CONESTOGA-ROVERS & ASSOCIATES

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TRANSMITTAL

DATE: June 10, 2011

REFERENCE NO.: 521000

PROJECT NAME: 1137-1167 65th Street, Oakland

TO: Ms. Barbara Jakub
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RECEIVED
8:52 am, Jun 13, 2011
Alameda County
Environmental Health

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QUANTITY	DESCRIPTION
1	Work Plan for Sub-Slab Vapor Probe Installation and Sampling at 1164 Ocean Ave., Oakland, CA

- ☐ As Requested
- ☐ For Your Use
- ☒ For Review and Comment
- ☐
- ☐

COMMENTS:
Should you have any questions regarding the content of this document, please contact Robert Foss at (510) 420-3348.

Copy to: Mr. Frederic Schrag *(electronic & hardcopy)*
Mr. Dennis Parfitt

Completed by: Robert Foss [Please Print]
Signed: Robert Foss

Filing: **Correspondence File**

WORKPLAN FOR SUB-SLAB VAPOR PROBE INSTALLATION AND SAMPLING AT 1164 OCEAN AVENUE, OAKLAND, CALIFORNIA

1137-1167 65th STREET
OAKLAND, CALIFORNIA

AGENCY CASE NO. RO0000082

Prepared by:
Conestoga-Rovers & Associates

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JUNE 9, 2011
REF. NO. 521000 (14)
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1.0 INTRODUCTION

On behalf of Mr. John Nady, Conestoga-Rovers & Associates (CRA) is pleased to submit this *Workplan for Sub-slab Vapor Probe Installation and Sampling at 1164 Ocean Avenue, Oakland, California* (Workplan), for investigation of potential vapor intrusion into the building located at the rear (north end) of the property at 1164 Ocean Avenue, adjacent to and downgradient of the project site. This Workplan is in response to an Alameda County Environmental Health (ACEH) email dated March 31, 2011 regarding CRA's recommendation to install and sample shallow vapor probes beneath the asphalt of Peabody Lane and an interim step in determining potential vapor intrusion into onsite and nearby buildings. A copy of this email is included as Appendix A. ACEH is the lead agency for this site.

1.1 PROJECT SITE INFORMATION

Site Address	1137-1167 65th Street, Oakland, CA
Site Use	Commercial
Client and Contact	John Nady, Trustee of the Nady Trust Contact: Frederic Schrag
Consultant and Contact Person	CRA, Robert Foss, P.G.
Lead Agency and Contact Person	ACEH, Ms. Barbara Jakub
Agency Case No.	RO0000082

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

The site currently comprises a group of buildings separated by narrow walkways and an outside parking area. The site includes the addresses 1137, 1145, 1147 and 1167 65th Street, in Oakland. Currently, various spaces are rented to artists and musicians. The surrounding area is comprised of mixed residential, commercial and light industrial uses. Historically, the facility was used for dry cleaning operations from approximately 1935 and terminating in 1978. Figure 1 is a site vicinity map. Figure 2 is an extended site map, illustrating the site buildings as well as surrounding roadways, residences and other structures.

2.2 HISTORICAL CHEMICAL USE

Six underground storage tanks (USTs) and associated conveyance piping (Figure 2) had been associated with dry cleaning chemical storage at the site. A liquid sample from each tank was collected and analyzed in September 2001 to profile the residual fluids for removal and disposal. Five of the six tanks were removed in February 2002, while UST #5, the sixth tank, was abandoned in place with agency approval. Each sample contained varying concentrations of petroleum hydrocarbons, in the ranges of gasoline, naphtha and diesel, and probably was composed primarily of stoddard solvent, a common dry cleaning fluid. Two additional USTs had been in use on the site and were removed in 1982 and 1998. A gasoline UST and overlying dispenser was located beneath a paved area east of the buildings. This tank was removed in 1982. A heating oil tank was located beneath the sidewalk just north of the building at 1145 65th Street and removed in 1998.

3.0 ENVIRONMENTAL SETTING

Regional and Local Geology: Regionally, the site is located in the Coast Ranges Geomorphic Province of California. The origin of the local geology is apparently a prehistoric alluvial fan interfacing with marine estuarine deposits. Typical lithology of an alluvial fan consists of mixtures and interfingered lenses of gravel, sand, silt and clay. Distal alluvial fan deposits are typically smaller-grained clastic sediments, such as fine sand, silt and clay, representing a lower energy depositional environment. These alluvial fan deposits may interface with marine estuarine sediments, predominantly comprised of silt and clay mixed with organic material and some discontinuous deposits of sand and gravel. Bedrock, well below these shallow sediments, is probably Mesozoic Franciscan Formation.

Beneath surface materials (concrete or asphalt) and fill, investigations to date have shown subsurface soils to generally consist of interbedded layers of low permeability silts and clays; moderately permeable mixtures of sandy silt and silt; and silty sands with slightly higher permeabilities. Elevation of the site is approximately 35 feet above mean sea level (ft amsl) and local topography is generally flat.

Local Hydrogeology: Several water-bearing transmissive zones have been inferred beneath the site and vicinity. Within each zone, transmissive sediments may not be laterally continuous across the site. These zones are described, as follows:

- A-Zone: This zone is defined as shallow, discontinuous, water-bearing sediments found at depths between approximately 3.5 and 12 feet below grade (fbg). In localized areas, perched groundwater may exist within transmissive sediments ranging in thickness from 1.5 to 2 ft, and at depths ranging from as shallow as 1 fbg to approximately 6 fbg. More extensive water-bearing transmissive sediments appear at depths of approximately 6 to 12 fbg, ranging in thickness from 1 to 6 ft. Groundwater found between 3.5 and 12 fbg may be hydraulically connected and groundwater in this zone may be semi-confined to unconfined.
- B-Zone: Boring logs from across the site suggest that this zone is less easily recognized and less defined than either the A- or C-zones. The B-zone consists of thin, discontinuous water-bearing strata of lower permeability than either the A- or C-zones. These strata consist of clayey silty sands and sandy silts, with varying amounts of gravels. This zone is located between 13 and 24 fbg, and exhibits semi-confined to confined conditions.
- C-Zone: The C-Zone consists of water-bearing, transmissive sediments found between 25 and 46 fbg, under semi-confined or confined conditions. Sediments at these depths also appear to be discontinuous.

Groundwater flow is typically calculated toward the southwest, in the general direction of San Francisco Bay, although variations have been observed during periods of heavy seasonal rains.

4.0 PREVIOUS ACTIVITIES AND INVESTIGATIONS

The following provides a general overview of prior environmental activities and investigations:

1982 Tank Removal: A gasoline UST and associated gas pump were removed in 1982. Based on depressions in the site asphalt, the gasoline UST appears to have been located directly beneath the former gasoline pump (Figure 2).

1998 Tank Removal: In 1998, a 750-gallon heating oil UST was removed from beneath the sidewalk north and in front of the 1145 65th Street building (Figure 2). Approximately 18 cubic yards of impacted soil was removed from the UST cavity and transported under manifest for disposal. Additional information is present in the December 24, 1998 *UST Removal Report,* prepared by Artesian.

2001 UST Liquid Contents Removal: In September and October 2001, liquid samples were collected from the six remaining USTs at the site. These samples were analyzed to characterize each UST's contents for disposal. The liquid in the six USTs was removed and transported under chain-of-custody for disposal as hazardous waste in November 2001. Additional information is present in the May 17, 2002 *UST Removal Report,* prepared by SCI consultants.

2002 Tank Removal and Abandonment: In February 2002, five of the six USTs were excavated and removed. The remaining UST (Interior Tank #5) was filled with cement slurry and abandoned in place. Additional information is contained in the May 17, 2002 *UST Removal Report,* prepared by SCI consultants.

2002 Soil Boring and Geophysical Survey: In November 2002, Cambria Environmental Technology Inc (Cambria) advanced 11 soil borings (SB-1 through SB-11) to further define the extent of petroleum hydrocarbons and VOCs in soil and groundwater beneath the site. Temporary wells were installed in each boring to measure groundwater depth and to collect grab groundwater samples. Additional information is provided in Cambria's February 13, 2003 *Soil and Groundwater Investigation Report*.

July 2003 Geophysical Survey: On July 7, 2003, NorCal conducted a limited site geophysical survey to identify any additional subsurface piping. Subsurface piping identified by the geophysical survey is illustrated on Figure 2.

January 2004 Soil Boring Investigation: In January 2004, Cambria advanced numerous soil borings to further define the extent of petroleum hydrocarbons and VOCs in soil and groundwater beneath the site. Soil and groundwater samples were collected from A-Zone, B-Zone and C-Zone depths. Additional information is provided in Cambria's February 24, 2004 *Interim Investigation Data Report*.

January 2004 Sensitive Receptor Survey: In January 2004, Cambria conducted a sensitive receptor survey for beneficial use wells (e.g., municipal supply, domestic, irrigation, etc.) and surface water bodies within ½-mile of the site. While several environmental monitoring wells were located during the survey, Cambria did not locate any surface water bodies or beneficial use wells within ½-mile of the site. Cambria stated that local groundwater is not currently, nor reasonably considered as a potential future source of drinking water. Cambria also conducted a conduit study to evaluate if preferential migration pathways exist near the site and merit additional investigation. No preferential migration pathways were located adjacent to the site in Peabody Lane. Based on site concentrations in grab groundwater samples near 65th Street, it is unlikely that preferential migration is occurring via the underground utilities located in

65th Street. Additional information of the January 2004 Sensitive Receptor Survey and Conduit Study can be found in Cambria's February 24, 2004 *Interim Investigation Data Report*.

May 2004 Soil Boring and Well Installation Investigation: In May 2004, Cambria drilled 13 additional soil borings and constructed monitoring wells MW-1A through MW-4A, and MW-6A and MW-7A; wells MW-1B, MW-4B, MW-5B and MW-6B; and MW-1C, MW-4C and MW-6C. Additional information is provided in Cambria's September 7, 2004 *Supplemental Soil and Groundwater Investigation Report.*

August-September 2009 Additional Site Characterization: Additional site characterization was conducted during the third quarter of 2009. This investigation included three offsite borings, four additional monitoring wells, 15 borings logged with CPT and MIP, one deep groundwater sample; and the installation and sampling of nine shallow soil vapor probes. Additional information is provided in CRA's *Additional Site Characterization Report*, dated February 25, 2010.

December 2009 Shallow Soil Vapor Sampling: An additional set of vapor samples were collected and analyzed on December 9, 2009. Analytic results of the September and December 2009 sampling of the nine vapor probes are presented in Table 1. Results of the second shallow soil vapor sampling are also included in CRA's *Additional Site Characterization Report*, dated February 25, 2010.

April-May 2011 Sub-Slab Vapor Probe Installation/Sampling and Additional Offsite Characterization: Between April 19 and 21, 2011, nine sub-slab vapor probes were installed within the four buildings located at 1137-1167 65th Street to investigate the potential for vapor intrusion, and three soil borings were advanced downgradient of the site to complete definition of the dissolved hydrocarbon and HVOC plumes in groundwater. The vapor probes were sampled on May 4 and 5, 2011. Results of sub-slab vapor sample analyses are presented in Table 2. Results of this investigation will be presented in a CRA report titled, *Sub-Slab Vapor Sampling and Additional Site Characterization Report*, in the process of being compiled and completed.

Groundwater Monitoring: Quarterly groundwater monitoring and sampling has been performed at the site since 2004. In response to State Water Resources Control Board Resolution No. 2009-0042, dated May 19, 2009, semi-annual groundwater monitoring and sampling was implemented during the second quarter of 2009. As a result, monitoring, sampling and reporting are now conducted during the first and third quarters of the calendar year. Groundwater Monitoring Reports have been submitted to the agency.

5.0 CHEMICAL DISTRIBUTION

5.1 CHEMICALS OF POTENTIAL CONCERN

The primary chemical of potential concern at the Nady site is Stoddard Solvent, a common dry cleaning chemical. Stoddard solvent is identified as Total Petroleum Hydrocarbons as stoddard solvent (TPHss). Associated with stoddard solvent is ethylbenzene, xylenes and isomers of benzene. Also present are low concentrations of Tetrachloroethene (PCE), as well as Trichloroethene (TCE), Dichloroethene (DCE) and vinyl chloride (VC). All three of these additional compounds may be present as sequential degradation products of PCE.

Gasoline-range and diesel-range hydrocarbons are also present, but based on their chromatographic patterns, appear to be the overlapped chromatographic signature of stoddard solvent rather than true gasoline or diesel.

5.2 CHEMICAL DISTRIBUTION IN SOIL

- Elevated concentrations of TPHss have been identified in the vicinity of the former Exterior and Interior USTs and conveyance piping; in an area east of the former Exterior USTs; at the southwest corner of the facility, and near the floor drain in the 1167 65th Street building. The deepest detected concentration of TPHss is at 17.5 fbg in a sample collected at the southwest corner of the facility. TPHss concentrations at this location are non-detect (ND) at 20 fbg. As referenced above, the elevated concentrations reported as TPHg and TPHd appear more likely to be Stoddard Solvent, except in the area of the former gasoline UST in the southeast corner of the property.
- Across the site, PCE was rarely identified in soil above frequently elevated detection limits. The highest concentration of PCE in soil was identified below Exterior Tank #3 at 310 milligrams per kilogram (mg/kg), or 0.31 mg/kg. Detected concentrations of PCE were all relatively shallow. TCE has not been detected in soil.
- Detected concentrations of BTEX are present downgradient of the former gasoline UST location in boring SB-14A at 7.5 fbg. A TPHg concentration of 210 mg/kg was also detected at this depth. The 11.5 fbg samples at this location were below detection levels (BDL) for these analytes.

- Slightly elevated concentrations of ethylbenzene and/or xylenes also exist southeast of the former exterior USTs. Moderately elevated concentrations of ethylbenzene and xylenes also apparently occur at depth at the southeast corner of the facility. At this location the deepest samples containing ethylbenzene and xylenes occurred at 17.5 fbg (SB-18B@17.5). No concentrations were found in a sample collected from 20 fbg at this location in the alley.
- Elevated concentrations of TPHmo-range hydrocarbons (TPHmo) were detected in shallow soil adjacent to the former heating oil UST, under the sidewalk along 65th Street. An elevated concentration of TPHmo-range hydrocarbons was reported at 5.5 fbg under Peabody Lane, southwest of the facility, but decreased to BDL at 11 fbg.

5.3 CHEMICAL DISTRIBUTION IN GROUNDWATER

A-Zone Groundwater

Moderately elevated concentrations of TPHss were found in the proximity of the former exterior USTs; to the east of the exterior USTs; at the northern defined extent of the conveyance piping; at and beyond the southwest corner of the facility; and adjacent to the floor drain in the 1167 65th Street building in groundwater samples collected in the A-Zone. Elevated concentrations of gasoline- and diesel-range hydrocarbons also are common where TPHss is detected. As previously mentioned, TPHg and TPHd concentrations are likely overlapping compounds of TPHss, rather than actual gasoline or diesel. PCE and TCE were detected in A-Zone groundwater only in the immediate vicinity of the former exterior USTs. The highest reported concentration of PCE in the A-zone was 62 micrograms per liter (µg/l) in MW-1A, just south of the exterior USTs. Dissolved gasoline-range hydrocarbons were reported near the former gasoline UST in well MW-2A at only moderately elevated levels, and are currently BDL. Only very low concentrations of BTEX have been detected in groundwater collected from the A-Zone. The current maximum reported concentration of PCE (3/28-29/2011) is 6.7 µg/l in well MW-1A. Other reported maximum concentrations from the March 2011 sampling are 2,300 µg/l TPHss and 1,000 µg/l TPHd in well MW-6A, 2,100 µg/l TPHg in well MW-3, chlorobenzene and 1,2-Dichlorobenzene (1,2-DCB) at 86 and 13 µg/l, respectively, in well MW-3A, 7.7 µg/l cis-1,2-Dichloroethene (cis-1,2-DCE) in well MW-1A. All other detected concentrations were either below reporting limits or below established ESLs.

B-Zone Groundwater

Moderately elevated concentrations of TPHss were detected near the southwest corner of the facility in 2002 and 2004 in SB-7, SB-18A and MW-6B. Historical concentrations included 5,600 µg/l from boring SB-7 (2002) and 2,100 µg/l from SB-18A (2004), both located relatively close to the MW-6 wells. Elevated concentrations of gasoline- and diesel-range hydrocarbons were also detected, although these results likely represent TPHss overlapping into the gas and diesel chromatographic ranges. Cis-1,2-DCE was detected in SB-17B at 1,100 µg/l, southwest and downgradient of the former exterior USTs. No PCE or TCE were detected in groundwater collected from SB-17B, making the elevated concentration of cis-1,2-DCE somewhat suspect. No other grab groundwater or B-Zone monitoring wells had detectable concentrations of PCE or TCE. Benzene was practically ND in grab groundwater samples collected from borings and groundwater samples from B-Zone monitoring wells. The March 2011 analytic results reported current concentrations of 850, 370 and 610 µg/l TPHss, TPHd and TPHg, respectively, in MW-6B. The only other detected constituents in B-Zone wells were relatively low concentrations of cis-1,2-DCE, 1,1-Dichloroethane (1,1-DCA) and 1,2-Dichloroethane (1,2-DCA) at 5.8, 16 and 6.1 µg/l, respectively, in well MW-1B.

C-Zone Groundwater

C-Zone TPH concentrations decrease significantly compared to A- and B-Zone results. Very few and minor concentrations of TPHss, along with gasoline-range hydrocarbons, have been detected in C-Zone groundwater beneath the site. Well MW-3C, initially sampled in September 2009, contained 79 µg/l TPHd but has been below detection levels since. Well MW-7C, initially sampled in September 2009, contained moderate concentrations of TPHss, TPHd and TPHg, but have progressively decreased to non-detected levels during the March 2011 sampling. Well MW-6C reportedly contained low levels of TPHss, TPHd and TPHg in June 2004 and has contained, essentially, no detected hydrocarbons since then. Consistently low concentrations of PCE, TCE, cis-1,2-DCE, and Vinyl Chloride have been reported in groundwater from monitoring well MW-6C, located beyond the southwest corner of the facility, and were last detected in September 2009. PCE, TCE, and cis-1,2-DCE were detected in January 2004 from C-Zone grab groundwater samples collected from SB-18B (at C-Zone depth) and SB-18C, located approximately 20 feet upgradient of MW-6C. However, more recent groundwater analytic data from well MW-C6 is more representative of current conditions. Benzene has not been detected in any C-Zone monitoring wells, but was detected at a low concentration in a C-Zone grab-groundwater sample from boring SB-18 in 2004. Minor concentrations of HVOCs have historically been reported in well MW-6C, but were not detected during the most recent sampling of that well. No C-Zone samples from the March 2011 sampling event contained detected concentrations of petroleum hydrocarbons or HVOCs.

6.0 PROPOSED SCOPE OF WORK

Based on results of the August 2009 additional site characterization fieldwork and subsequent discussions with ACEH, CRA proposed installation of sub-slab vapor probes at various locations beneath the four onsite buildings at 1137-1167 65th Street and beneath Peabody Lane, adjacent to the building at the north end of 1164 Ocean Avenue. Analysis of the nine shallow vapor probe samples, ranging in depth from 3.0 to 5.0 fbg, suggested the potential for vapor intrusion into the four onsite buildings. Upon receipt of ACEH approval, sub-slab vapor probes were installed beneath the four onsite buildings and sampled in accordance with the California Dept of Toxic Substances Control (DTSC) *Advisory – Active Soil Gas Investigation* guidance document, dated March 2010 and *Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air – Final Interim, Appendix G –Soil Gas Sampling Directly Under Building Foundations (Subslab Sampling)*, December 15, 2004 (revised February 7, 2005).

Not approved by ACEH was CRA's recommendation to install the equivalent of sub-slab vapor probes beneath the asphalt roadway of Peabody Lane. An August 3, 2010 ACEH letter implied that sampling of sub-slab vapors beneath the building located at the rear (northern end) of 1164 Ocean Avenue, adjacent to Peabody Lane, was preferable to sampling very shallow (sub-asphalt) soil vapors above areas of known vapor concentrations at 3-5 fbg beneath Peabody Lane. However, being sensitive to the business operation conducted within the building, CRA proposed to install shallow vapor probes in a sequential manner, if necessary; hence the proposal for shallow vapor probes adjacent to existing deeper probes beneath Peabody Lane. A March 31, 2011 ACEH email reiterated that vapor sampling beneath Peabody Lane could not substitute for sub-slab vapor sampling of the building adjacent to Peabody Lane. This workplan is in response to ACEH's March 31, 2011 email.

The proposed sub-slab vapor probe locations are indicated on Figure 3. CRA's Standard field procedure for the proposed scope of work is included as Appendix A. A detailed description of proposed activities is presented below.

To evaluate the potential of vapor intrusion into the building located on the north end of 1164 Ocean Avenue, CRA plans to install sub-slab vapor probes and collect sub-slab vapor samples from two locations within the building, contingent upon obtaining an access agreement. Prior to accessing the property for installation of the probes, CRA will attempt to obtain an access agreement.

The two sub-slab vapor probes will be installed and sampled in accordance with the guidance documents referenced above. After installation and sufficient time allowed for the construction materials to cure, sub-slab soil vapor samples will be collected and analyzed for TPHss, TPHg, BTEX, PCE, TCE, 1,2-DCE and VC. CRA will collect samples in 100%-certified, 1-liter summa canisters. The samples will be labeled, entered onto a chain-of-custody document and transported to Air Toxics Ltd, a California State-certified laboratory for analysis. Samples will be collected after pre-sampling preparations are complete. The pre-sampling preparations and procedures are described below in the following section.

Table 6-1, presented below, documents soil vapor analysis methods for specific compounds, sampling containers, method of sample preservation, detection limits and holding times.

TABLE 6-1
SOIL GAS ANALYSIS, SAMPLING CONTAINERS,
PRESERVATIVES, DETECTION LIMITS, AND HOLDING TIMES

Analysis and Method	*Sampling Containers*	*Preservatives*	*Detection Limit ($\mu g/m^3$)*	*Holding Times*
TPHss (Method TO-3)	Summa Canister	None	138-148	30 days
TPHg and Benzene, Ethylbenzene, Toluene, Xylenes (Method TO-15)	Summa Canister	None	107 (TPHg) and 1.6 (B), 1.88 (T), 2.17 (EB) & 2.17 (X)	30 days
PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, VC (Method TO-15)	Summa Canister	None	3.39, 2.69, 1.98, 1.98, & 1.28	30 days
Oxygen, Methane, Carbon Dioxide (Method ASTM-D1946).	Summa Canister	None	0.10%, 0.00010%, 0.01%	30 days
Helium - Leak detection (Method ASTM-D1946).	Summa Canister	None	0.05%	30 days

7.0 PRE-SAMPLING PROCEDURES, DOCUMENTATION AND WASTE MANAGEMENT

7.1 PRE-SAMPLING PREPARATIONS

Prior to performing any field activities, the proposed scope of work will be approved, an access agreement with the property owner will be negotiated, a site-specific Health and Safety Plan (HASP) will be prepared and utility clearance will be performed.

7.2 APPROVAL OF SAMPLING APPROACH

This Workplan presents the proposed scope of work for sample collection. CRA will await ACEH written approval prior to initiating access negotiations and field activities.

7.3 NEGOTIATION OF ACCESS TO 1164 OCEAN AVENUE

An access agreement will be drafted and presented to the property owners of 1164 Ocean Avenue. Necessary negotiations will ensue until an acceptable agreement can be reached or is denied.

7.4 HEALTH AND SAFETY PLAN

CRA will prepare a site-specific HASP for the proposed field activities. The HASP will be maintained onsite during field work and updated, as necessary, if conditions change. All workers will be required to review the document, abide by its requirements and sign the HASP.

7.5 UTILITY CLEARANCE

Prior to subsurface field activities, proposed sub-slab vapor probe locations will be marked based on the identification of utility conduits beneath the building. Underground Service Alert (USA) will be notified to identify utilities in the immediate area. Because of the limits of the USA survey, CRA will contract with a private utility locating service to perform an additional utility survey beneath the building. This survey should identify any shallow utility trenches beneath the building that could create a preferential pathway for subsurface vapor migration. The sub-slab vapor probe locations will be proposed based on identification of utility trenches beneath the building.

7.6 SAMPLE DOCUMENTATION

Sample containers will be labeled in the field with the job number, sample identification, date and time of sample, and requested analyses. A chain-of-custody record will be initiated and updated during handling and transport of the samples.

7.7 SUB-SLAB VAPOR PROBE LOCATIONS

CRA will define vapor probe locations by field measurements from interior building dimensions and existing structures. The building and probe locations will be accurately depicted on a scaled figure.

7.8 INVESTIGATION DERIVED WASTE

Due to the nature of the proposed work, no investigation-derived waste (IDW) is anticipated. Any debris generated during the installation of the probes will consist of concrete dust and minor amounts of subslab baserock. This will be disposed of by the vapor probe installation contractor.

8.0 REPORT

CRA will prepare and submit the *Sub-Slab Vapor Probe Investigation Report* after receipt of all analytic data. The report will include the following:

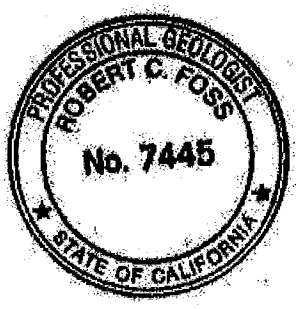
- A summary of the site background and history,
- A site map showing the sub-slab vapor probe locations,
- A description of sub-slab vapor probe installation and sampling methods,
- Tabulated analytical results,
- Analytic reports and chain-of-custody documentation,
- A description of hydrocarbon and HVOC vapor conditions beneath the slab foundation,
- A discussion of vapor concentrations and distribution at the site,
- Our conclusions and recommendations.

9.0 SCHEDULE

Upon written receipt from ACEH of workplan approval, CRA will proceed with acquiring access to the property at 1164 Ocean Avenue. Upon completion of a property access agreement, CRA will schedule the installation and sampling of sub-slab vapors beneath the building foundation. Samples will be analyzed by a State-certified laboratory. CRA will submit and uploaded the report to the ACEH website within 8 weeks of the receipt of all laboratory analytic data.

Respectfully Submitted,
CONESTOGA-ROVERS & ASSOCIATES

Bryan Fong



Robert Foss, P.G,

To the best of my knowledge, I have no argument or disagreement with the contents of this workplan.

Nady Trust U/D/T dated 1/21/1997

John Nady, trustee

FIGURES

12/19/02

H:\SB-2004\NADY\FIGURES\VICINITY-MAP.AI

FIGURE 1

0 1/8 1/4 1/2 1

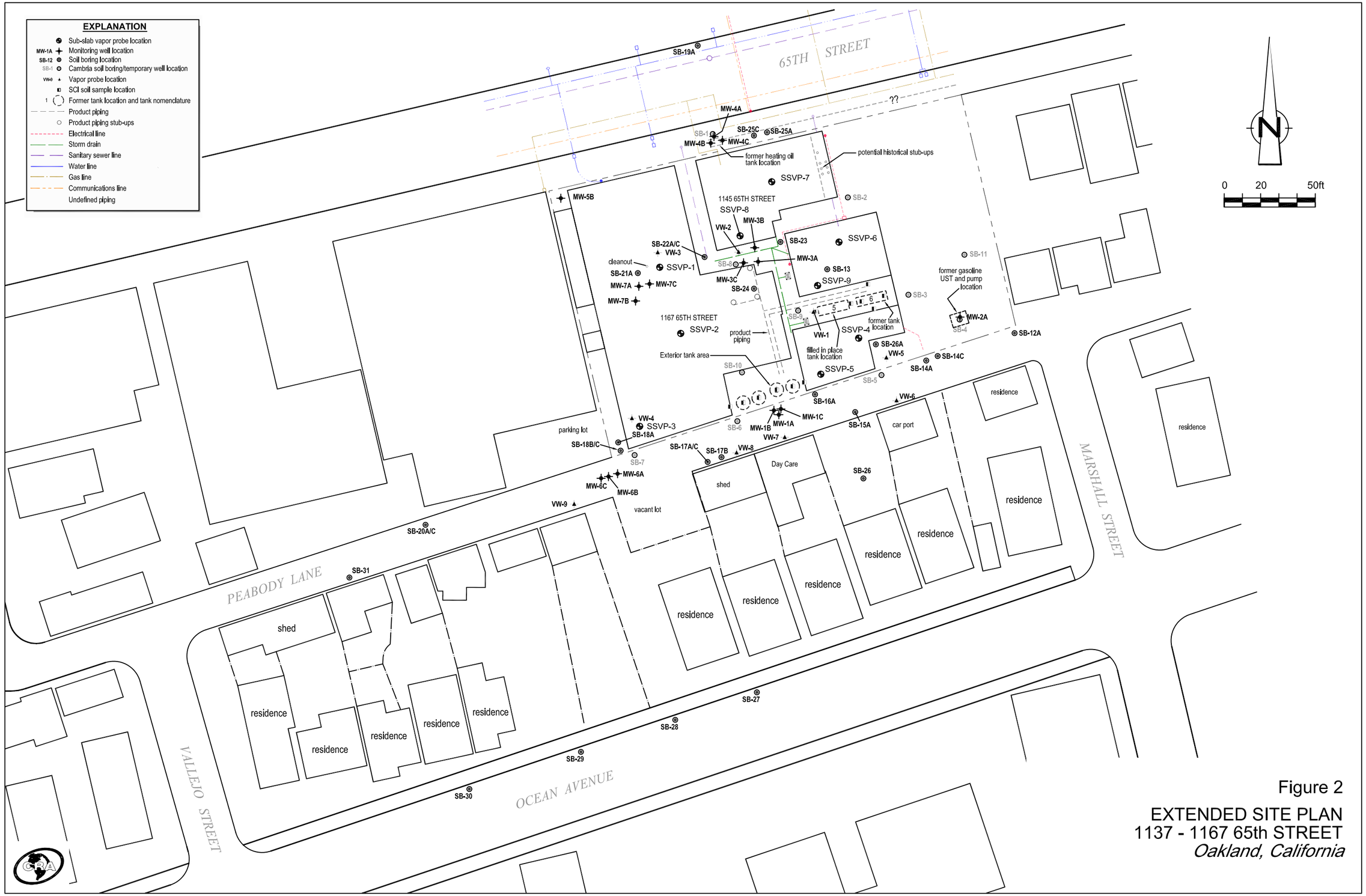
SCALE : 1" = 1/4 MILE

CONESTOGA-ROVERS & ASSOCIATES

Vicinity Map

1137 - 1167 65th Street

Oakland, California



I:\IR\6-chars\5210--\521000-Nady - Oakland\521000-FIGURES\521000 workplan figures\521000_EXT-SITEPLAN.DWG

EXPLANATION

- Sub slab vapor probe location
- Monitoring well location
- Soil boring location
- Cambria soil boring/temporary well location
- CPT - MIP boring location
- Vapor probe location
- SCI soil sample location
- 1 ( ) Former tank location and tank nomenclature
- Product piping
- Product piping stub-ups

Well ID
Date
TPHss
TPHg
Benzene
PCE
TCE
cis-1,2-DCE
Vinyl Chloride

Vapor probe designation

Analyte concentrations are in micrograms per cubic meter (µg/m³)

* Refer to analytical data for laboratory note

VW-3	
09/17/09	12/09/09
1,100,000*	---
12,000,000	6,500,000
<3,800	<81
<8,100	<170
<6,400	<140
<4,700	<100
<3,000	<65

VW-2	
09/17/09	12/09/09
650,000	---
460,000	---
<50	---
620	---
<84	---
<62	---
<40	---

VW-1	
09/17/09	12/09/09
730,000*	1,900,000*
14,000,000	6,500,000
<3,800	<460
<8,100	<970
<6,400	<770
<4,700	<570
<3,000	<360

VW-5	
09/17/09	12/09/09
1,100,000*	1,200,000*
12,000,000	7,400,000
<1,300	<350
<2,800	<750
<2,200	<590
<1,600	<440
<1,000	<280

VW-4	
09/17/09	12/09/09
11,000	---
33,000	1,100
<3,9	<3,6
170	100
<6,5	<6,0
<4,8	<4,4
<3,1	<2,9

VW-8	
09/17/09	12/09/09
21,000	---
100,000	38,000
<38	<7,4
<81	<16
<64	<12
64	46
1,600	1,300

VW-7	
09/17/09	12/09/09
<3,300	---
940	1,800
<4,0	<3,6
13	<7,6
<6,8	<6,0
<5,0	<4,4
<3,2	<2,9

VW-6	
09/17/09	12/09/09
9,300	---
51,000	---
<4,0	---
<8,6	---
<6,8	---
<5,0	---
<3,2	---

VW-9	
09/17/09	12/09/09
73,000	---
520,000	---
<36	---
<76	---
<60	---
<44	---
<29	---

0 20 50ft

Figure 3

SOIL VAPOR SAMPLING RESULTS
1137 - 1167 65th STREET
Oakland, California
September 17 and December 9, 2009

I:\IR\6-chars\5210--\521000-Nady - Oakland\521000-FIGURES\521000 workplan figures\521000_SV-Samples_2.DWG

EXPLANATION

- Sub slab vapor probe location
- Monitoring well location
- Soil boring location
- Cambria soil boring/temporary well location
- CPT - MIP boring location
- Vapor probe location
- SCI soil sample location
- 1 ( ) Former tank location and tank nomenclature
- Product piping
- Product piping stub-ups

Well ID
Date
TPHss
TPHg
Benzene
PCE
TCE
cis-1,2-DCE
Vinyl Chloride

Vapor probe designation

Analyte concentrations are in micrograms per cubic meter ($\mu g/m^3$)

* Refer to analytical data for laboratory note

SSVP-1
05/05/11
<320
<220
<3.5
230
<5.9
<4.4
<2.8

SSVP-8
05/04/11
780
<250
<3.9
1,000
10
<4.9
<3.1

SSVP-7
05/04/11
<350
<240
<3.8
170
<6.4
<4.8
<3.1

SSVP-6
05/04/11
<550
<390
<6.0
18
<10
<7.5
<4.8

SSVP-9
05/04/11
4,800
2,400
<3.7
460
8
<4.6
<3.0

SSVP-2
05/05/11
3,800
<990
<15
9,700
180
<19
<12

SSVP-3
05/05/11
<340
<240
<3.7
61
<6.3
<4.6
<3.0

SSVP-4
05/05/11
<340
<240
<3.7
13
<6.3
<4.6
<3.0

SSVP-5
05/05/11
<340
<240
<3.7
36
6.2
<4.6
<3.0

65TH STREET

PEABODY LANE

VALLEJO STREET

OCEAN AVENUE

MARSHALL STREET

1145 65TH STREET

1167 65TH STREET

former heating oil tank location

former gasoline UST and pump location

former tank location

filled in place tank location

product piping

Exterior tank area

floor drain

parking lot

vacant lot

Day Care

shed

car port

residence

residences

SB-19A, SB-1, SB-25C, SB-25A, MW-4A, MW-4B, MW-4C, SSVP-7, SB-2, MW-5B, SB-22A/C, SSVP-8, MW-3B, SB-23, SSVP-6, VW-3, SSVP-1, VW-2, MW-3A, SB-8, SB-13, SB-21A, MW-7A, MW-7C, MW-3C, SB-24, SSVP-9, SB-3, SB-11, MW-7B, SB-9, VW-1, SSVP-4, SB-4, MW-2A, SSVP-2, SB-12A, SB-26A, VW-5, SB-14C, SB-14A, CPT-MIP-1, CPT-MIP-5, CPT-MIP-6, SSVP-5, SB-5, CPT-MIP-2, VW-6, CPT-MIP-3, SB-16A, CPT-MIP-4, MW-1A, MW-1B, MW-1C, SB-15A, SB-6, CPT-MIP-7, VW-7, VW-4, SSVP-3, SB-18A, SB-18B/C, CPT-MIP-10, CPT-MIP-11, CPT-MIP-12, SB-7, MW-6A, CPT-MIP-9, CPT-MIP-8, SB-17B, VW-8, SB-17A/C, MW-6C, MW-6B, CPT-MIP-13, CPT-MIP-14, VW-9, CPT-MIP-15, SB-20A/C, SB-26, SB-31, SB-27, SB-28, SB-29, SB-30

0 20 50ft

Figure 4

ONSITE SUB-SLAB VAPOR PROBE LOCATIONS AND ANALYTICAL RESULTS
1137 - 1167 65th STREET
Oakland, California
May 2011

I:\IR\6-chars\5210--\521000-Nady - Oakland\521000-FIGURES\521000 workplan figures\521000_SSVP-Samples.DWG

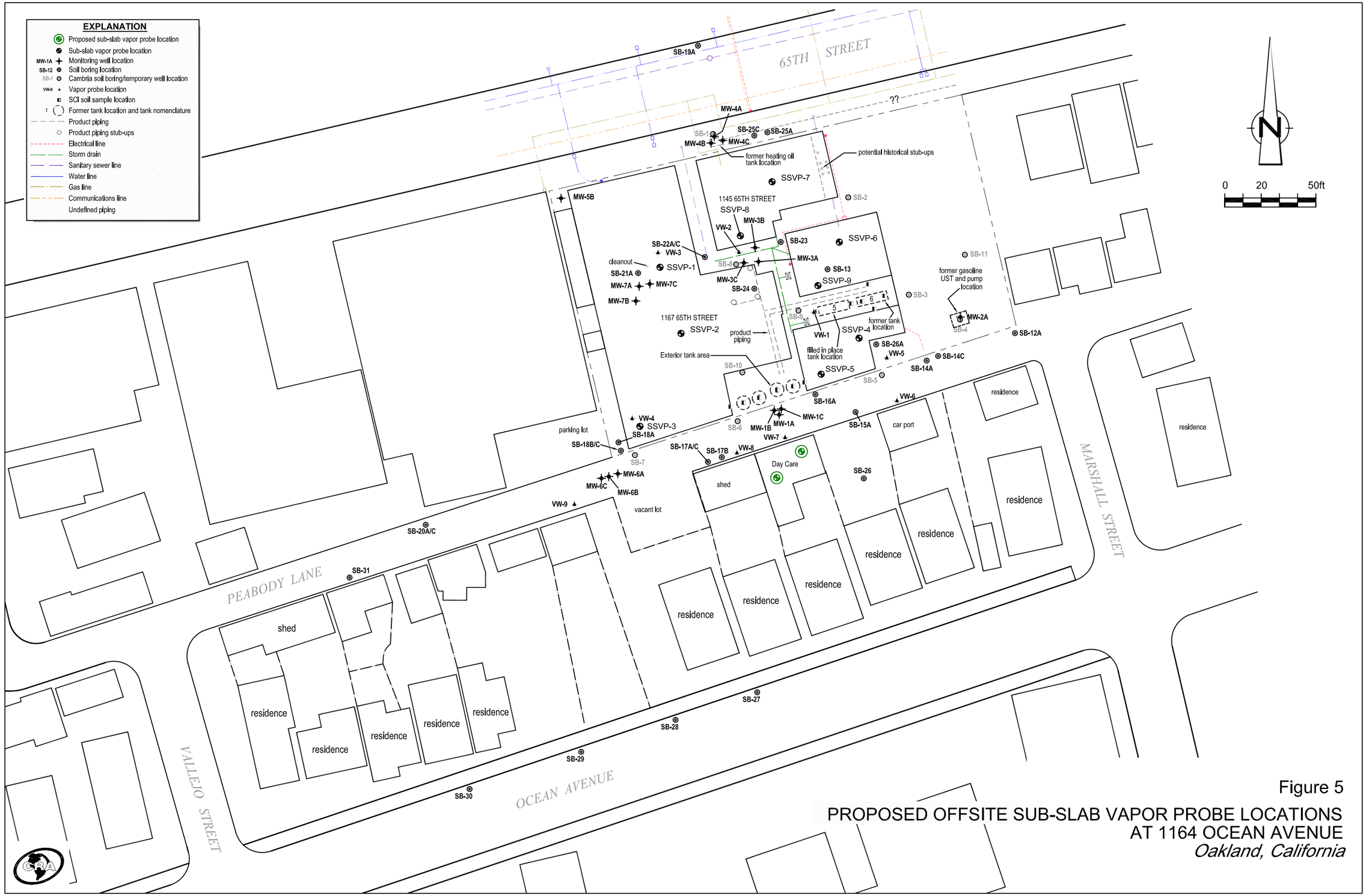


Figure 5

PROPOSED OFFSITE SUB-SLAB VAPOR PROBE LOCATIONS
AT 1164 OCEAN AVENUE
Oakland, California

I:\IR\6-chars\5210--\521000-Nady - Oakland\521000-FIGURES\521000 workplan figures\521000_PROP-OFFSITE-SUB-SLAB-VP.DWG

TABLES

TABLE 1
SOIL VAPOR ANALYTICAL DATA
JOHN NADY
1137-1167 65TH STREET
OAKLAND, CALIFORNIA

Sample ID	*Date Sampled*	*Sample Interval (fbg)*	*PCE (ug/m^3)*	*TCE (ug/m^3)*	*TPHss (ug/m^3)*	*TPHg (ug/m^3)*	*Benzene (ug/m^3)*	*Toluene (ug/m^3)*	*Ethylbenzene (ug/m^3)*	*m,p-Xylene (ug/m^3)*	*o-Xylene (ug/m^3)*	*cis-1,2-DCE (ug/m3)*	*trans-1,2-DCE (ug/m3)*	*Vinyl Chloride (ug/m3)*	*Oxygen (%)*	*Methane (%)*	*Carbon Dioxide (%)*	*Helium (%)*
VW-1	9/17/2009	4-5	<8,100	<6,400	>730,000	14,000,000	<3,800	<4,500	<5,200	<5,200	<5,200	<4,700	<4,700	<3,000	1.3	0.39	16	<0.12
	12/9/2009	**4-5**	**<970**	**<770**	**>1,900,000**	**6,500,000**	**<460**	**<540**	**<620**	**<620**	**<620**	**<570**	**<570**	**<360**	**1.3**	**0.1**	**15**	**<0.022**
VW-2	9/17/2009	4-5	620	<84	650,000	460,000	<50	<58	<68	<68	<68	<62	<62	<40	11	0.089	8.8	<0.12
	12/9/2009	**4-5**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
VW-3	9/17/2009	4-5	<8,100	<6,400	>1,100,000	12,000,000	<3,800	<4,500	<5,200	<5,200	<5,200	<4,700	<4,700	<3,000	1.2	3.2	17	<0.12
	12/9/2009	**4-5**	**<170**	**<140**	**--**	**6,500,000**	**<81**	**<95**	**<110**	**<110**	**110**	**<100**	**<100**	**<65**	**1.4**	**2.1**	**15**	**<0.13**
VW-4	9/17/2009	4-5	170	<6.5	11,000	3,300	<3.9	<4.6	<5.2	<5.2	<5.2	<4.8	<4.8	<3.1	16	0.0015	5.2	<0.12
	12/9/2009	**4-5**	**100**	**<6.0**	**--**	**1,100**	**<3.6**	**<4.2**	**<4.9**	**<4.9**	**<4.9**	**<4.4**	**<4.4**	**<2.9**	**16**	**<0.00022**	**4.9**	**<0.11**
VW-5	9/17/2009	3-4.5	<2,800	<2,200	>1,100,000	12,000,000	<1,300	<1,600	<1,800	<1,800	<1,800	<1,600	<1,600	<1,000	1.3	10	11	<0.12
	12/9/2009	**3-4.5**	**<750**	**<590**	**>1,200,000**	**7,400,000**	**<350**	**<410**	**<480**	**<480**	**<480**	**<440**	**<440**	**<280**	**1.2**	**8.3**	**8**	**<0.11**
VW-6	9/17/2009	3-4.5	<8.6	<6.8	9,300	51,000	<4.0	<4.8	<5.5	<5.5	<5.5	<5.0	<5.0	<3.2	4.6	0.013	17	<0.13
	12/9/2009	**3-4.5**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
VW-7	9/17/2009	3-4.3	13	<6.8	<3,300	940	<4.0	<4.8	<5.5	<5.5	<5.5	<5.0	<5.0	<3.2	3.8	<0.00025	13	<0.13
	12/9/2009	**3-4.3**	**<7.6**	**<6.0**	**--**	**1,800**	**<3.6**	**<4.2**	**<4.9**	**<4.9**	**<4.9**	**<4.4**	**<4.4**	**<2.9**	**1.3**	**2.1**	**10**	**<0.11**
VW-8	9/17/2009	4-5	<81	<64	21,000	100,000	<38	<45	<52	<52	<52	64	<47	1,600	1.2	1.5	17	<0.12
	12/9/2009	**4-5**	**<16**	**<12**	**--**	**38,000**	**<7.4**	**<8.8**	**<10**	**<10**	**<10**	**46**	**<9.2**	**1,300**	**1.4**	**0.79**	**11**	**<0.12**
VW-9	9/17/2009	4-5	<76	<60	73,000	520,000	<36	54	<49	51	<49	<44	<44	<29	2.5	9.5	7.5	<0.11
	12/9/2009	**4-5**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Duplicate Samples																		
VW-4-Dup (lab)	9/24/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	16	0.0015	5.2	<0.12
VW-7-Dup (field)	9/17/2009	3-4.3	12	<6.8	<3,300	940	<4.0	<4.8	<5.5	<5.5	<5.5	<5.0	<5.0	<3.2	4.0	<0.00025	13	<0.13
VW-8-Dup (lab)	9/17/2009	--	<160	<130	--	110,000	<76	<90	<100	<100	<100	<94	<94	1,800	--	--	--	--
VW-9-Dup (lab)	9/24/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	2.5	9.6	7.5	<0.11

Abbreviations and Analyses:
<n = Not dectected (ND) above laboratory detection limit, n.
>n = Compound present at concentrations exceeding instrument calibration range, n.
ug/m^3 = Microgram per cubic meter.
% = Percent
-- = Not Analyzed, Not Avaliable
ft = Measured in feet
TPHss by EPA Method TO-17
TPHg by EPA Method TO-15 GC/MS
Benzene, Toluene, Ethylbenzene, m,p&o-Xylenes and five HVOCs by modified EPA Method TO-15 GC/MS
Oxygen, Methane, Carbon Dioxide, Helium by ASTM D-1946

TABLE 2

SUB-SLAB SOIL VAPOR ANALYTICAL DATA
JOHN NADY
1137-1167 65TH STREET
OAKLAND, CALIFORNIA

Sample ID	*Date Sampled*	*Sample Interval (fbg)*	*PCE (ug/m^3)*	*TCE (ug/m^3)*	*TPHss (ug/m^3)*	*TPHg (ug/m^3)*	*Benzene (ug/m^3)*	*Toluene (ug/m^3)*	*Ethylbenzene (ug/m^3)*	*m,p-Xylene (ug/m^3)*	*o-Xylene (ug/m^3)*	*cis-1,2-DCE (ug/m3)*	*trans-1,2-DCE (ug/m3)*	*Vinyl Chloride (ug/m3)*	*Oxygen (%)*	*Methane (%)*	*Carbon Dioxide (%)*	*Helium (%)*
Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns																		
Commercial/Industrial Land Use			1,400	4,100	29,000	29,000	280	180,000	3,300	58,000	58,000	20,000	41,000	100				
Residential Land use			410	1,200	10,000	10,000	84	63,000	980	21,000	21,000	7,300	15,000	31				
SSVP-1	**5/4/2011**	**0.16**	**230**	**<5.9**	**<320**	**<220**	**<3.5**	**<4.2**	**<4.8**	**<4.8**	**<4.8**	**<4.4**	**<4.4**	**<2.8**	**18**	**<0.00022**	**2.8**	**0.69**
SSVP-2	**5/4/2011**	**0.16**	**9,700**	**180**	**3,800**	**<990**	**<15**	**<18**	**<21**	**<21**	**<21**	**<19**	**<19**	**<12**	**15**	**<0.00050**	**6.8**	**<0.25**
SSVP-3	**5/5/2011**	**0.29**	**61**	**<6.3**	**<340**	**<240**	**<3.7**	**<4.4**	**<5.0**	**<5.0**	**<5.0**	**<4.6**	**<4.6**	**<3.0**	**18**	**<0.00023**	**2.4**	**<0.12**
SSVP-4	**5/5/2011**	**0.33**	**13**	**<6.3**	**<340**	**<240**	**<3.7**	**4.7**	**<5.0**	**<5.0**	**<5.0**	**<4.6**	**<4.6**	**<3.0**	**19**	**<0.00023**	**1.6**	**1.3**
SSVP-5	**5/5/2011**	**0.33**	**36**	**6.2**	**<340**	**<240**	**<3.7**	**<4.4**	**<5.0**	**<5.0**	**<5.0**	**<4.6**	**<4.6**	**<3.0**	**19**	**0.00026**	**2.2**	**<0.12**
SSVP-6	**5/4/2011**	**0.33**	**18**	**<10**	**<550**	**<390**	**<6.0**	**7.3**	**<8.2**	**<8.2**	**<8.2**	**<7.5**	**<7.5**	**<4.8**	**35**	**<0.00088**	**1.8**	**<0.44**
SSVP-7	**5/4/2011**	**0.33**	**170**	**<6.4**	**<350**	**<240**	**<3.8**	**<4.5**	**<5.2**	**<5.2**	**<5.2**	**<4.8**	**<4.8**	**<3.1**	**20**	**<0.00024**	**1.7**	**<0.12**
SSVP-8	**5/4/2011**	**0.75**	**1,000**	**10**	**780**	**<250**	**<3.9**	**<4.6**	**<5.3**	**<5.3**	**<5.3**	**<4.9**	**<4.9**	**<3.1**	**19**	**<0.00025**	**2.4**	**<0.12**
SSVP-9	**5/4/2011**	**0.33**	**460**	**8**	**4,800**	**2,400**	**<3.7**	**<4.4**	**<5.0**	**<5.0**	**<5.0**	**<4.6**	**<4.6**	**<3.0**	**9.9**	**0.00035**	**9.1**	**0.43**
Duplicate Sample																		
SSVP-7-Dup (field)	**5/4/2011**	**0.33**	**170**	**<6.4**	**<350**	**<240**	**<3.8**	**<4.5**	**<5.2**	**<5.2**	**<5.2**	**<4.7**	**<4.7**	**<3.0**	**20.0**	**<0.00024**	**1.7**	**<0.12**

Abbreviations and Analyses:

<n = Not dectected (ND) above laboratory detection limit, n.
>n = Compound present at concentrations exceeding instrument calibration range, n.
ug/m^3 = Microgram per cubic meter.
% = Percent
-- = Not Analyzed, Not Avaliable
ft = Measured in feet
TPHss by EPA Method TO-17
TPHg by EPA Method TO-15 GC/MS
Benzene, Toluene, Ethylbenzene, m,p&o-Xylenes and five HVOCs by modified EPA Method TO-15 GC/MS
Oxygen, Methane, Carbon Dioxide, Helium by ASTM D-1946

APPENDIX A

REGULATORY CORRESPONDENCE

From: Jakub, Barbara, Env. Health [barbara.jakub@acgov.org]
Sent: Thursday, March 31, 2011 3:35 PM
To: schrag@nady.com
Cc: Foss, Bob (Robert)
Subject: RE: RO 82 Report Upload

Dear Messrs. Nady, Shrag and Foss,

Alameda County Environmental Health (ACEH) does not concur with sampling beneath the asphalt as an alternative to sub-slab sampling of the daycare facility. The conditions beneath the asphalt road are not the same as beneath the daycare facility and would not be representative of those conditions. The work would cost additional money for no added benefit and the Fund will not reimburse you for the costs incurred to perfrorm the sub sample the sub-asphalt sampling. However, ACEH concurs with the sub-slab sampling in the Wareham building, the soil borings and in preparing the SCM, to move this site along. Please perform the work and submit the following report by **July 1, 2011** – Soil and Water Investigation Report and SCM.

Regards,

Barbara Jakub, P.G.
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Pky.
Alameda, CA 94502
Direct: 510-639-1287
Fax: 510-337-9335

PDF copies of case files can be downloaded at:

http://www.acgov.org/aceh/lop/ust.htm

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

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

August 3, 2010

Mr. John Nady
Nady Systems
11 Glen Alpine Road
Piedmont, CA 94611

Subject: Work Plan Denial for Fuel Leak Case No. RO0000082 and Geotracker Global ID T0600138389, Nady System Inc., 1137 65th St., Oakland, CA 94608

Dear Mr. Nady:

Thank you for the recently submitted documents entitled*, Additional Site Characterization Report* dated February 25, 2010 and *Sub-Slab Vapor Probe Installation and Additional Site Assessment Workplan*, dated May 14, 2010, which were prepared by Conestoga-Rovers & Associates for the subject site. Alameda County Environmental Health (ACEH) staff has reviewed the case file including the above-mentioned report and work plan for the above-referenced site.

The above-mentioned work plan does not include utility/conduit locations or the rationale for locating sub-slab vapor sampling points in the street rather than within the day care center and adjacent buildings where the risk is unevaluated. The scope of work presented in the work plan has not been adequately justified and cannot be approved at this time. ACEH requests that you address the following technical comments and send us a work plan addendum plan as requested below.

TECHNICAL COMMENTS

1. **Sub-Slab Vapor Sampling Locations –** CRA proposed installing one on-site sub-slab vapor point inside the building immediately adjacent to a floor drain. However, utility conduits are not depicted on the map. Since there is a potential for contaminant vapor migration along preferential pathways (i.e. existing utility corridors) that are present at the site and in the street, we request that the locations of all conduits be depicted on the map and the soil vapor sampling points located accordingly. Please submit a conduit study with the work plan addendum by the due date requested below.

   CRA proposed off-site sub-slab soil vapor samples adjacent to buildings including a daycare. There was no discussion of the daycare building's construction presented in the

work plan (i.e. if the building is slab-on-grade or if a crawl space is present) and no explanation of why sub-slab samples are proposed adjacent to the buildings in what appears to be the street rather than in the buildings themselves to assess the vapor pathway. Once again, the conduits should be fully investigated and plotted on the map to ensure that sampling points are located appropriately.

2. **Sub-Slab Vapor Sampling Procedures –** The work plan states that workers will wait 30 minutes for the cement to cure and for equilibration of subsurface conditions. EPA's *Standard Operating Procedure for Installation of Sub-Slab Vapor Probes and Sampling Using EPA Method TO-15 to Support Vapor Intrusion Investigations* recommends allowing at least 24 hours before sampling. Please adjust your sampling in accordance with the EPA's recommendation.

3. **Site Conceptual Model –** A request for general mineral, BOD, COD, TDS, isotopes, etc. was made at the April 22, 2008 meeting. These analyses were performed in September 2009. The data obtained from these analyses was to be incorporated into a site conceptual model. This has not been submitted. At this juncture, it is appropriate to develop a site conceptual model (SCM), which synthesizes all the analytical data and evaluates all potential exposure pathways and potential receptors that may exist at the site, including identifying or developing site cleanup objectives and goals. At a minimum, the SCM should include the following, (many of which you have already completed separately):
    - Local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.) extent of contamination, direction and rate of groundwater flow, potential preferential pathways, and locations of receptors;
    - Geologic cross section maps that illustrate subsurface features, man-made conduits, and lateral and vertical extent of contamination;
    - Plots of chemical concentrations versus time;
    - Plots of chemical concentrations versus distance from the source;
    - Summary tables of chemical concentrations in different media (i.e. soil, groundwater, and soil vapor); and
    - Well logs, boring logs, and well survey maps;
    - Discussion of likely contaminant fate and transport.

    Please submit the SCM by the due date requested below.

4. **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 not by the consultant. Please ensure that all future reports and technical documents submitted for this fuel leak case are signed by Mr. Nady not the consultant.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Barbara Jakub), according to the following schedule:

- **September 30, 2010** – Work Plan Addendum with conduit study
- **Sixty Days After Soil Vapor Sampling** – SCM

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 639-1287 or send me an electronic mail message at barbara.jakub@acgov.org.

Sincerely,

Barbara J. Jakub

Digitally signed by Barbara J. Jakub
DN: cn=Barbara J. Jakub, o, ou, email=barbara.jakub@acgov.org, c=US
Date: 2010.08.03 16:58:02 -07'00'

Barbara J. Jakub, P. G.
Hazardous Materials Specialist

Enclosure: Responsible Party(ies) Legal Requirements/Obligations
ACEH Electronic Report Upload (ftp) Instructions

cc: Bob Foss, Conestoga-Rovers & Associates, 5900 Hollis St, Suite A, Emeryville, CA (via e-mail: bfoss@craworld.com)
Frederick Shrag, 6701 Shellmound Street, Emeryville, CA 94608 (via e-mail: schrag@nady.com)
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (*Sent via E-mail to: lgriffin@oaklandnet.com*)
Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Barbara Jakub, ACEH (*Sent via E-mail to: paresh.khatri@acgov.org*)
GeoTracker, File

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.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

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:** July 20, 2010
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (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 dehloptoxic@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 are not supported.
   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 dehloptoxic@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.

APPENDIX B

STANDARD FIELD PROCEDURES

Draft

Standard Operating Procedure (SOP) for Installation of Sub-Slab Vapor Probes and Sampling Using EPA Method TO-15 to Support Vapor Intrusion Investigations

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Background

Vapor intrusion is defined as vapor phase migration of volatile organic and/or inorganic compounds into occupied buildings from underlying contaminated ground water and/or soil. Until recently, this transport pathway was not routinely considered in RCRA, CERCLA, or UST investigations. Therefore the number of buildings or homes where vapor intrusion has occurred or is occurring is undefined. However, considering the vast number of current and former industrial, commercial, and waste processing facilities in the United States capable of causing volatile organic or inorganic ground-water or soil contamination, contaminant exposure via vapor intrusion could pose a significant risk to the public. Also, consideration of this transport pathway may necessitate review of remedial decisions at RCRA and CERCLA sites as well as implementation of risk-reduction technologies at Brownsfield sites where future development and subsequent potential exposure may occur. EPA's Office of Solid Waste and Emergency Response (OSWER) recently (2002) developed guidance to facilitate assessment of vapor intrusion at sites regulated by RCRA and CERCLA where halogenated organic compounds constitute the bulk of risk to human health. EPA's Office of Underground Storage Tanks (OUST) is considering modifying this guidance to include underground storage tank sites where petroleum compounds primarily determine risk and biodegradation in subsurface media may be a dominant fate process.

The OSWER guidance recommends indoor air and sub-slab gas sampling in potentially affected buildings at sites containing elevated levels of soil-gas and ground-water contamination. To support the guidance and improve site-characterization and data interpretation methods to assess vapor intrusion, EPA's Office or Research and Development is developing a protocol for sub-slab gas sampling. When used in conjunction with indoor air, outdoor air, and soil gas and/or ground-water sampling, sub-slab gas sampling can be used to differentiate indoor and outdoor sources of volatile organic and/or inorganic compounds from compounds emanating from contaminated subsurface media. This information can then be used to assess the need for sub-slab depressurization or other risk-reduction technologies to reduce present or potential future indoor air contamination due to vapor intrusion.

Sub-Slab Vapor Probe Construction and Installation

1. Prior to drilling holes in a foundation or slab, contact local utility companies to identify and mark utilities coming into the building from the outside (e.g., gas, water, sewer, refrigerant, and electrical lines). Consult with a local electrician and plumber to identify the location of utilities inside the building.

2. Prior to fabrication of sub-slab vapor probes, drill a pilot hole to assess the thickness of a slab. As illustrated in **Figure 1**, use a rotary hammer drill to create a "shallow" (e.g., 2.5 cm or 1 in) "outer" hole (e.g., 2.2 cm or 7/8 in diameter) that partially penetrates the slab. Use a small portable vacuum cleaner to remove cuttings from the hole if penetration has not occurred. Removal of cuttings in this manner in a competent slab will not compromise sampling because of lack of pneumatic communication between sub-slab material and the source of vacuum.

3. Then use the rotary hammer drill to create a smaller diameter "inner" hole (e.g., 0.8 cm or 5/16 in) through the remainder of the slab and some depth (e.g., 7 to 8 cm or 3 in) into sub-slab material. **Figure 2** illustrates the appearance of "inner" and "outer" holes. Drilling into sub-slab material will create an open cavity which will prevent obstruction of

probes during sampling by small pieces of gravel.

4. The basic design of a sub-slab vapor probe is illustrated in **Figure 3**. Once the thickness of the slab is known, tubing should be cut to ensure that probes "float" in the slab to avoid obstruction of the probe with sub-slab material. Construct sub-slab vapor probes from small diameter (e.g., 0.64 cm or 1/4 in OD x 0.46 cm or 0.18 in ID) chromatography grade 316 stainless steel tubing and stainless-steel compression to thread fittings (e.g., 0.64 cm or 1/4 in OD x 0.32 cm or 1/8 in NPT Swagelok female thread connectors) as illustrated in **Figure 4**. Use of stainless-steel materials to ensure that construction materials are not a source of VOCs.

5. Set sub-slab vapor probes in holes. As illustrated in **Figure 5**, the top of the probes should be completed flush with the slab and have recessed stainless steel or brass plugs so as not interfere with day-to-day use of buildings. Mix a quick-drying portland cement which expands upon drying (to ensure a tight seal) with water to form a slurry and inject or push into the annular space between the probe and outside of the "outer" hole. Allow cement to cure for at least 24 hours prior to sampling.

6. Install at least 3 sub-slab vapor probes in each residence. As illustrated in **Figure 6**, create a schematic identifying the location of each sub-slab probe.

Sub-Slab Sampling

1. Connect dedicated a stainless-steel fitting and tubing (e.g., 1/8 in NPT to 1/4 in tube Swagelok fitting and 30 cm or 1 ft of 1/4 in I.D. Teflon tubing to a sub-slab vapor probe as illustrated in **Figure 7**. Use of dedicated fitting and tubing will avoid cross-contamination issues.

2. Connect the Teflon tubing to 1/4" ID Masterflex (e.g., 1.4 in ID high performance Tygon LFL) tubing and a peristaltic pump and 1-L Tedlar bag as illustrated in **Figure 8**. Use of a peristaltic pump will ensure that sampled air does not circulate through a pump causing potential cross contamination and leakage.

3. Purge vapor probe by filling two dedicated 1-L Tedlar bags. The internal volume of sub-slab probes is insignificant (< 5 cm^3). A purge volume of 2 L was chosen based on the assumption of a 0.64 cm (1/4") air space beneath a slab and an affected sample diameter of 0.61 m (2 ft).

4. Use a portable landfill gas meter to analyze for O_2, CO_2 and CH_4 in Tedlar bags as illustrated in **Figure 9**.

5. Collect sub-slab vapor samples in evacuated 10% or 100% certified 1-L Summa polished canisters and dedicated particulate filters as illustrated in **Figure 10**. Check vacuum in canisters prior to sampling. Sampling will cease when canister pressure reaches atmospheric pressure. Submit canisters to a commercial laboratory for analysis by EPA Method TO-15.

6. Collect at least one duplicate sub-slab sample per building using dedicated stainless-steel tubing as illustrated in **Figure 11**.

Figure 1. Drilling through a slab

Figure 2. "inner and "outer

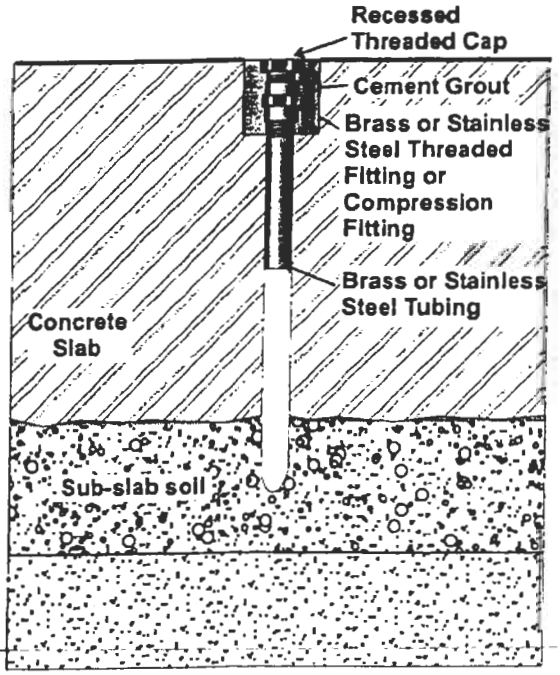

Figure 3. General schematic of sub-slab vapor probe

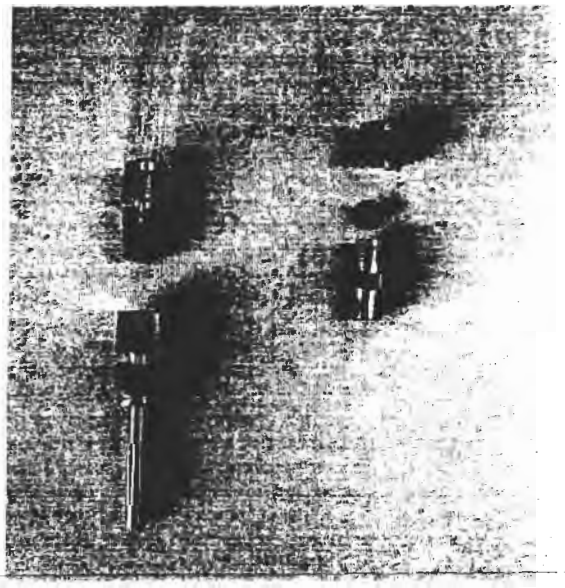

Figure 4. Stainless steel sub-slab vapor probe components

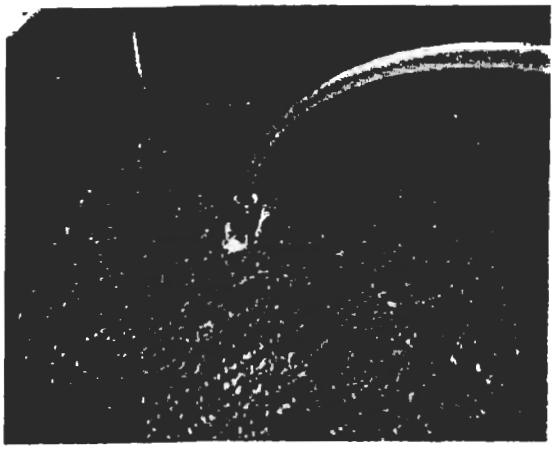

Figure 7. Compression fitting to probe

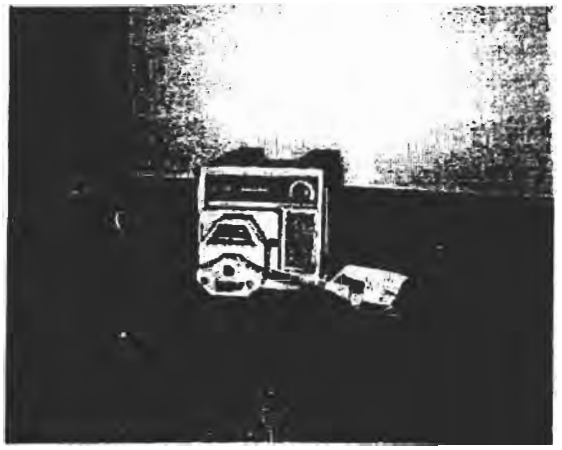

Figure 8. Purge prior to sampling

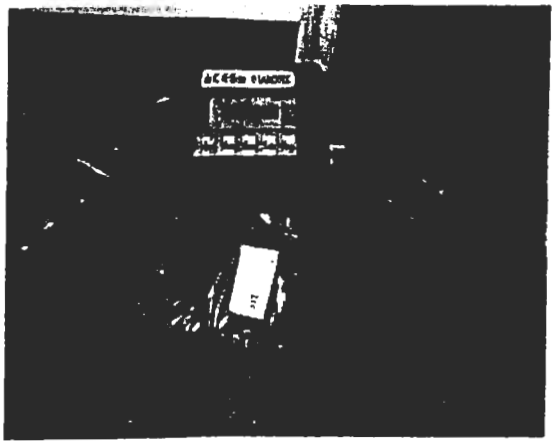

Figure 9. Analysis of O2, CO2, and CH4

Figure 10. Sampling in 1-L evacuated canister for TO-15 analysis

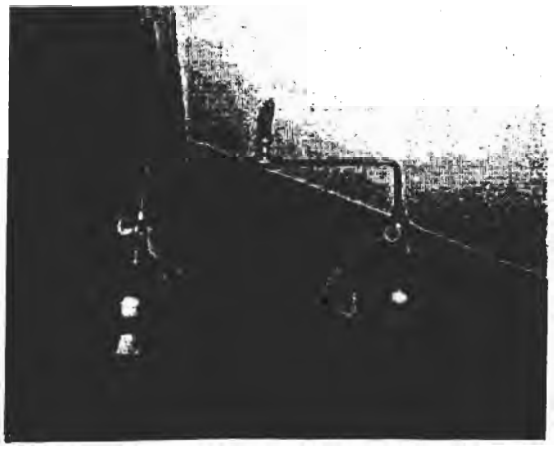

Figure 11. Collection of duplicate sample

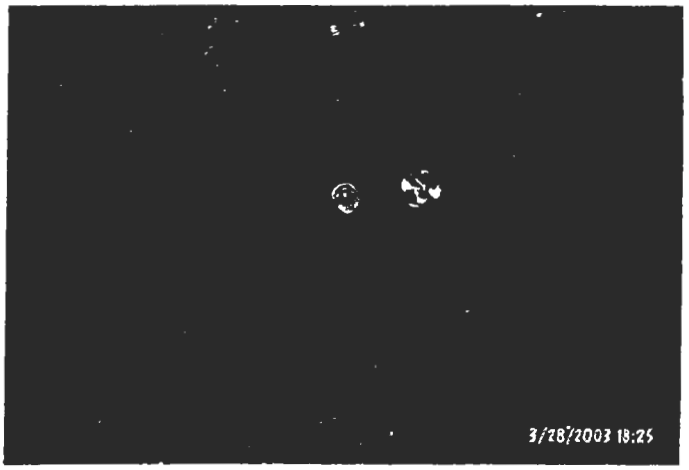

Figure 5. Competed vapor probe installation

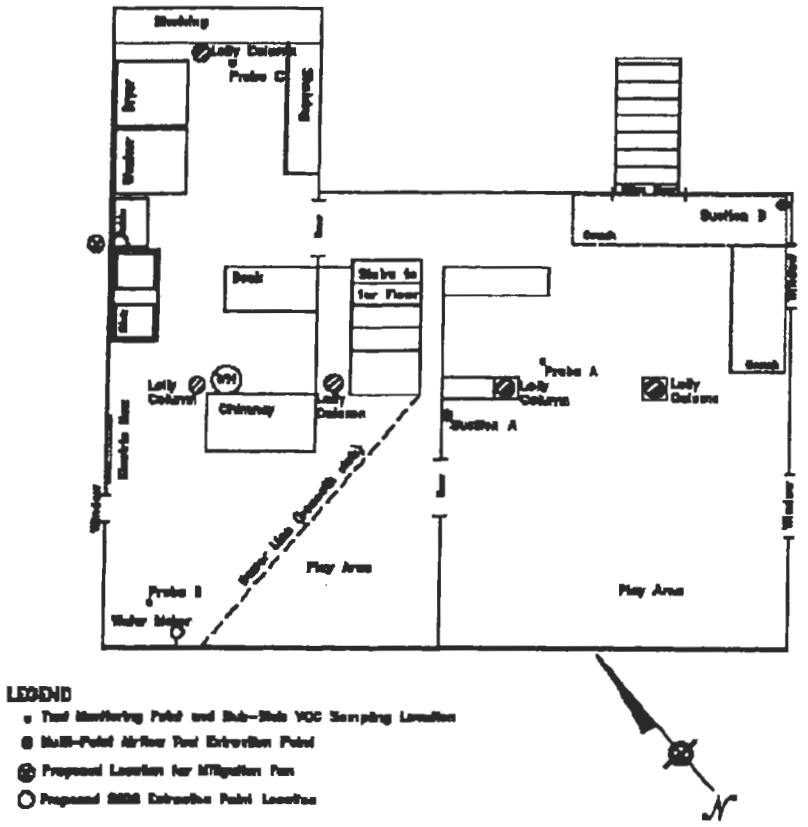

Figure 6. Schematic illustration location of vapor probes in a basement