925-459-5602 Not Correct XX

June 28, 2013

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Kerry & Associates – Palace Garage
14336 Washington Avenue
San Leandro, California
ACEH Case No. RO0000208

Dear Mr. Detterman,

I declare, under penalty of perjury, that the information and/or recommendations contained in the **Data Gap Work Plan and Focused Site Conceptual Model** are true and correct to the best of my knowledge.

Sincerely,

June 24, 2013

Mr. Jeffrey Kerry

CLOSURE SOLUTIONS, INC.

June 28, 2013

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Data Gap Investigation Work Plan and Focused Site Conceptual Model
Kerry & Associates – Palace Garage
14336 Washington Avenue
San Leandro, California
ACEH Case No. RO0000208
SFRWQCB LUFT Case No. 01-1133

Dear Mr. Detterman:

On behalf of Kerry & Associates, Closure Solutions, Inc. (Closure Solutions) has prepared this *Data Gap Work Plan and Focused Site Conceptual Model* (Work Plan) for the Palace Garage site located at 14336 Washington Avenue, San Leandro, California (the Site, Figure 1). A letter from the Alameda County Environmental Health staff (ACEH) dated May 29, 2013 (Attachment A), directed the preparation of a work plan to address data gaps identified during review of the environmental case under the State Water Resource Control Board's Low Threat Underground Storage Tank Case Closure Policy (LTCP).

The ACEH review states the Site fails to meet the following LTCP criteria:

- General Criteria f (Secondary Source Removal) based on insufficient data to establish that the secondary source has been removed to the extent practicable;
- Media-Specific Criteria for Vapor Intrusion to Indoor Air based on a one-time vapor sampling event where benzene concentrations exceeded established values, and;
- Media-Specific Criteria for Direct Contact and Outdoor Air Exposure based on insufficient soil sampling in the 0 to 10 foot depth interval beneath the Site.

To address the identified data gaps, Closure Solutions proposes advancing four soil borings at the locations identified on Figure 2 to collect shallow soil and soil vapor samples. Analytical results from the samples are expected to provide sufficient data to complete the evaluation for possible Site closure under the LTCP criteria. Additionally a focused Site Conceptual Model has been prepared to address the LTCP deficiencies noted above.

The following sections provide details on the proposed scope of work to assess shallow soil and soil vapor.

1.0 SITE SUMMARY

1.1 Site Setting and Background

The Site is an automotive body repair shop located on Washington Avenue in San Leandro, California (Figures 1 and 2). Land use in the vicinity of the property is primarily industrial/commercial. ACEH records show that one underground storage tank (UST) existed at the Site at the time of removal in 1991. A Focused Site Conceptual Model including additional site background information, regional and Site geology and hydrogeology, general source area conditions and summary of sensitive receptors is provided in Attachment B.

2.0 PROPOSED SCOPE OF WORK

In order to more completely delineate the vertical extent of hydrocarbon impacts in soil and to satisfy screening criteria established in the LTCP Media-Specific Criteria for Direct Contact and Outdoor Air Exposure, four soil borings will be advanced to a minimum of 10 feet below ground surface (bgs) at the locations identified in Figure 2. The locations have been selected based on concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) reported in previous investigations. Although reported concentrations are deeper than 10 feet bgs, they are considered to be representative of what could potentially be sorbed to soil particles in the shallower vadose zone. Additionally, the collected samples will be used to evaluate if a secondary source exists above the groundwater table.

Soil vapor probes will also be installed adjacent to three of the proposed soil borings, based on benzene concentrations reported in Closure Solution's *Soil Vapor Testing and Additional Assessment Report* dated August 30, 2010. Benzene vapor concentrations greatly exceeded the land use environmental screening levels established for soil beneath commercial/industrial locations, as reported in the *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - Interim Final- November 2007 (revised May 2008)* issued by the San Francisco Regional Water Quality Control Board. While screening levels established in the LTCP are for dissolved benzene in groundwater with 5 and 10 foot thick bioattenuation zones, it is reasonable to assume the reported soil vapor concentrations exceed the LTCP values. The proposed borings have been located in proximity to the previous vapor samples in an effort to correlate the existing data. The data gap identification and proposed remedy to close the data gaps is summarized in a Focused Site Conceptual Model presented in Attachment B.

2.1 Preliminary Field Activities

Prior to initiating field activities, Closure Solutions will obtain the necessary drilling permits from the ACEH for the proposed work and clear the Site for subsurface utilities. The utility clearance will include notifying Underground Service Alert of the pending work a minimum of 48-hours prior to initiating the field investigation, and securing the services of a private utility locating company to confirm the absence of underground utilities at each boring location.

A Health and Safety Plan (HASP) will be prepared for use by personnel implementing the Work Plan. The HASP will address hazards associated with the proposed soil borings. A copy of the HASP will be available on-Site at all times. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work. A tailgate safety meeting will also be conducted daily to review the Site hazards and drilling work scope.

2.2 Soil Boring Advancement and Sampling

Closure Solutions will supervise the advancement of four soil borings (SB-19 through SB-22) utilizing a direct push drilling rig at the locations shown on Figure 2. The borings will be continuously cored to the proposed depth of approximately 10 feet bgs. Soil samples will be collected at 3, 5, 7 and 10 feet bgs and at areas of obvious hydrocarbon impact. Because soil samples are proposed for collection at 3 feet bgs, and at 5 feet bgs, boring locations will not be hand cleared prior to soil boring advancement. Samples will be field screened for the presence of residual petroleum hydrocarbon vapor concentrations using a photo-ionization detector (PID). Because sufficient subsurface soil information currently exists, collected soil samples will not be classified and lithologic logs will not be generated. All soil samples collected will be retained for laboratory analysis and submitted under chain-of-custody protocol to a California State-certified analytical laboratory as described in section 2.4. Boring locations, depths, and sampling intervals, may be adjusted in the field based on lithology, field evidence of contamination, and the presence of subsurface obstructions or difficult drilling conditions.

2.3 Soil Vapor Probe Installation

After collecting all shallow soil samples, Closure Solutions personnel will supervise advancement of three soil vapor probes (SV-4 through SV-6) adjacent to proposed borings SB-19, SB-20 and SB-21. These proposed borings are located adjacent to the existing buildings and former dispenser. Soil vapor probes will be installed consistent with protocols described in the Department of Toxic Substances Controls' (DTSC) *Final Vapor Intrusion Guidance* (October 2011) document. Borings for soil vapor probes will be advanced by hand auger and the probes placed at approximately 5 feet bgs. The hand auger will be decontaminated between borings to prevent cross contamination in the borings. The probes will be constructed of a 1-inch push-to- connect stainless steel filter attached to approximately 6.5 feet of ¼ inch Teflon tubing, extra tubing will

be capped to eliminate ambient air intrusion into the tubing or probe and coiled within the finished well box. Each probe will be surrounded by a 12 inch sand pack consisting of #3 sand, followed by 12 inches of dry granulated bentonite, topped with a minimum of 12 inches of hydrated granular bentonite and grouted to the surface with a cement/bentonite mixture in accordance with California well construction standards. The vapor wells will be completed at the ground surface with traffic-rated bolt-down well vaults. The vaults will be installed slightly above the surrounding surface grade and finished with a cement apron to provide positive relief away from the wellhead. A soil typical vapor probe construction detail is presented in Figure 3. The soil vapor samples will be transported under chain of custody to California State-certified analytical laboratory as described in section 2.4.

2.4 Sample Handling and Analysis

Soil samples retained for chemical analysis will be cut from the acrylic sample liners in 6-inch sections, capped with Teflon tape and plastic end caps, labeled, and placed in an ice-filled cooler for preservation pending transport to the analytical laboratory. Soil samples will be submitted under chain-of-custody protocol to a California State-certified analytical laboratory and will be analyzed for the following: gasoline range organics (GRO), benzene, toluene, ethylbenzene, and total xylenes (BTEX constituents) by EPA Method 8260B.

Soil vapor sampling will be conducted in accordance with DTSC's October 2011 document. Soil vapor samples will be collected at least 48 hours after probe installation and at least 5 days after any significant rain event of ½-inch or greater. Soil vapor samples will be collected in batch certified 1 liter Summa® canisters using a closed-circuit sampling train created by attaching a sample Summa® canister with flow regulator/restrictor and vacuum gauge via a steam cleaned stainless steel manifold to the vapor probe tubing at each vapor point.

A "shut-in test" will be performed prior to connecting the manifold to the vapor point tubing. The test is performed by sealing all openings to ambient air, opening the purge Summa® canister to establish a vacuum inside the sampling train and waiting at least 5 minutes to ensure the vacuum remained stable over time. The "shut-in" test reduces the potential for ambient air to enter the soil vapor samples.

Using the same flow rate as is used during sampling, (between 100-200 milliliters/minute) approximately 3 purge volumes will be purged from the sampling tubing prior to each sample collection. A purge volume test is not necessary since Summa® canisters will be used to collect the vapor samples. While sampling, the vacuum of the Summa® canister will be used to draw the soil vapor through the flow controller until a negative pressure of approximately 5 inches of mercury was observed on the vacuum gauge.

Leak testing, using helium and a shroud, will be performed during all sampling. A shroud will be placed over the sampling train and probe connection. Helium will be released into the shroud and

a concentration of at least 10 percent will be maintained and monitored by a hand held detector. The concentrations within the shroud will be recorded on the field sheets.

After sample collection is completed, the Summa® canisters will be packaged and sent to a California State-certified laboratory under chain-of-custody for analysis. Soil vapor samples will not be chilled and will be analyzed within 14 days of sample collection. Samples will be analyzed for GRO by EPA Method TO-3 or TO-15, BTEX constituents by EPA Method TO-15, and oxygen, carbon dioxide, helium, methane and nitrogen by ASTM D-1946. The presence of helium will be used to evaluate if leaks were present in the sampling train during sampling. An ambient air leak up to five percent is acceptable since quantitative leak tracer testing was performed with a shroud. The data quality objectives will be compared to the laboratory stated detection limits. Due to possible interference of non-target species, reporting limits may be elevated.

Additionally, meteorological information will be collected from the nearest meteorological station in the area for the three days prior to sampling. Information collected will be temperature, humidity, wind speed, precipitation and barometric pressure.

2.5 Waste Disposal

If investigation-derived waste (IDW) is generated it will be temporarily stored on-Site in a 10-gallon, DOT-approved 17H drum, pending characterization and disposal. The IDW will be characterized in accordance with waste disposal or recycling facility acceptance requirements. Closure Solutions will coordinate the transport and disposal of the IDW at an approved facility.

3.0 SUMMARY REPORT

Upon completion of field activities and receipt of all laboratory analytical data, Closure Solutions will provide the ACEH with a summary report. The report will document the results of the investigation and provide recommendations for additional work, if appropriate.

In accordance with GeoTracker requirements, Closure Solutions will upload to GeoTracker all soil and soil vapor analytical data, and a final report related to this investigation.

4.0 PROPOSED SCHEDULE

Upon receiving written approval of this Work Plan from the ACEH, Closure Solutions will proceed with the proposed work. Closure Solutions anticipates submitting the summary report to the ACEH within 60 days of receipt of all laboratory analytical results from investigation activities.

5.0 LIMITATIONS

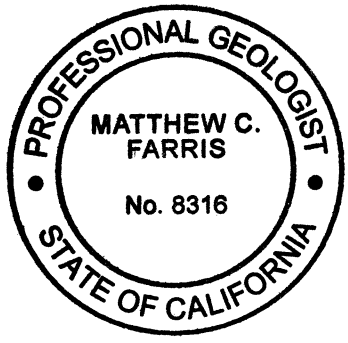
This Work Plan is based on Site conditions, data, and other information available as of the date of the Work Plan, and the recommendations herein are applicable only to the time frame in which the Work Plan was prepared. Background information used to prepare this Work Plan including,

but not limited to, previous field measurements, analytical results, Site plans and other data have been furnished to Closure Solutions by Kerry & Associates and as available on the GeoTracker website. Closure Solutions has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information.

We appreciate the opportunity to present this document and trust that it meets with your approval. If you have any questions or concerns, please contact the undersigned at (916) 760-7579 or at mfarris@closuresolutions.com.

Sincerely,

Closure Solutions, Inc.

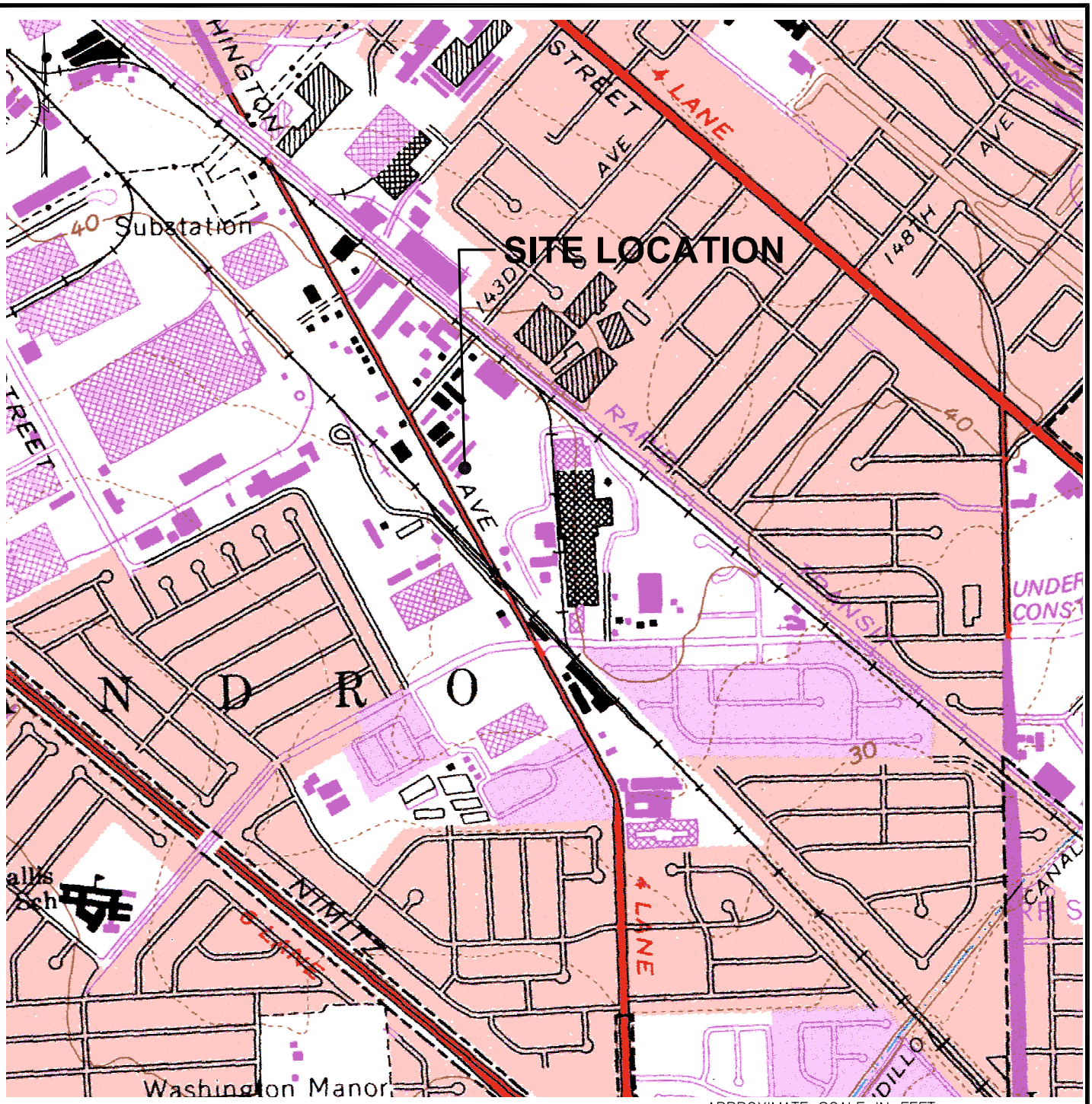


Matthew Farris, P.G.
Project Geologist

ATTACHMENTS:

Figure 1	Vicinity Map
Figure 2	Site Map with Proposed soil boring locations
Figure 3	Typical Soil Vapor Probe Diagram
Attachment A	ACEH Correspondence
Attachment B	Focused Site Conceptual Model

cc: Mr. Jeff Kerry, Kerry & Associates
Mr. Gerald Donnelley



REFERENCE:
USGS 7.5 MIN QUAD MAP TITLED:SAN LEANDRO, CALIFORNIA DATED: 1959 REV: 1980

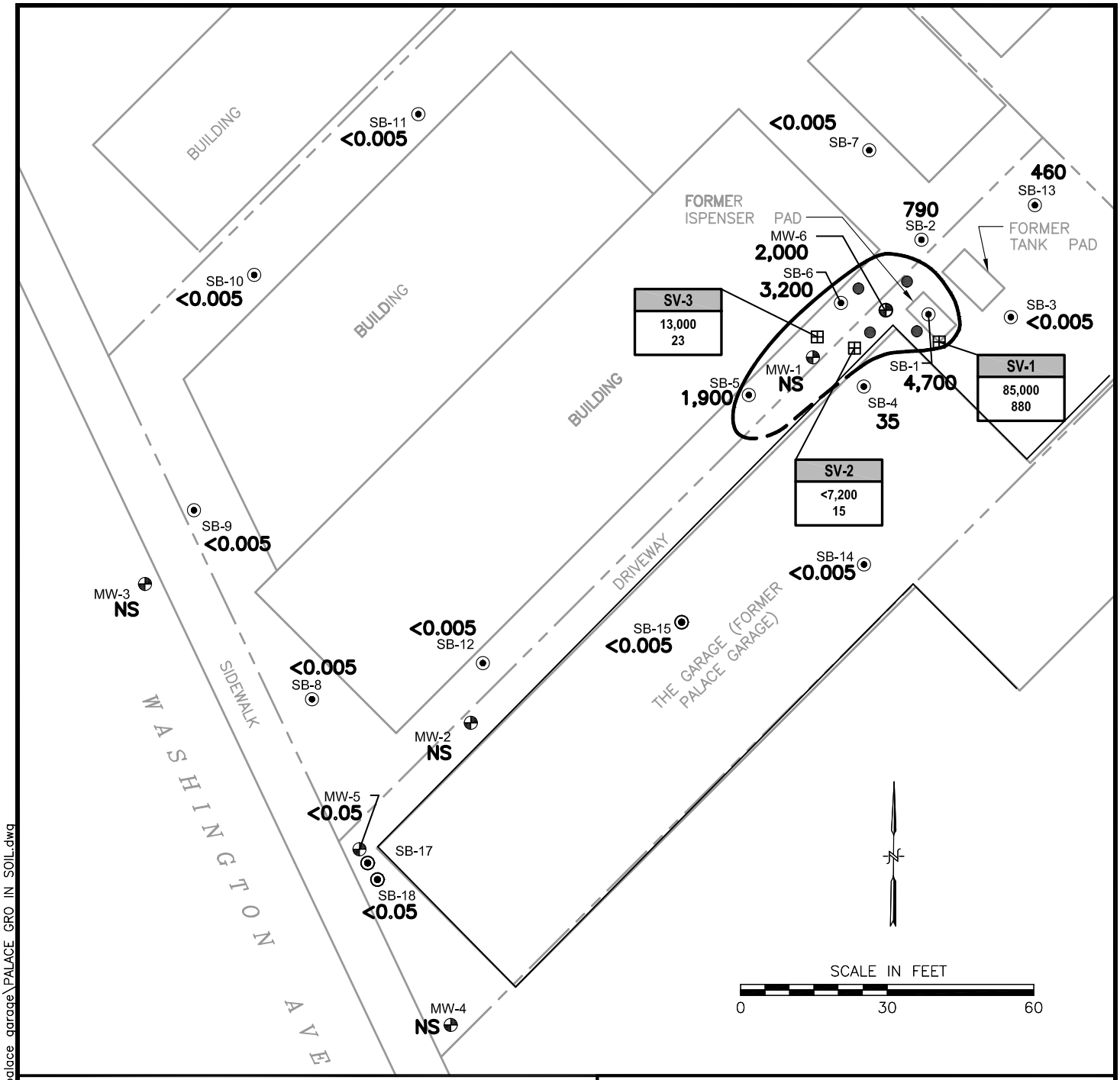
FIGURE 1

SITE LOCATION MAP

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

CLOSURE SOLUTIONS, INC.
4600 Northgate Boulevard • Suite 230
Sacramento • California • 95834
Phone: (800) 988-7880

20101130.14161396 D:\Client Drawings\Closure\palace garage\PALACE GARAGE VICINITY MAP.dwg



LEGEND:

- PROPOSED SHALLOW SOIL AND SOIL VAPOR SAMPLE LOCATION
- GROUNDWATER MONITORING WELL LOCATION
- SOIL BORING LOCATION
- SOIL VAPOR PROBE
- PROPERTY LINE
- 1,000 — TPHg ISOCONCENTRATION CONTOUR INTERVAL DASHED WHERE INFERRED (mg/kg)
- TPHg / BENZENE — WELL DESIGNATION
- TPHg, BENZENE CONCENTRATIONS IN SOIL ($\mu g/m^3$)
- NS — NOT SAMPLED

NOTES:

1. BASEMAP SOURCE: MORROW SURVEYING, 2/05/03

FIGURE 2

TPHg/GRO IN SOIL FROM 13 TO 16 FEET BGS WITH ISOCONCENTRATION CONTOUR

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

CLOSURE SOLUTIONS, INC.
4600 Northgate Boulevard • Suite 230
Sacramento • California • 95834
Phone: (800) 988-7880

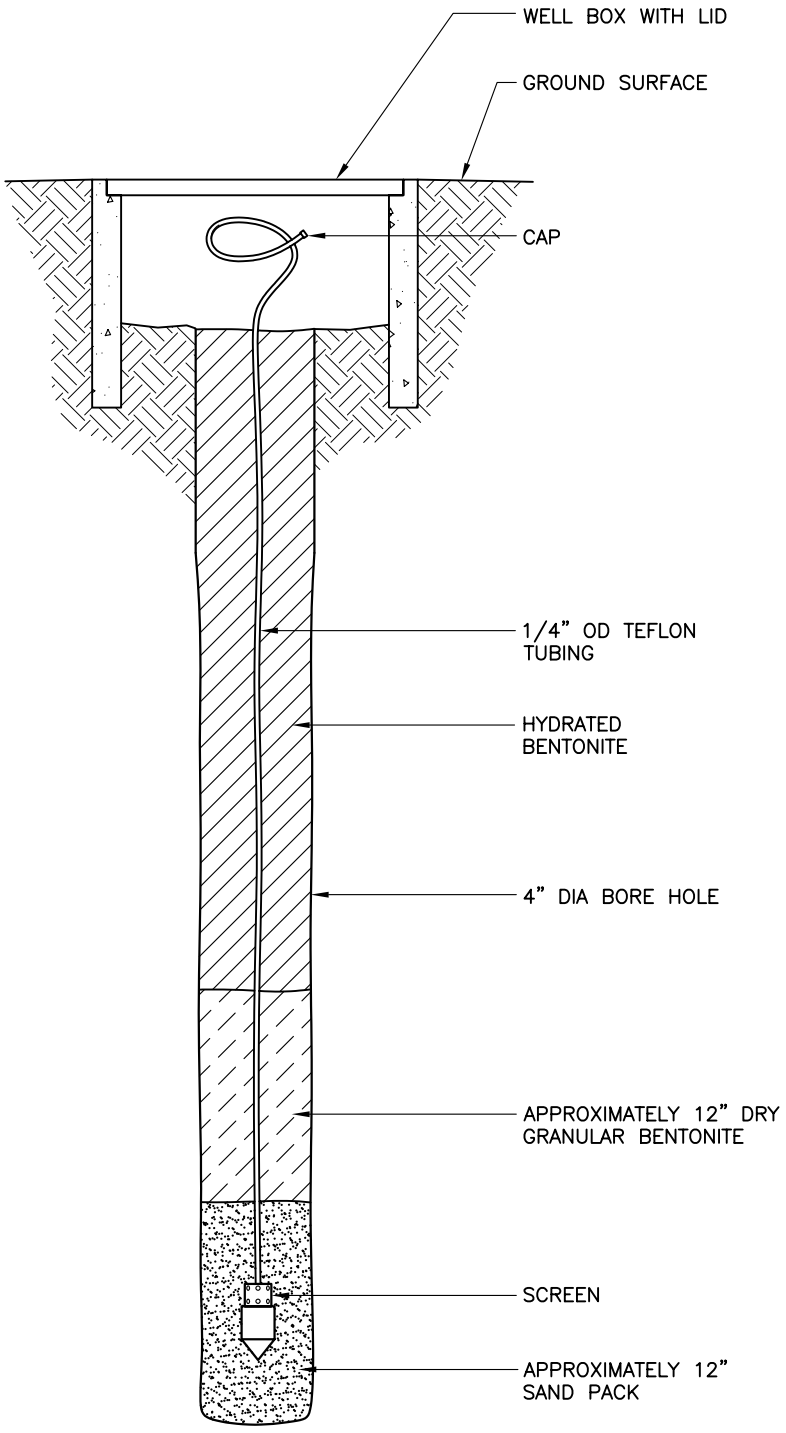


FIGURE 3

TYPICAL SOIL VAPOR PROBE DIAGRAM

CLOSURE SOLUTIONS, INC.
4600 Northgate Boulevard • Suite 230
Sacramento • California • 95834
Phone: (800) 988-7880

ATTACHMENT A

ACEH Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Agency Director

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

May 29, 2013

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

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

Subject: Request for Work Plan; Fuel Leak Case No. RO00000208; Palace Garage (Global ID #T0600101043), 14336 Washington Avenue, San Leandro, CA 94578

Dear Mr. Kerry:

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

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

TECHNICAL COMMENTS

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

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

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

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

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

   Therefore, please present a strategy in the Data Gap Investigation Work Plan described in Technical Comment 4 below to collect additional data to satisfy the bioattenuation zone characteristics of Scenarios 1, 2 or 3, or to collect gas data to satisfy Scenario 4.

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

   Please note, that if direct measurement of soil gas is proposed, ensure that your strategy is consistent with the field sampling protocols described in the Department of Toxic Substances Control's Final Vapor Intrusion Guidance (October 2011). Consistent with the guidance, ACEH requires installation of permanent vapor wells to assess temporal and seasonal variations in soil gas concentrations. However, since one one-time sampling event data has been collected already, a second one-time event may provide sufficient data to asses vapor intrusion potential and the need for corrective.

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

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

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

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

4. **Data Gap Investigation Work Plan and Focused Site Conceptual Model** – Please prepare Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within

each Media-Specific Criteria a sampling strategy is intended to apply to. If the sampling strategy includes data collection to support the proposed site redevelopment, a description of that redevelopment should be included in the Data Gap Investigation Work Plan to support your sampling strategy so that ACEH can verify the appropriateness of the proposed sample locations.

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

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

TECHNICAL REPORT REQUEST

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

- **June 28, 2013** – Data Gap Investigation Plan, and Focused Site Conceptual Model
  File to be named: RO2408_WP_R_yyyy-mm-dd
- **July 12, 2013** – Semi-Annual Groundwater Monitoring Report
  File to be named: RO208_GWM_R_yyyy-mm-dd
- **September 9, 2013** –Path to Closure Schedule
  File to be named: RO208_WP_R_yyyy-mm-dd
- **December 20, 2013** – Semi-Annual Groundwater Monitoring Report
  File to be named: RO208_GWM_R_yyyy-mm-dd

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

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

If you have any questions, please call 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: 2013.05.29 13:47:34 -07'00'

Mark E. Detterman, PG, CEG
Senior Hazardous Materials Specialist

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

Attachment A – Geotracker LTCP Checklist
Attachment B – Site Conceptual Model Requisite Elements
Attachment C – Path to Closure Project Schedule Requisite Elements

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

Donna Drogos (sent via electronic mail to donna.drogos@acgov.org)
Dilan Roe (sent via electronic mail to dilan.roe@acgov.org)
Mark Detterman (sent via electronic mail to mark.detterman@acgov.org)
Electronic File, GeoTracker

ATTACHMENT A

Geotracker LTCP Checklist

LTCP Checklist Go

PALACE GARAGE (T0600101043) - MAP THIS SITE

OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION

14336 WASHINGTON AVE
SAN LEANDRO , CA 94578
ALAMEDA COUNTY

VIEW PRINTABLE CASE SUMMARY FOR THIS SITE

ACTIVITIES REPORT
PUBLIC WEBPAGE

CLEANUP OVERSIGHT AGENCIES
ALAMEDA COUNTY LOP *(LEAD) - CASE #: RO0000208*
CASEWORKER: *MARK DETTERMAN* - ***SUPERVISOR:*** *DONNA DROGOS*
SAN FRANCISCO BAY RWQCB (REGION 2) - *CASE #: 01-1133*
CASEWORKER: *Cherie McCaulou* - ***SUPERVISOR:*** *MARY ROSE CASSA*

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

THIS PROJECT WAS LAST MODIFIED BY ***MARK DETTERMAN*** ON 1/25/2013 10:50:41 AM - HISTORY

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

CLOSURE POLICY

THIS VERSION IS FINAL AS OF 1/25/2013

CLOSURE POLICY HISTORY

General Criteria - *The site satisfies the policy general criteria* - CLEAR SECTION ANSWERS — **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

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

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed (info). — ◉ YES ○ NO

f. Secondary source has been removed to the extent practicable (info). — ○ 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
- ☐ Other -

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

h. Does a nuisance exist, as defined by Water Code section 13050. — ○ YES ◉ NO

1. Media-Specific Criteria: Groundwater - *The contaminant plume that exceeds water quality objectives is stable or decreasing in areal extent, and meets all of the additional characteristics of one of the five classes of sites listed below.* - CLEAR SECTION ANSWERS — **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 ◉ Not Taken at Two Depths Within 5ft Zone

Exposure Type :
○ Residential ○ Commercial

Free Product :
○ In Groundwater ○ In Soil ○ Unknown

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

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

O2 Data in Bioattenuation Zone :
○ No O_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

ATTACHMENT B

Site Conceptual Model Requisite Elements

ATTACHMENT B

Site Conceptual Model

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

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

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

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

a. Regional and local (on-site and off-site) geology and hydrogeology. Include a discussion of the surface geology (e.g., soil types, soil parameters, outcrops, faulting), subsurface geology (e.g., stratigraphy, continuity, and connectivity), and hydrogeology (e.g., water-bearing zones, hydrologic parameters, impermeable strata). Please include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s), cross sections, soil boring and monitoring well logs and locations, and copies of regional geologic maps.

b. Analysis of the hydraulic flow system in the vicinity of the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on groundwater elevation contour maps and updated in all future reports submitted for your site. Please address changes due to seasonal precipitation and groundwater pumping, and evaluate the potential interconnection between shallow and deep aquifers. Please include an analysis of vertical hydraulic gradients, and effects of pumping rates on hydraulic head from nearby water supply wells, if appropriate. Include hydraulic head in the different water bearing zones and hydrographs of all monitoring wells.

c. Release history, including potential source(s) of releases, potential contaminants of concern (COC) associated with each potential release, confirmed source locations, confirmed release locations, and existing delineation of release areas. Address primary leak source(s) (e.g., a tank, sump, pipeline, etc.) and secondary sources (e.g., high-

ATTACHMENT B

Site Conceptual Model (continued)

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

d. Plume (soil gas and groundwater) development and dynamics including aging of source(s), phase distribution (NAPL, dissolved, vapor, residual), diving plumes, attenuation mechanisms, migration routes, preferential pathways (geologic and anthropogenic), magnitude of chemicals of concern and spatial and temporal changes in concentrations, and contaminant fate and transport. Please include three-dimensional plume maps for groundwater and two-dimensional soil vapor plume plan view maps to provide an accurate depiction of the contaminant distribution of each COC.

e. Summary tables of chemical concentrations in different media (i.e., soil, groundwater, and soil vapor). Please include applicable environmental screening levels on all tables. Include graphs of contaminant concentrations versus time.

f. Current and historic facility structures (e.g., buildings, drain systems, sewer systems, underground utilities, etc.) and physical features including topographical features (e.g., hills, gradients, surface vegetation, or pavement) and surface water features (e.g. routes of drainage ditches, links to water bodies). Please include current and historic site maps.

g. Current and historic site operations/processes (e.g., parts cleaning, chemical storage areas, manufacturing, etc.).

h. Other contaminant release sites in the vicinity of the site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for the SCM. Include a summary of work and technical findings from nearby release sites, including the two adjacent closed LUFT sites, (i.e., Montgomery Ward site and the Quest Laboratory site).

i. Land uses and exposure scenarios on the facility and adjacent properties. Include beneficial resources (e.g., groundwater classification, wetlands, natural resources, etc.), resource use locations (e.g., water supply wells, surface water intakes), subpopulation types and locations (e.g., schools, hospitals, day care centers, etc.), exposure scenarios (e.g. residential, industrial, recreational, farming), and exposure pathways, and potential threat to sensitive receptors. Include an analysis of the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e., vapor pathway). Please include copies of Sanborn maps and aerial photographs, as appropriate.

j. Identification and listing of specific data gaps that require further investigation during subsequent phases of work. Proposed activities to investigate and fill data gaps identified.

TABLE 1

INITIAL SITE CONCEPTUAL MODEL

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

TABLE 2

DATA GAPS AND PROPOSED INVESTIGATION

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

ATTACHMENT C

Path to Closure Project Schedule Requisite Elements

ATTACHMENT C

Path to Closure Project Schedule Requisite Elements

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

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

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

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

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

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

ATTACHMENT B

Focused Site Conceptual Model

Palace Garage, Focused Site Conceptual Model (2013)

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
Regional Setting	**Geology/Stratigraphy** Near surface geology is characterized as alluvial fan and fluvial deposits of Holocene age. These alluvial fan deposits are brown or tan, medium dense to dense, gravelly sand or sandy gravel at depth generally fining upward to sandy or silty clay. The northwest-southeast trending Hayward fault is mapped approximately 1 mile northeast of site.		Map from USGS report	Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California (Graymer, R.W., USGS, 2000)	--		
	Hydrogeology Site is located in the Santa Clara Valley: East Bay Plain Groundwater Basin. Listed existing beneficial uses of groundwater in this sub-basin include municipal, industrial service, industrial process, and agricultural. Water service in the site vicinity is provided by EBMUD from surface water sources from areas outside of the East Bay Plain. Since urbanization of the East Bay Plain, use of groundwater in the area of the site has decreased to almost nothing and groundwater storage has increased. An aquifer known as the *Newark Aquifer equivalent* is located at approximately 30 to 130 feet bgs. Aquifers of limited extent occur at depths of less than 50 feet in this unit; they comprise a water table aquifer system with relatively high vertical resistance to flow. This unit is separated from the underlying aquifers by an aquitard comprised of Old Bay Mud (Yerba Buena Mud), a relatively homogenous estuarine mud. The aquitard is typically about 50 feet thick, but pinches out to the east towards the Hayward Fault. Currently, groundwater in the shallow units generally flows from east to west, from the Hayward Fault towards San Francisco Bay. Groundwater level contours for the Newark aquifer equivalent indicate that shallow zone aquifers have an average horizontal gradient of about 0.002.		East Bay Plain Map	San Francisco Bay Water Quality Control Plan (Basin Plan) (RWQCB, 1/18/07) California's Groundwater, DWR Bulletin 118-2 - San Francisco Bay Hydrologic Region (DWR, 2003) Bayside Groundwater Project, Draft EIR (CH2MHill, March 2005) Geologic Framework of the East Bay Plain Groundwater Basin (Alameda County Flood Control District, August 1993) Groundwater Yield of the East Bay Plain (Muir, Kenneth S., November 1996)	--		
	Groundwater Pumping Public water service in the site vicinity is provided by EBMUD from surface water sources from areas outside of the East Bay Plain. Since urbanization of the East Bay Plain, use of groundwater in the area of the site has decreased to almost nothing and groundwater storage has increased.			Groundwater Yield of the East Bay Plain (Muir, Kenneth S., November 1996)	--		
	Preferential Pathways Well Survey – Alameda County Public Works Agency (ACPWA) and California Department of Water Resources (DWR) records and well logs were reviewed to identify the location of any water wells within a 2,000-foot radius of the Site. Using ACPWA records, a total of eighty wells were identified within the survey area. Of these eighty wells, forty-nine were identified as test or monitoring wells; seven were identified as being abandoned or destroyed and twenty six were identified as being water supply wells. Of the twenty-six water supply wells, three are domestic, twenty are irrigation supply, and three are	SRS Tables	Sensitive Receptor Map	Sensitive Receptor Survey (Closure Solutions, 2008)	--		No apparent preferential pathways at Site.

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	industrial supply wells. Using DWR records a total of seventy-six wells were identified within the survey area. Of these seventy-six wells, fifty-three were identified as test or monitoring wells, nine were identified as being abandoned or destroyed, and fourteen were identified as being water supply wells. Of the fourteen water supply wells one is domestic, eleven are irrigation supply, and two are industrial supply wells. The closest water supply wells are two industrial wells approximately 450 feet northwest (up-gradient) of the Site. The closest domestic well is approximately 1,500 feet southeast (cross-gradient) of the Site. The closest down-gradient well is an irrigation well approximately 1,400 feet southwest of the Site. No surface body waters were identified within the survey area. Utility Survey – Depth to groundwater is approximately 14 to 15 feet bgs. Due to this depth, no utility trenches are anticipated to be located within groundwater and therefore no utility trenches can act as preferential pathways for groundwater at the Site. The City of San Leandro and Alameda County both have a storm line that runs down Washington Avenue that are located approximately 10.5 feet bgs. Oro Loma Sanitary Sewer has two sanitary sewer lines in Washington Avenue that are located approximately 8 feet bgs. EBMUD has two water lines in Washington Avenue that are located approximately 35 to 39 inches bgs. Multiple calls by Closure Solutions to PG&E Engineering were made but PG&E was unresponsive. Gas and Electric lines are normally buried shallow (less than 5 feet) and are therefore not anticipated to be present below groundwater at the site. Geology – Regional geologic information for the vicinity of the site is reported as alluvial fan and fluvial deposits. These types of deposits have the potential to be laterally discontinuous and thus may create preferential pathways due to the possible presence of former stream channel deposits. However, based on the soils reported in the borings, no such deposit has been encountered.		City Utility As-Built EBMUD Utility Map Map from USGS report	Geologic Map and Map Database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties, California (Graymer, R.W., USGS, 2000)			
	Nearby Release Sites Rogers Trucking, 14327 Washington Ave. Gasoline UST leak (1998) impacting soil. City of San Leandro Case 01-2477. Global ID T0600102282. Leak discovered in 1998. Site closed in 2005. Site permitted for USTs. Site down-gradient across Washington Ave. from Palace Garage - not likely contributor. Parkside Commons Apartments, 900 143rd Ave. Gasoline UST leak (1985) impacting groundwater. RWQCB Case 01S0454. Global ID T0600101050. Case closed in 1996.			GeoTracker website for Global ID T0600102282 (California SWRCB) GeoTracker website for Global ID T0600101050 (California SWRCB) GeoTracker website for Global ID T0600101524 (California SWRCB)	--	--	

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	Washington Square, 14400 Washington Ave. Diesel UST leak (1988) impacting groundwater. RWQCB Case 01-1649. Global ID T0600101524. Case closed in 1998. Excavation reported in 2000. Steelform Contracting Company, 14340 Washington Ave. Gasoline UST leak (1986) impacting groundwater. City of San Leandro lead. RWQCB Case 01-1424. Global ID T0600101315. Case closed in 2000.			GeoTracker website for Global ID T0600101315 (California SWRCB)			
Site Setting	**Site Geology** Based on previous investigations, the Site is underlain by a low permeable layer of clay, silty clay and clayey silts to approximately 10 to 15 feet below ground surface (bgs). This low permeable layer is underlain by a higher permeable layer of poorly graded sands and gravel from approximately 16 feet bgs to the total depth explored of 21 feet bgs.		Boring Logs	Report of Soil and Groundwater Assessment and Proposed Work Plan For Further Assessment (ALLCAL Property Services, February 1999) Report of Phase II Soil and Groundwater Assessment and Proposed Work Plan For Phase III Further Assessment (ALLCAL Property Services, April 1999) Report of Phase III Soil and Groundwater Assessment (ALLCAL Property Services, August 1999) Report of Well Installation (ALLCALL Property Services, June 2000) Monitoring Well Installation & Fourth Quarter 2002 Monitoring Report (Professional Service Industries, February 2003)	--		Site geology is fairly uniform and is well understood.
	Groundwater Conditions First encountered unconfined groundwater at the site ranges from approximately 15 to 16 feet bgs and static groundwater in the monitoring wells ranges from approximately 13 to 16 feet bgs. Groundwater flows to the west, southwest, and south-southwest with hydraulic gradient ranging from 0.0017 to 0.0050. Current (2Q13) data reports groundwater flow to the southwest at a gradient of 0.004.	2Q13 QMR Tables	Rose Diagram 2Q13 Groundwater Map	Second Quarter 2013 Groundwater Monitoring Report (Closure Solutions, 2013)	--		Groundwater flow regime is well understood.
	Source Area A 550-gallon gasoline underground storage tank (UST) was removed from the site in 1991. During tank removal activities four small holes were observed at the top UST near the southern end. Two of the holes were pin hole-sized, the next larger hole was approximately ¼-inch in diameter and the largest was approximately ½-inch in diameter. No	Soil Tables	Soil Maps	Underground Storage Tank Removal (Century West Engineering Corporation, March 1991)	Source area not defined up-gradient and poorly defined onsite. Soil Vapor data collected in August 2010 indicates a secondary source may exist.	- Evaluate shallow soils for residual contamination and a potential secondary source. Advance four soil borings in the vicinity of the former UST and dispenser for collection of shallow soil samples. Samples will be collected at 3 5, 7 and 10 feet bgs.	Further soil sampling, particularly onsite, may be advisable in order to assess

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	evidence of gasoline flow from these holes was observed. Field screening of soil samples collected from beneath the tank revealed the presence of hydrocarbon contamination in the soil. Over-excavation was performed to a reported depth of approximately 18 to 20 feet bgs. Soil analytical results report very low (19 mg/kg TPHg) to nondetectable levels of hydrocarbons within the resulting excavation. The resulting excavation was lined with plastic and backfilled with pea gravel. Subsequent investigations included the installation of 4 monitoring wells and the drilling and sampling of 17 borings. Based on soil data obtained from the borings, impacted capillary fringe zone soil extends at least 40 feet downgradient of the former dispenser pad and UST in the vicinity of soil boring SB-5 (at concentrations of 1,900 mg/kg TPHg and 4.3 mg/kg benzene). Relative concentrations of BTEX constituents (e.g. 4.3 mg/kg Benzene, 170 mg/kg xylenes) suggest that the hydrocarbon source is attenuating.			Report of Soil and Groundwater Assessment and Proposed Work Plan For Further Assessment (ALLCAL Property Services, February 1999) Report of Phase II Soil and Groundwater Assessment and Proposed Work Plan For Phase III Further Assessment (ALLCAL Property Services, April 1999) Report of Phase III Soil and Groundwater Assessment (ALLCAL Property Services, August 1999) Report of Well Installation (ALLCALL Property Services, June 2000) Monitoring Well Installation & Fourth Quarter 2002 Monitoring Report (Professional Service Industries, February 2003)		Soil samples will be analyzed for GRO, and BTEX compounds by EPA Method 8260B	possible continuing source and for data for CAP evaluation.
	Dissolved plume Concentrations in plume appear to fluctuate seasonally - with lower groundwater levels associated with lower contaminant concentrations. Impact consists of gasoline constituents, primarily reported as TPHg (currently [May 2013] up to 16,000 ug/l) and BTEX compounds (currently [May 2013] up to 140 ug/l benzene). MTBE analysis was discontinued in November 2008 because concentrations were below Water Quality Objectives. Naphthalene analysis began in February 2013 (790 ug/l, May 2013). The dissolved plume appears to be relatively stable and is defined (by wells MW-3 and MW-4) in the downgradient direction less than 200 feet from the source area.	2Q13 QMR Tables	2Q13 Groundwater Map	Second Quarter 2013 Groundwater Monitoring Report (Closure Solutions, 2013)	Groundwater not defined up-gradient. Defined cross-gradient by grab-samples from borings.	- Possible groundwater sampling upgradient to define the lateral extent of the plume	Not clear if regulator will require wells.
	Remediation Monitored Natural Attenuation. Draft CAP proposing short term DPE was submitted April, 2013.			Second Quarter 2013 Groundwater Monitoring Report (Closure Solutions, 2013)	--		
	Evaluation of potential impacts to sensitive receptors Water Supply Wells (ingestion) The closest water supply wells are two industrial wells approximately 450 feet northwest (up-gradient) of the Site. The closest domestic well is approximately 1,500 feet southeast (cross-gradient) of the Site. The closest down-gradient well is an irrigational well approximately 1,400 feet southwest of the Site. The groundwater plume extends less than 200 feet southwest of the Site and appears to be stable. This data	SRS Tables	Sensitive Receptor Map 2Q2013 Groundwater Map	Sensitive Receptor Survey (Closure Solutions, 2008) Second Quarter 2013 Groundwater Monitoring Report (Closure Solutions, 2013)	--	-	

	DESCRIPTION	Data Tables	Graphics	References	Data Gaps	Work Necessary to fill data gap	Comments
	suggests that no known water supply well is threatened by the groundwater plume.						
	Vapor transport (inhalation) Shallow soil vapor sampling conducted in August 2010 reported benzene concentrations well above RWQCB established ESLs (85,000 ug/m3). Near surface clays approximately 10 to 15 feet thick present across Site provide significant impediment to vertical transport of vapors from the impacted areas - groundwater and capillary fringe soils.		Soil Vapor Probe Analytical Results, August 2010	Soil Vapor Testing and Additional Assessment Report (Closure Solutions, 2010)	Evaluate shallow soils for LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air. Soil vapor data collected during a previous investigation, at approximately 5 feet bgs in the vicinity of the former dispenser and existing building, exceeds the screening levels for a bioattenuation zone from 5 to 10 feet bgs as described in scenarios 3 and 4 of the LTCP criteria.	Advance four soil borings in the vicinity of the former UST and dispenser (Figure 2) for collection of shallow soil vapor samples. Borings will be advanced to approximately 5 feet bgs and vapor samples collected using field protocols described in the Department of Toxic Substances Contol's *Final Vapor Intrusion Guidance* (October 2011) document. Soil vapor samples will be analyzed for GRO and BTEX compounds by EPA Method TO-15 and oxygen, carbon dioxide, helium, methane and nitrogen by ASTM D-1946	
	Direct Contact (dermal) Soil samples from 0 to 10 feet bgs have not been collected during previous Site investigations. Therefore no data for benzene concentrations is available to compare to LTCP criteria for direct contact and outdoor air exposure				Evaluate shallow soils for LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure	Soil samples from 0 to 10 feet bgs have not been collected during previous Site investigations. Therefore no data for benzene concentrations is available to compare to LTCP criteria for direct contact and outdoor air exposure. Soil samples will be analyzed for GRO, and BTEX compounds by EPA Method 8260B.	