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By Alameda County Environmental Health 3:33 pm, Aug 04, 2015

July 31, 2015

Ms. Karel Detterman  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

SUBJECT: INDOOR AIR AND SOIL GAS INVESTIGATION WORK PLAN  
CERTIFICATION  
County File # RO 2991  
Acts Full Gospel Church & Industrial Properties  
8410 Amelia Street  
Oakland, California

Dear Ms. Detterman:

You will find attached one copy of the following document prepared by P&D Environmental, Inc. for the subject site:

- Indoor Air and Soil Gas Investigation Work Plan dated July 31, 2015 (document 0453.W5).

I declare, under penalty of perjury, that the information and/or recommendations contained in the above-mentioned document for the subject site is true and correct to the best of my knowledge.

Should you have any questions, please do not hesitate to contact me at 510-652-4950.

Sincerely,

Amelia Street Partners, LLC

Kevin Perkins

Attachment

0453.L7

# **P&D ENVIRONMENTAL, INC.**

**55 Santa Clara Avenue, Suite 240**

**Oakland, CA 94610**

**(510) 658-6916**

July 31, 2015

Work Plan 0453.W5

Ms. Karel Detterman

Alameda County Environmental Health

1131 Harbor Bay Parkway, Suite 250

Alameda, CA 94502

**SUBJECT: INDOOR AIR AND SOIL GAS INVESTIGATION WORK PLAN**

County File # RO 2991

Acts Full Gospel Church & Industrial Properties

8410 Amelia Street

Oakland, California

Dear Ms. Detterman:

P&D Environmental, Inc. (P&D) has prepared this indoor air and soil gas investigation work plan for delineation of the extent of sub-slab soil gas tetrachloroethene (PCE) concentrations exceeding 42 micrograms per cubic meter (ug/m<sup>3</sup>) and evaluation of indoor air quality for the presence of PCE and trichloroethene (TCE). The work scope includes installation of new Vapor pins and the sampling of new and existing Vapor Pins, in addition to sampling indoor and ambient air.

This work plan has been requested by the Alameda County Department of Environmental Health (ACDEH) to address data gaps for the non-fuel release case associated with the site .

A Site Map showing PCE concentrations in sub-slab soil gas is attached with this work plan as Figure 1, and a Site Map Detail showing PCE concentrations in sub-slab soil gas is attached as Figure 2. All work will be performed under the direct supervision of an appropriately licensed California professional.

## **BACKGROUND**

A detailed discussion of the site background is provided in Basics Environmental, Inc.'s (Basics) February 29, 2008 Phase I Environmental Site Assessment Report, P&D's July 27, 2015 Request for Fuel UST No Further Action Concurrence (document 0453.R2), and P&D's July 29, 2015 Subsurface Investigation Report (document 0453.R3).

## **SCOPE OF WORK**

To further evaluate the extent of PCE in sub-slab soil gas, indoor air and ambient air at the subject site, P&D proposes to perform the following activities.

- Prepare a health and safety plan and mark drilling locations for Underground Service Alert.
- Provide notification to tenants prior to indoor air sample collection.
- Perform a chemical inventory.
- Oversee installation of Vapor Pins at four locations designated as SS22 through SS25, and collect sub-slab soil gas samples at new and existing Vapor Pin soil gas plume perimeter locations.
- Collect indoor air samples at three locations designated as IA1 through IA3, and collect one ambient air sample designated as AA1.
- Arrange for sample analysis.
- Prepare a report.

Each of these is discussed below.

The soil gas samples will be collected immediately following completion of the collection of the indoor and ambient air samples. The soil gas and indoor and ambient air samples will be collected in accordance with procedures recommended in the following San Francisco Bay Regional Water Quality Control Board (SFRWQCB) and Department of Toxic Substances Control (DTSC) documents:

- DTSC October 2011 – Vapor Intrusion Guidance,
- DTSC October 2011 Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance).
- DTSC March 2012 Vapor Intrusion Public Participation Advisory,
- DTSC April 2012 Advisory – Active Soil Gas Investigations,
- DTSC March 2013 – FAQ for the 2012 Advisory – Active Soil Gas Investigations,
- SFRWQCB December 2013 User’s Guide: Derivation and Application of Environmental Screening Levels
- SFRWQCB October 16, 2014 Draft Interim Framework for Assessment of Vapor Intrusion at TCE-Contaminated Sites in the San Francisco Bay Region.

#### Prepare a Health and Safety Plan

A health and safety plan will be prepared for the scope of work identified in this work plan. In addition, the drilling locations will be marked with white paint and Underground Service Alert will be notified for underground utility location.

#### Vapor Pin Installation and Sample Collection

Flush-mounted Vapor Pins will be installed at locations SS22 through SS25 for sub-slab soil gas sample collection location at the approximate locations shown in Figure 2. The Vapor Pins will be installed by IMX, Inc. of Oakland, California, in accordance with Vapor Pin manufacturer recommendations to evaluate PCE and TCE soil vapor concentrations beneath the building floor slab.

Each drilling location will be evaluated to verify that the concrete slab has been fully penetrated. No soil will be removed from the ground at any of the drilling locations, and for this reason no boring logs will be prepared. Following soil gas sample collection the Vapor Pins will be left in place and capped pending review of the results by the ACDEH.

The Vapor Pins will not be sampled for a minimum of two hours following Vapor Pin installation. Soil gas samples will not be collected if more than ½ inch of precipitation has occurred during the five days prior to the scheduled sampling date.

Vapor Pin samples will be collected at the following locations and in the following manner.

- Soil gas plume interior locations SS3 and SS8 to determine if changes have occurred at these locations when compared to 2013 and 2014 results.
- Soil gas plume perimeter locations SS2, SS10, SS11, SS12, SS13, SS20 and SS21 (see Figure 2) to verify that the extent of the detected HVOC sub-slab soil gas concentrations have been defined to below concentrations that are 20 times greater than their respective indoor air commercial land use ESL values.
- Location SS4 to verify the presence of PCE at this location.

A soil gas sampling manifold with a 1-liter Summa canister as the sampling canister for each location (see Figure 3) will be assembled in a shroud consisting of a 35-gallon Rubbermaid bin that has been modified by cutting viewing ports into the sides of the shroud and covering the viewing ports with transparent polycarbonate sheets. A hole measuring approximately two inches square in the bottom of the shroud allows the shroud to cover the vapor pin while still allowing access to the vapor pin through the bottom of the bin. At the time that the sampling manifold is assembled, the vacuum for the sample canister will be verified with a vacuum gauge and recorded.

Prior to sampling the Vapor Pin, a 10 minute shut-in test of the sampling manifold will be performed by closing the valve located between the filter and the pressure gauge, opening the purge canister valve, and recording the manifold system vacuum (see Figure 3). No purge testing for purge volume determination will be performed because the samples will be collected using 1-liter Summa canisters, and the volume of the canisters is substantially larger than the purge volumes used for purge volume testing. Following successful verification of the manifold shut-in test, a default of three purge volumes will be extracted prior to sample collection. The purge volume will be calculated based on the void space below the vapor pin plus the volume of the tube that extends through the vapor pin and the volume of the tubing that connects the vapor pin to the sample media. The purge time will be calculated using a nominal flow rate provided by the flow controller of 150 cubic centimeters per minute.

Following completion of the purging of three volumes, a lid will be placed onto the shroud and a tracer gas 1,1-Difluoroethane (DFA) will be sprayed into the shroud interior for one second through a tube connected to a hole in the side of the shroud. Gloves in the lid of the shroud will be used to open the sample canister valve. After verifying that low flow conditions are not present associated with the soil gas sample, an air sample will be collected from the shroud atmosphere to quantify the shroud tracer gas concentration while the soil gas sample is being collected. The shroud atmosphere sample will be collected into a Tedlar bag that is placed into a vacuum chamber

with the Tedlar bag inlet connected to a new piece of Teflon or polyethylene tubing that is inserted into the shroud atmosphere through a hole in the side of the shroud.

Once the vacuum for the sample canister valve has decreased to 5 inches of mercury, the gloves in the lid of the bin will be used to close the sample canister valve. The pressure gage on the inlet side of the flow controller (see Figure 3) will be monitored during sample collection to ensure that the vacuum applied to the soil gas well does not exceed 100 inches of water.

One duplicate soil gas sample will be collected into a Summa canister from one of the Vapor Pins for each 10 Vapor Pin locations sampled using a stainless steel sampling tee for the Summa canisters using methods described above. Following soil gas sample collection, a PID will be connected to the Vapor Pin to obtain a preliminary field value for the sample collection location. The soil gas Summa canisters will be stored in a box and promptly shipped to the laboratory for extraction and analysis.

Chain of custody procedures will be observed for all sample handling. Measurements of vacuums, purging and equilibration time intervals, and PID readings will be recorded on Soil Gas Sampling Data Sheets.

All Vapor Pin construction equipment will be cleaned with an Alconox solution wash followed by a clean water rinse prior to use at each location. New or cleaned Vapor Pins with new silicone sleeves will be used at each sample collection location. Clean, unused vacuum gages and stainless steel sampling manifolds will be used at each sample collection location. The Vapor Pins will be left in the floor slab pending review of the sample results with the ACDEH.

#### Tenant Notification

Prior to indoor air sampling, notification of the purpose and schedule for the air sampling will be provided to tenants in the building prior to the beginning of air sampling.

#### Chemical Inventory

An inventory of all chemicals will be performed for all tenant spaces in the warehouse prior to performing the indoor air sample collection. Any chemicals identified to potentially contain chlorinated solvents will be removed from the building prior to indoor air sampling.

#### Indoor and Ambient Air Sample Collection

To evaluate indoor air quality, three indoor air samples designated as IA1 through IA3 and one outdoor air sample designated as AA1 will be collected during a 24-hour period at locations where the highest concentrations of sub-slab soil gas has been historically detected. Prior to sample collection, notification will be provided to the building tenants. In addition, a chemical inventory will be performed for all tenant spaces.

The indoor air samples (see Figure 2) and ambient air sample (see Figure 1) will be collected during a 24-hour period using SIM-certified 6-liter Summa canisters equipped with SIM-certified 24-hour

mass flow controllers. One duplicate indoor air sample will be collected with a SIM-certified stainless steel tee. The ambient air sample will be collected beginning at a time before the indoor air samples are collected and ending after the indoor air samples have been collected. At all sample collection locations the inlet to the Summa canisters will be located between 4 and 6 feet above the ground surface.

After approximately 24 hours the valves to the Summa canisters will be closed with a minimum remaining vacuum of 2 inches of mercury, and the Summa canisters will be stored in a box and promptly shipped to the laboratory for extraction and analysis. Chain of custody procedures will be observed for all sample handling.

### Sample Analysis

All of the Summa canister soil gas and air samples will be analyzed at Air Toxics Limited of Folsom California. The soil gas samples will be analyzed for Volatile Organic Compounds (VOCs) including PCE and for DFA (the tracer gas) using EPA Method TO-15. The analyses will be performed with detection limits that equal or are less than SFRWQCB December 2013 Table E-2 soil gas commercial/industrial Environmental Screening Levels (ESLs). All of the Tedlar bags will be analyzed using EPA Method TO-15 for the tracer gas DFA.

All of the air samples will be analyzed for VOCs including PCE and associated decomposition products trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride by EPA Method TO-15 with detection limits less than or equal to SFRWQCB December 2013 Table E-3 commercial ambient indoor air Environmental Screening Levels.

### Report Preparation

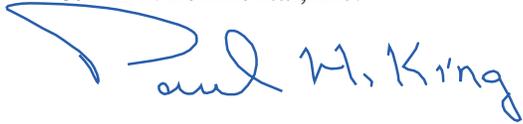
Upon receipt of the laboratory analytical results, a report will be prepared. The report will document the results of the soil gas sample collection procedures and sample results. The report will include maps showing the sample collection locations, tables summarizing the sample results, recommendations based on the results, and the stamp of an appropriately registered professional. A copy of the report and associated laboratory information will be uploaded to the County ftp site and to GeoTracker.

July 31, 2015  
Work Plan 0453.W5

Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental, Inc.



Paul H. King  
California Professional Geologist #5901  
Expires: 12/31/15



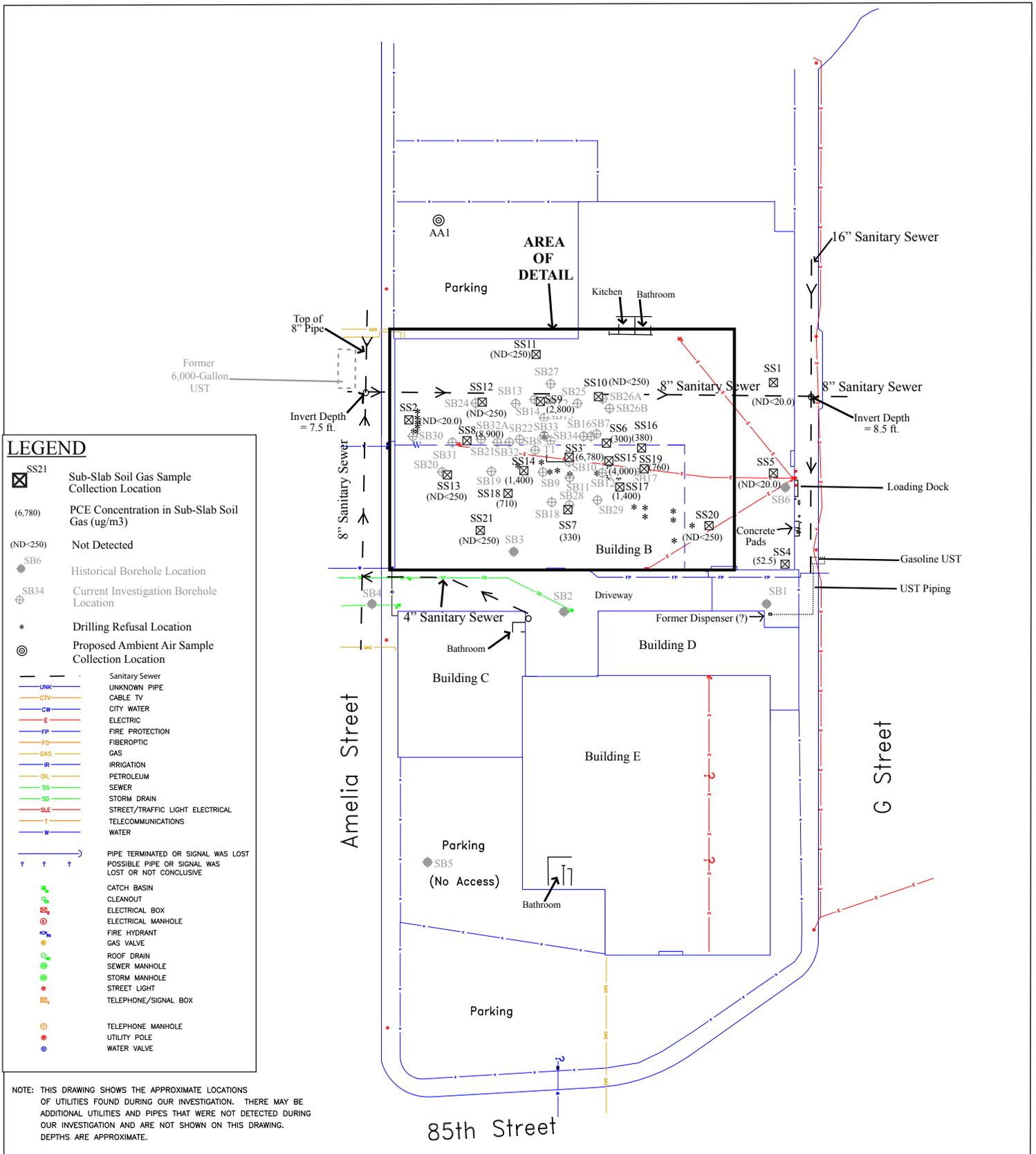
Attachments:

Figure 1 - Site Map Showing PCE Concentrations in Sub-Slab Soil Gas  
Figure 2 - Site Map Detail Showing PCE Concentrations in Sub-Slab Soil Gas  
Figure 3 - Typical Soil Gas Sampling Manifold

Cc: Mr. Kevin Perkins, Amelia Street Partners, LLC, 1475 Powell Street, Suite 201, Emeryville, 94608

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0453.W5

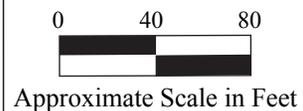
# **FIGURES**

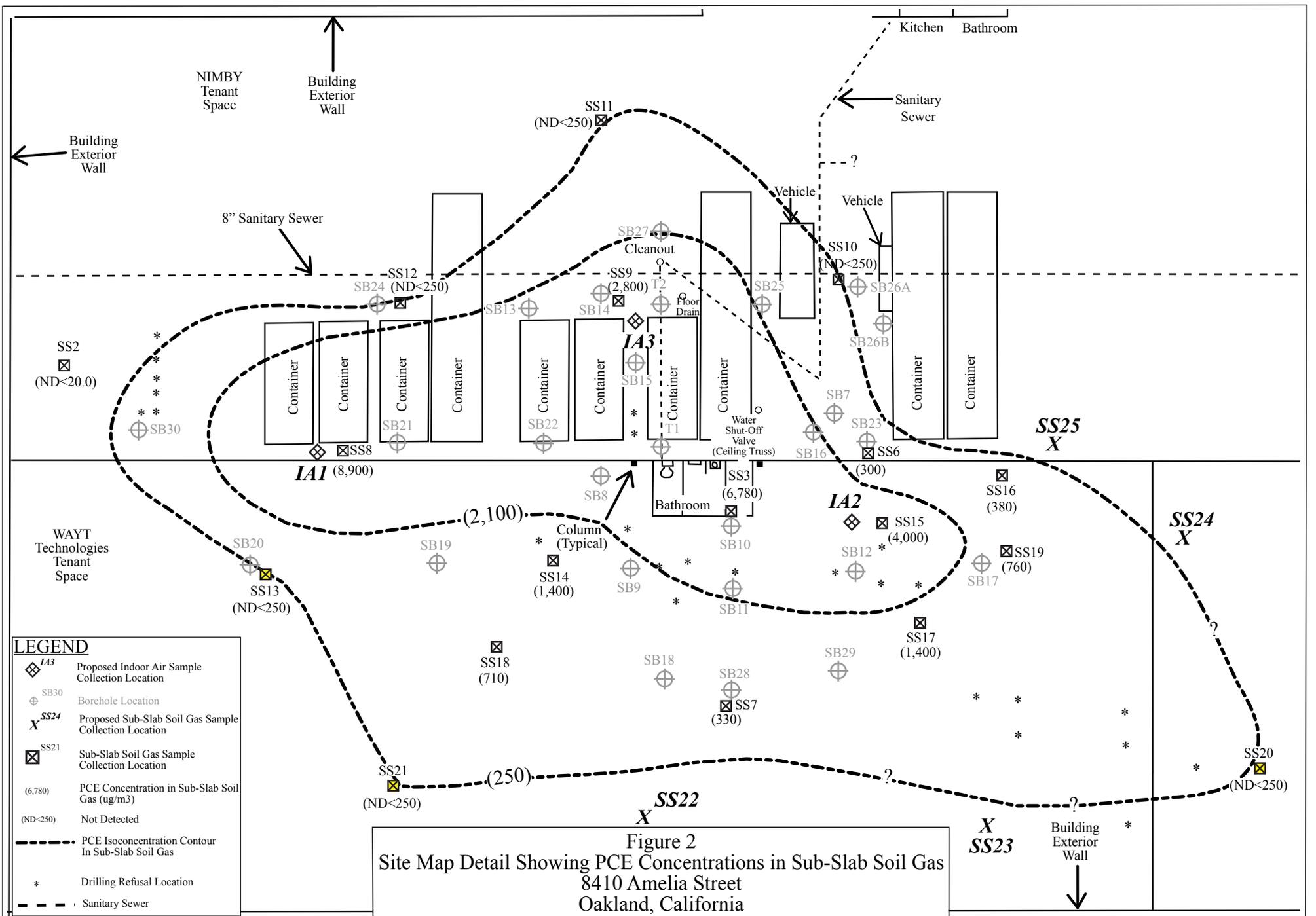


**Figure 1**  
**Site Map Showing PCE Concentrations in Sub-Slab Soil Gas**  
**8410 Amelia Street**  
**Oakland, California**

Base Map From:  
 Basics Environmental, Inc., May 2008,  
 JR Associates, September 2011,  
 The Plumbing Ministry, October 2011,  
 P&D Environmental, Inc., October 2011

P&D Environmental, Inc.  
 55 Santa Clara Avenue  
 Oakland, CA 94610





Base Map from:  
 The Plumbing Ministry, October 2011,  
 P&D Environmental, Inc., January 2014

P&D Environmental, Inc.  
 55 Santa Clara Ave., Suite 240  
 Oakland, CA 94610

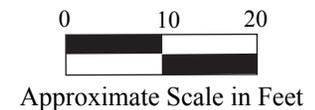




Figure 3  
Typical Soil Gas Sampling Manifold  
8410 Amelia Street  
Oakland, California

P&D Environmental, Inc.  
55 Santa Clara Ave., Suite 240  
Oakland, CA 94610