations Limits Evaluation)** | ☐ Yes | ☐ No |
| b. Are the maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health? | ☐ Yes | ☐ No |
| c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health? | ☐ Yes | ☐ No |

**(Media Specific Criteria for Direct Contact and Outdoor Air Exposure Evaluation Continued on Next Page)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Maximum Concentrations of Petroleum Constituents in Soil (Scenario a)

**Table 1 – Concentrations of Petroleum Constituents in Soil That will Have No Significant Risk of Adversely Affecting Human Health**

| Chemical | Residential | | Commercial/Industrial | | Utility Worker |
|---|---|---|---|---|---|
| | 0 to 5 ft bgs (mg/kg) | 5 to 10 ft bgs (mg/kg) | 0 to 5 ft bgs (mg/kg) | 5 to 10 ft bgs (mg/kg) | 0 to 10 ft bgs (mg/kg) |
| **Benzene** | **1.9** | **2.8** | **8.2** | **12** | **14** |
| *Max Soil Conc*[1] | *Insert* | *Insert* | *Insert* | *Insert* | *Insert* |
| **Ethylbenzene** | **21** | **32** | **89** | **134** | **314** |
| *Max Soil Conc*[1] | *Insert* | *Insert* | *Insert* | *Insert* | *Insert* |
| **Napthalene** | **9.7** | **9.7** | **45** | **45** | **219** |
| *Max Soil Conc*[1] | *Insert* | *Insert* | *Insert* | *Insert* | *Insert* |
| **PAH** | **0.063** | **NA** | **0.68** | **NA** | **4.5** |
| *Max Soil Conc*[1] | *Insert* | *Insert* | *Insert* | *Insert* | *Insert* |

Notes:

1. The maximum concentrations of petroleum constituents in soil should be compared to those listed in Table 1 (Technical Justification for Soil Screening Levels for Direct Contact and Outdoor Air Exposure Pathways, SWRCB)
2. Based on the seven carcinogenic poly-aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. Sampling and analysis for PAHs is only necessary where soil is affected by either waste oil or Bunker C oil.

| | | | |
|---|---|---|---|
| **Are both the 0 to 5 feet bgs concentration limits 5 to 10 feet bgs concentration limits for the appropriate site classification satisfied?** | ☐ Yes | ☐ No | ☒ NE |
| Residential: 0 to 5 feet bgs | ☐ Yes | ☐ No | ☐ NE |
| Residential: 5 to 10 feet bgs | ☐ Yes | ☐ No | ☐ NE |
| Commercial/Industrial: 0 to 5 feet bgs | ☐ Yes | ☐ No | ☐ NE |
| Commercial/Industrial: 5 to 10 feet bgs | ☐ Yes | ☐ No | ☐ NE |
| **If exposure to construction or utility trench workers is reasonably anticipated, are the concentration limits for the Utility Worker satisfied?** | ☐ Yes | ☐ No | ☒ NE |
| **Have the requirements for using the screening levels in Table 1 been satisfied (i.e., have the model assumptions presented in the SWRCB document entitled *"Technical Justification for Soil Screening Levels for Direct Contact and Outdoor Air Exposure Pathways"* been met?** | ☐ Yes | ☐ No | ☒ NE |
| Is the area of impacted soil where a particular exposure occurs ≤ 82 feet by 82 feet? | ☐ Yes | ☐ No | ☐ NE |
| Is the receptor located at the downgradient edge for inhalation exposure? | ☐ Yes | ☐ No | ☐ NE |
| Is the wind speed < 2.25 meters per second (7.38 feet per second) on average? | ☐ Yes | ☐ No | ☐ NE |
| Are there different exposure scenarios than residential, commercial/industrial, utility worker) at the site? | ☐ Yes | ☐ No | ☐ NE |

(LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure Evaluation Continued on Next Page)

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Additional Questions FOR Sites That Do Not Meet the LTCP Criteria

**Indicate only those conditions that do not meet the Direct Contact and Outdoor Air Exposure scenarios:**

| | |
|---|---|
| **Exposure Type:** | |
| Residential | ☐ Yes |
| Commercial | ☒ Yes |
| Utility Worker | ☐ Yes |
| **Petroleum Constituents in Soil:** | |
| ≤ 5 feet bgs | ☐ Yes |
| > 5 feet bgs and ≤ 10 feet bgs | ☐ Yes |
| Unknown | ☒ Yes |
| **Soil Concentrations of Benzene:** | |
| > 1.9 mg/kg and ≤ 2.8 mg/kg | ☐ Yes |
| > 2.8 mg/kg and ≤ 8.2 mg/kg | ☐ Yes |
| > 8.2 mg/kg and ≤ 12 mg/kg | ☐ Yes |
| > 12 mg/kg and ≤ 14 mg/kg | ☐ |
| > 14 mg/kg | ☐ Yes |
| Unknown | ☒ Yes |
| **Soil Concentrations of Ethylbenzene:** | |
| > 21 mg/kg and ≤ 32 mg/kg | ☐ Yes |
| > 32 mg/kg and ≤ 89 mg/kg | ☐ Yes |
| > 89 mg/kg and ≤ 134 mg/kg | ☐ Yes |
| > 134 mg/kg and ≤ 314 mg/kg | ☐ Yes |
| > 314 mg/kg | ☐ Yes |
| Unknown | ☒ Yes |
| **Soil Concentrations of Naphthalene:** | |
| > 9.7 mg/kg and ≤ 45 mg/kg | ☐ Yes |
| > 45 mg/kg and ≤ 219 mg/kg | ☐ Yes |
| > 219 mg/kg | ☐ Yes |
| Unknown | ☒ Yes |
| **Soil Concentrations of PAH:** | |
| > 0.063 mg/kg and ≤ 0,68 mg/kg | ☐ Yes |
| > 0.68 mg/kg and ≤ 4.5 mg/kg | ☐ Yes |
| > 4.5 mg/kg | ☐ Yes |
| Unknown | ☒ |
| **Area of Impacted Soil:** | |
| Area of Impacted Soil > 82 by 82 Feet | ☐ Yes |
| Unknown | ☐ Yes |

| | |
|---|---|
| This case should be closed in spite of <u>not</u> meeting policy criteria:<br><br>List Reasons: | ☐ Yes |

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## CSM Minimum Required Information

| **Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with following Media Specific Criteria for Direct Contact and Outdoor Air Exposure?** | ☐ **Yes** | ☒ **No** | |
|---|---|---|---|
| Sufficient data to demonstrate that site characterization is complete for the prescribed depth ranges of 0 to 5 feet and 5 to 10 feet bgs in order to assess potential direct contact and outdoor air exposure? | ☐ Yes | ☒ No | ☐ NA |
| Figures and tables showing the soil data for each of the prescribed depth ranges with a comparison to the screening levels for each exposure scenario? | ☒ Yes | ☐ No | ☐ NA |
| Analytical data for all chemicals of concern including total petroleum hydrocarbons in order and an assessment of whether unique conditions not considered in the Policy may exist at the site? | ☒ Yes | ☐ No | ☐ NA |
| Evaluation of data for data representativeness, quality, spatial distribution relative to current or potential receptors and sources, and temporal variability? | ☒ Yes | ☐ No | ☐ NA |
| Description of the current and expected future land use, redevelopment, or construction for the site? | ☒ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | ☐ Yes | ☐ No | ☐ NA |
| | | | |

**(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)**

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**

## Direct Contact and Outdoor Air Exposure: Case Notes

The subject site was occupied by a service station until approximately 1968, was used for a period as a parking lot, and then was redeveloped in 1979 in its current configuration. The subject building is reported to be predominately approximately 4 feet below surface grade (bgs), and the associated and attached parking structure is up to 6 feet bgs. The extent of additional sub-excavation, if any, has been investigated, but is unknown.

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*****End of Direct Contact and Outdoor Air Exposure Criteria Evaluation*****

**KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable**