December 1, 2015

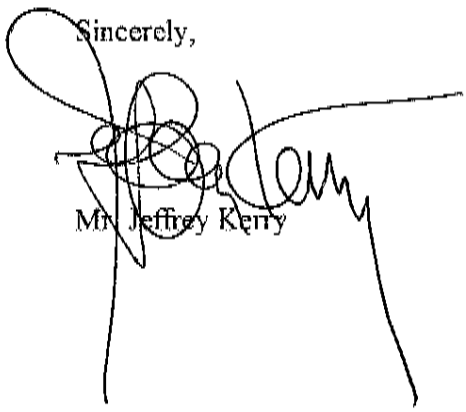
Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

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 **Sub-Slab Soil Vapor Investigation Work Plan** are true and correct to the best of my knowledge.

Sincerely,



Mr. Jeffrey Kerry

December 18, 2015

Mr. Mark Detterman
Alameda County Environmental Health Services
1311 Harbor Bay Parkway
Alameda, California 94502

RE: SUB-SLAB SOIL VAPOR INVESTIGATION WORK PLAN
Kerry & Associates – Palace Garage
14336 Washington Boulevard
San Leandro, California

Dear Mr. Detterman,

On behalf of Kerry & Associates, Innovex Environmental Management Inc. (INNOVEX) has prepared this Sub-Slab Soil Vapor Investigation Work Plan (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 Services (ACEH) dated October 23, 2015 (Attachment A) expressed concerns that a potential for vapor intrusion into the building at the subject site may still exist. As such, the ACEH directed resampling of soil vapor probe SV-4 to evaluate the potential for vapor intrusion. Unfortunately, all Site soil vapor probes were destroyed during the remedial excavation activities completed in May 2015.

Installation of a new soil vapor probe in the location of former soil vapor probe SV-4 is also not possible due to the final excavation footprint, and the proximity of existing building footings to the excavated area. A new probe installed between the building and the excavated area would encounter the building footings at approximately 2.5 feet below ground surface (bgs). Additionally, if a new vapor probe could be installed to the proper depth between the footings and excavated area, it is likely that influence from the highly porous gravel backfill material in the excavation pit would create preferential pathways during vapor sampling, thus potentially diluting concentrations in the collected vapor.

As an alternative to the preferred location, INNOVEX proposes installing two sub-slab soil vapor wells within the building in an attempt to directly evaluate the potential for vapor intrusion to the building.

This Work Plan has been prepared to provide details of a proposed scope of work to address the outlined vapor intrusion concerns. Presented below is Site background information, details of the proposed investigation scope of work, and a proposed schedule for completion of site investigation activities.

1.0 SITE SUMMARY

1.1 Location, Setting and Current Use

The Site is located on Washington Avenue in San Leandro, California (Figures 1 and 2). Land use in the vicinity of the property is primarily industrial/commercial. The Site formerly operated as an automotive repair and towing service facility from 1967 through 1990. ACEH records indicate one 550-gallon underground storage tank (UST) was removed from the property in 1991. The Site currently operates as an automotive body repair shop.

1.2 Site History

On June 11, 2014, the ACEH, issued a revised directive email requesting submittal of an Interim Remedial Action Plan (IRAP) detailing a scope of work to perform secondary source area removal of hydrocarbon impacted soil in the vicinity of the former UST location at the Site, and to close data gaps in the low-threat closure policy (LTCP) review identified by ACEH staff. The ACEH indicated in their directive letter that Interim Remedial Actions appear appropriate in order to mitigate the risk of vapor intrusion and expeditiously move the site towards closure.

On June 30, 2014, an IRAP was prepared and submitted to ACEH. The IRAP detailed a scope of work to perform secondary source area removal via excavation. ACEH staff approved the IRAP with some modifications on August 14, 2014.

Between May 15 and 29, 2015, interim remedial action field activities were conducted at the Site to remove the identified secondary source of hydrocarbon-impacted soil. Field activities consisted of excavating hydrocarbon-impacted soil to the extent practicable within the defined excavation boundary. The total depth of the excavation was approximately 16 feet below ground surface (bgs). The open excavation was then backfilled with pre-approved aggregate base rock, and resurfaced to match existing Site conditions.

Analytical results from sidewall and floor confirmation soil samples collected post-excavation indicated that the bulk of the secondary source was removed, with minimal concentrations of petroleum hydrocarbons remaining. It is expected that the hydrocarbons remaining in soil within the capillary fringe zone of the groundwater table will attenuate within a reasonable time frame. Based on the confirmation soil samples results, INNOVEX concluded that the secondary source and risk of vapor intrusion to adjacent buildings had been mitigated. ACEH indicated that upon completion of excavation activities and submittal of the IRAR, the environmental case associated with the Site would be evaluated for closure.

2.0 PROPOSED SCOPE OF WORK

In an attempt to directly measure the potential for vapor intrusion into the existing Site building, INNOVEX proposes installing and sampling two sub-slab soil vapor probes at the locations shown on Figure 2. INNOVEX will then evaluate the risk for soil vapor intrusion into the building from post-remediation hydrocarbon impacts remaining in soil adjacent to the building.

2.1 Preliminary Field Activities

Prior to initiating field activities, INNOVEX will determine whether drilling permits from the ACEH are required for the proposed scope of work. If required, INNOVEX will obtain the identified permits 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 fieldwork. A copy of the HASP will be available on-Site during fieldwork. The subcontractor(s) performing field activities will be provided with a copy of the HASP prior to initiating work, and a safety tailgate meeting will be conducted prior to beginning any field tasks to review the Site hazards and work scope.

2.2 Soil Boring Advancement and Sampling

Upon completion of utility clearance, INNOVEX will install two sub-slab vapor probes at the locations shown on Figure 2. The soil vapor probes will be installed according to protocols described in the Department of Toxic Substances Control's (DTSC's) Final Vapor Intrusion Guidance (October 2011) document. After coring the building's slab floor to gain access to sub-slab soils, vapor probes VP-1 and VP-2 will be advanced via hand auger to the base of the engineered fill below the building. Once the interface between the sub-slab fill and native soil is encountered, auguring will stop, and each vapor probe will be constructed at this interface. The probes will be constructed using a 1-inch push-to-connect stainless steel filter attached to an appropriate length of ¼-inch Teflon tubing. The extra tubing will be capped to eliminate ambient air intrusion into the tubing or probe. The vapor probe tip will be covered with #2/12 sand to approximately 1 inch above the probe to ensure proper airflow to the probe tip. Dry granular bentonite will then be used to fill the borehole annular space to the base of the concrete slab. Hydrated granular bentonite will then be placed above the dry granular bentonite to the slab surface to ensure proper sealing. Prior to the introduction of these materials, the concrete surfaces within the borehole will be cleaned with a damp towel to ensure a good seal. In order to protect the vapor probes, each well will be completed at the ground surface with a traffic-rated bolt-down well vault. Sub-slab vapor probe construction details are included as Attachment B.

2.3 Soil Sample Handling and Analysis

Soil vapor sampling will be conducted in accordance with DTSC's October 2011 Guidance. Sub-slab 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 is 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 protocols for analysis. Soil vapor samples will not be chilled, and will be analyzed within 14 days of sample collection. Samples will be analyzed for gasoline-range organics (GRO) by EPA Method TO-3 or TO-15; benzene, toluene, ethylbenzene, and xylenes (BTEX constituents) by EPA Method TO-15 (GC/MS); and oxygen, carbon dioxide, helium, methane and nitrogen by ASTM D-1946 (GC/TCD). The presence of helium will be used to evaluate if leaks were present in the sampling train during sampling. An ambient air leak of up to five percent is acceptable since quantitative leak tracer testing will be performed with a shroud. The data quality objectives will be compared to laboratory stated detection limits.

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

Soil vapor results will be compared to screening criteria for indoor air intrusion in commercial use scenarios, as established by the 2011 LTCP. Where LTCP screening criteria have not been established, results will be compared to environmental screening levels for soil gas in commercial land use scenarios, published in the San Francisco Bay Regional Water Quality Control Board's Derivation and Application of Environmental Screening Levels (SFBRWQCB, 2013).

3.0 WASTE DISPOSAL

Because of the minimal diameter (approximately 4 inches) and shallow depth of each boring, limited investigation-derived waste (IDW) is expected to be generated during field investigation

activities. Sub-slab fill that is removed during borehole advancement will be temporarily stored on-Site in a properly labeled 10-gallon, U.S. Department of Transportation–approved 17H drum, pending characterization and disposal.

4.0 INVESTIGATION REPORT

Upon completion of field activities and receipt of all laboratory analytical data, INNOVEX will finalize and submit a Sub-Slab Vapor Intrusion Evaluation. The report will document the results of the vapor sampling activities. In accordance with GeoTracker requirements, INNOVEX will upload the vapor intrusion evaluation and all related data to the GeoTracker website.

5.0 PROPOSED SCHEDULE

Upon receiving written approval of this Work Plan and approval for any necessary drilling permits, INNOVEX will implement the proposed scope of work. INNOVEX anticipates submitting a report summarizing site investigation activities to the CSCDEH within 45 days of receipt of all laboratory analytical results from sampling activities.

6.0 LIMITATIONS

This Work Plan is based on Site conditions, data, and other information available as of the date of the Work Plan, and the conclusions and 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 INNOVEX by Kerry & Associates. INNOVEX has relied on this information as furnished, and is neither responsible for nor has confirmed the accuracy of this information.

If you have any questions regarding this submission, please feel free to contact the undersigned at (916) 760-7579 or at matt.farris@innovex.net.

Sincerely,

Innovex Environmental Management, Inc.

Matthew Farris, PG
Senior Project Geologist

ATTACHMENTS:

Figure 1 Site Location Map

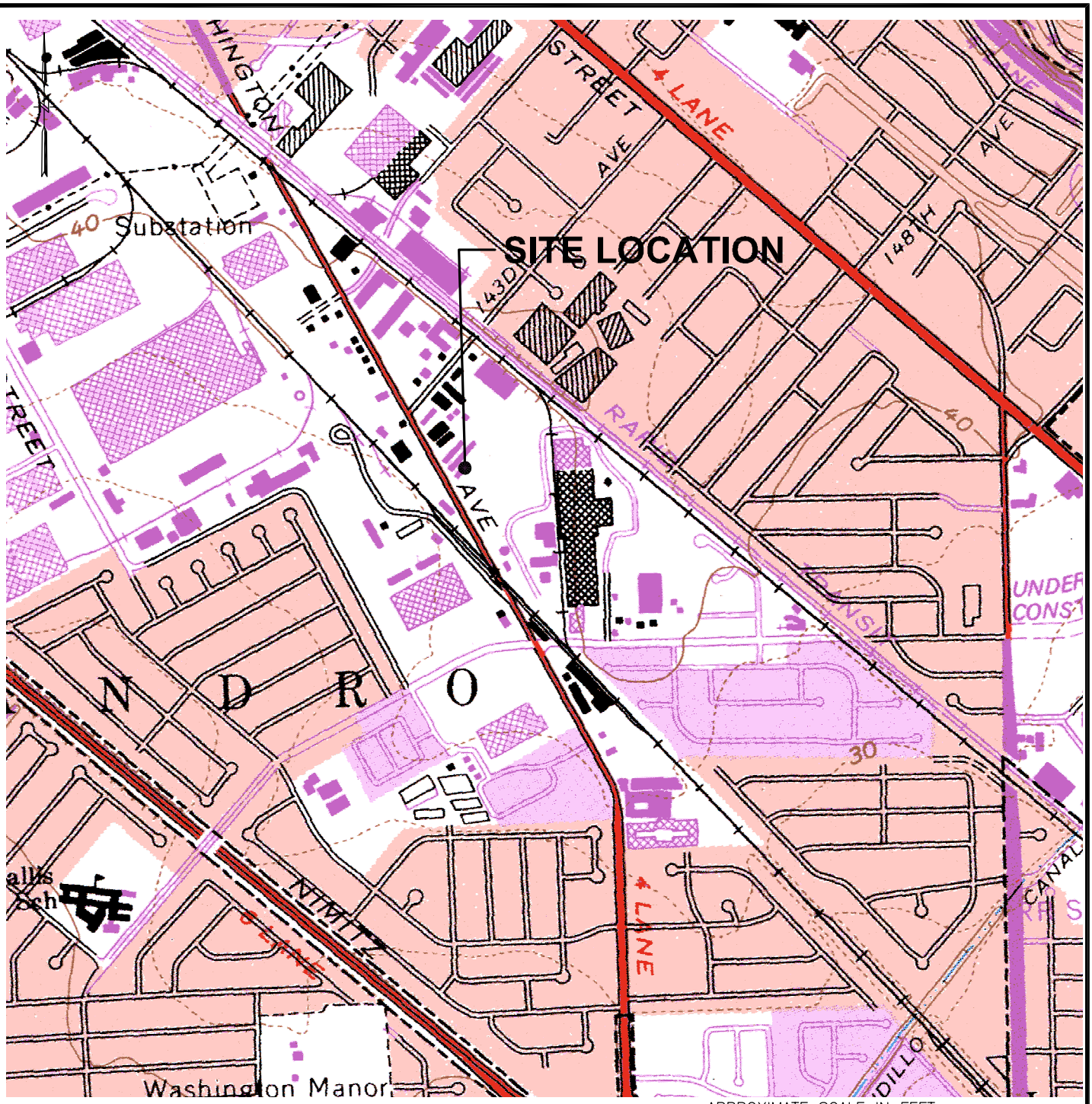
Figure 2 Site Plan with Proposed Sub-Slab Vapor Probe Locations

Attachment A ACEH Correspondence

Attachment B Sub-Slab Vapor Probe Construction Details

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

FIGURES



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

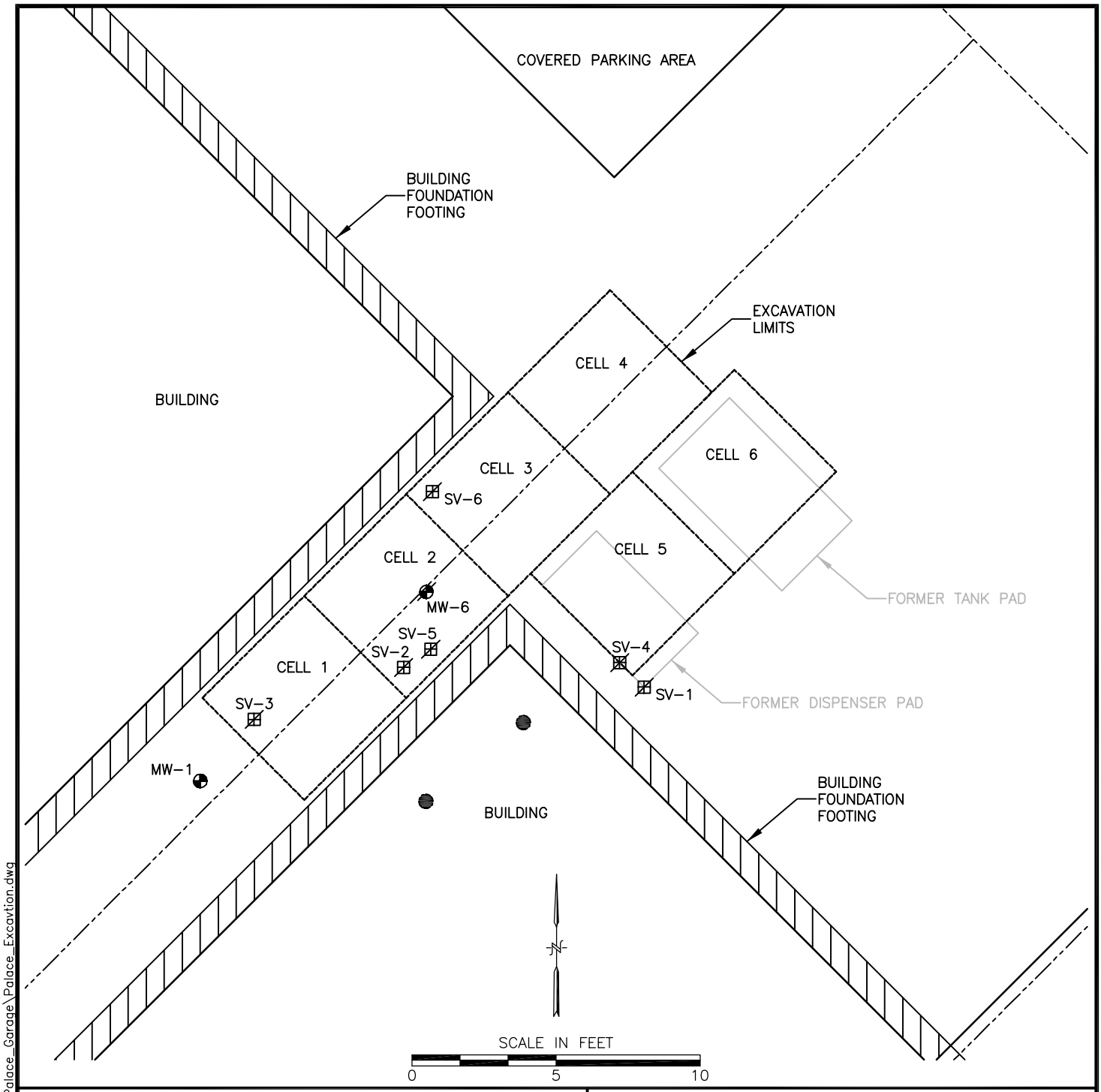
FIGURE 1

SITE LOCATION MAP

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.
3900 Lennane Drive • Suite 130
Sacramento • California •95834
Phone: (800) 988-7880

20140404.11433951 \\The-server\pacher\Client Drawings\innovex\palace garage 1601\PALACE GARAGE VICINITY MAP.dwg



LEGEND:

- PROPOSED SUB-SLAB VAPOR PROBE LOCATION
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL LOCATION
- DESTROYED VAPOR PROBE
- -------- LIMITS OF EXCAVATION (MAY 2015)

NOTES:

1. BASEMAP SOURCE: MORROW SURVEYING 02/05/03

FIGURE 2

SITE PLAN WITH PROPOSED SUB SLAB VAPOR PROBE LOCATIONS

PALACE GARAGE
14336 WASHINGTON AVENUE
SAN LEANDRO, CALIFORNIA

INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.
3900 Lennane Drive • Suite 130
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

October 23, 2015

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: Additional Request for Soil Vapor Monitoring; Fuel Leak Case No. RO00000208; Palace Garage (Global ID #T0600101043), 14336 Washington Avenue, San Leandro, CA 94578

Dear Mr. Kerry:

This letter is sent to augment the directive letter of September 24, 2015, recent discussions with the State Water Resource Control Board (SWRCB), and involve a concern regarding the potential for petroleum vapor intrusion to remain to the building at the subject site. Thus in addition to the request contained in the September 2015 letter, ACEH requests that you address the following technical comments and send us the reports described below.

TECHNICAL COMMENTS

1. **Request for Vapor Verification Monitoring at SV-4 –** Using existing vapor monitoring standard protocols for the site, ACEH requests the collection of additional soil vapor data at the location of SV-4. The need for the recently completed Interim Remedial Actions at the subject site were partially predicated on the previously reported soil vapor concentrations from vapor well SV-4, and the resulting risk of vapor intrusion to the immediately adjacent building. Soil vapor concentrations up to 73,000 $\mu g/m^3$ benzene and 300,000 $\mu g/m^3$ ethylbenzene were reported at a location that may not contain a bioattenuation zone as indicated by 1.8 to 2.2% oxygen at duplicate vapor samples. Additionally, the presence of methane at and above the Lower Explosive Level (LEL) of 5.4 and 5.5% immediately adjacent to a building, while not a concern of the Low Threat Closure Policy (LTCP), is a safety concern to ACEH.

   ACEH requests the collection of soil vapor concentrations by TO-15 (gasoline, benzene, toluene, ethylbenzene, and total xylenes), as well as for methane, carbon dioxide, oxygen, and the tracer used at the time of sampling. Tracer concentrations should additionally be analyzed from the shroud. Using shroud tracer concentrations, the Department of Toxic Substance Control (DTSC) has guidelines for determining if a soil vapor sample is acceptable should tracer concentrations be detected in the soil vapor sample. Additional naphthalene analysis by TO-17 does not appear warranted based on existing data. Please submit a report by the date identified below.

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:

- **December 18, 2015 –** Soil Vapor Investigation
  File to be named: RO208_SWI_R_yyyy-mm-dd

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

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 E. Detterman
DN: cn=Mark E. Detterman, o, ou, email, c=US
Date: 2015.10.23 12:14:30 -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

cc: Rick Marment, 9748 Weddington Circle, Granite Bay, CA 95746,
(sent via electronic mail to: r.mar@shorewest.net)

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

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 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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

ELECTRONIC SUBMITTAL OF REPORTS

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

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

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

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

REQUIREMENTS

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

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

ATTACHMENT B
SUB-SLAB VAPOR PROBE CONSTRUCTION DETAILS

SCHEMATIC DIAGRAM OF A SUBSLAB SAMPLING PROBE