

**Amelia Oakland, LLC
5821 Pinewood Road
Oakland, California 94611**

Ms. Dilan Roe
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

RECEIVED
By Alameda County Environmental Health 9:44 am, Jun 06, 2017

Re: 8410-30 Amelia Street – Acknowledgement Statement
Oakland, California
ACDEH Case No. RO00003240

Dear Ms. Roe:

Amelia Oakland, LLC, has retained the environmental consultant referenced on the attached report for the project referenced above. The attached report is being submitted on behalf of Amelia Oakland, LLC.

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the State Water Resources Control Board's GeoTracker website.

Sincerely,



Matthew Friedman
Amelia Oakland, LLC



June 2, 2017

Steve Wolmark
Amelia Oakland LLC
5821 Pinewood Road
Oakland CA 94611

Re: **Vapor Intrusion Assessment Workplan – Buildings C, D & E**
8410 – 8430 Amelia Street, Oakland, CA
GeoTracker Global ID T10000010203
ACDEH Site Cleanup Program RO0003240

Dear Mr. Wolmark:

PANGEA Environmental Services, Inc. (PANGEA) prepared this *Vapor Intrusion Assessment Workplan – Buildings C, D & E* (Workplan) for the subject property. The purpose of this Workplan is to further evaluate potential vapor intrusion concerns for Buildings C, D, and E by resampling existing subslab gas probes and sampling crawl space/indoor air for potential chemicals of concern. Prior vapor intrusion assessment was documented in the *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan* dated October 26, 2016 and the *Interim Remedial Action Plan* dated April 3, 2017. This Workplan was requested during a meeting with Alameda County Department of Environmental Health on March 1, 2017.

If you have any questions or comments, please call me at (510) 435-8664 or email briddell@pangeaenv.com.

Sincerely,
Pangea Environmental Services, Inc.

A handwritten signature in blue ink, appearing to read "Bob Clark-Riddell".

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Vapor Intrusion Assessment Workplan – Buildings C, D & E*

PANGEA Environmental Services, Inc.



VAPOR INTRUSION ASSESSMENT WORKPLAN – BUILDINGS C, D & E

8410 – 8430 Amelia Street
Oakland, CA
ACDEH Case # RO0003240

June 2, 2017

Prepared for:

Steve Wolmark
Amelia Oakland LLC
5821 Pinewood Road
Oakland CA 94611

Prepared by:

PANGEA Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, California 94612

Written by:



Ron Scheele, P.G.
Principal Geologist

Bob Clark-Riddell, P.E.
Principal Engineer

PANGEA Environmental Services, Inc.

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1.0 INTRODUCTION

PANGEA Environmental Services, Inc. (PANGEA) prepared this *Vapor Intrusion Assessment Workplan – Buildings C, D & E* (Workplan) for the subject property (Site). The purpose of this Workplan is to further evaluate potential vapor intrusion concerns for Buildings C, D, and E by resampling existing subslab gas probes and sampling crawl space/indoor air for potential chemicals of concern. Prior vapor intrusion assessment was documented in Pangea's *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan* dated October 26, 2016 and the *Interim Remedial Action Plan* dated April 3, 2017. This Workplan was requested during a meeting with Alameda County Department of Environmental Health (ACDEH) on March 1, 2017.

1.1 Workplan Background

Prior site assessment activities documented volatile organic compound (VOC) impact primarily located in the northern portion of the Site beneath Buildings A and B. Limited VOC impact was identified in the subsurface beneath Buildings C, D and E, the subject of the current investigation within this Workplan. Subsurface VOC impact is presented on Figure 4. VOC impact in subslab/soil gas, indoor air, and groundwater is summarized on Tables 1, 2 and 3, respectively.

Prior assessment also reported select VOCs in indoor air above commercial environmental screening levels (ESLs) in all tested buildings: Buildings A and B at the northern portion of the Site, and Buildings C and D at the southern portion of the Site. Indoor air testing was not conducted in Building E.

The primary concern for the southern portion of the Site is PCE that was detected at a concentration of 5.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in an indoor air sample taken from Building C on June 16, 2016. To help evaluate potential VOC sources and preferential pathways, Pangea inspected Building C and its underlying crawl space and screened air for VOCs with a PID on December 19, 2016. For Building C, no VOCs were detected by the PID and no obvious containers with VOCs were observed during the screening. PID readings and potential VOC sources within Buildings D and E and recent Site activity relevant to the proposed vapor intrusion assessment is described further in Sections 2.5 and 2.6.

In May, 2017, trench plugs were installed around sewer lines that run under Buildings C, D, and E. The trench plugs mitigate potential VOC soil gas migration along the sewer lines from Building B.

Other VOCs (including benzene and ethylbenzene) were detected in indoor air samples from Buildings C and D. As documented in *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan*, the benzene and ethylbenzene impact reported in indoor air may be due to onsite vehicle use and storage.

The goal of the current assessment is to further evaluate potential VOC vapor intrusion concerns for Buildings C, D, and E. If VOCs do represent a vapor intrusion concern, additional assessment and/or mitigation measures will be implemented to safeguard future tenants. Pangea notes that the epoxy coating planned for Buildings D and E will provide additional mitigation of any potential vapor intrusion risk, and the crawl space under Building C will also mitigate vapor risk. Site occupancy is scheduled to commence on September 1, 2017.

2.0 SITE BACKGROUND

The Site is located in a mixed use residential/industrial area of Oakland in Alameda County, California. The Site is surrounded by commercial properties to the southwest and northwest and by residential properties to the northeast and southeast. Available data suggests the Site has been impacted by an offsite VOC plume originating northeast of the Site. Select VOC impact found onsite may be due to historical chemical use at the Site. The Site location is shown on Figure 1. An aerial photograph showing the Site and nearby properties is shown on Figure 2. A detailed Site map with building labels and addresses is shown on Figure 3. Subsurface VOC impact is presented on Figure 4.

2.1 Regulatory Cases at Site

Regulatory oversight is currently provided by the ACDEH under case #RO0003240 for site redevelopment plans spanning 8410 through 8430 Amelia Street. ACDEH is also providing oversight for under case #RO0002991 for the Acts Full Gospel Church & Industrial Properties associated with “8410 Amelia Street”. A LUST case under the name Dreisbach Associates for 8410 Amelia Street was closed in January 2000 pertaining to former underground storage tanks (USTs) beneath Amelia Street (ACDEH case# RO000889).

2.2 Current, Historic, and Planned Site Use

The Site consists of three parcels which total approximately 3.5 acres in size. The Site consists of five industrial buildings (Buildings A through E). All Site buildings have slab on grade construction, except Building C which has a crawl space. A detailed Site map with building labels and addresses is shown on Figure 3.

The southern portion of the property (for the current work scope) is occupied by Building C (8420A&B Amelia), Building D (8420C Amelia), and Building E (8430 Amelia). All of these buildings are currently vacant and undergoing initial tenant improvements. Until February 2017, Building C was occupied by NIMBY; Building D was occupied by a motorhome, motorcycle, and storage materials; and Building E was occupied by V&U Towing who conducted vehicle maintenance. As noted in a 2008 Phase I ESA prepared by Basics Environmental, Building C was previously segregated into three office units and occupied by D&J International, Inc., Shred Works, and Act Church. Building D and E were previously occupied by Act Church.

The property owner, Amelia Oakland LLC, has plans to improve buildings C, D and E for industrial uses.

2.3 Onsite Chemicals of Potential Concern

Based on Site assessment data, the following *primary* chemicals of potential concern (COPC) have been identified in select subsurface Site media above conservative RWQCB Tier 1 ESLs: tetrachloroethene (PCE), trichloroethene (TCE), vinyl chloride, and 1,1,2,2-tetrachloroethane (1,1,2,2-PCA). Other VOCs have been detected below Tier 1 ESLs, including: acetone, cis-1,2-dichloroethene (cis-1,2-DCE) and 1,1-dichloroethene (1,1-DCE) (both degradation products of PCE and TCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA, a degradation product of 1,1,1-TCA), methyl ethyl ketone (MEK), and methyl tertiary butyl ether (MTBE).

The following petroleum hydrocarbons have been detected: total petroleum hydrocarbons as gasoline (TPHg), TPH as bunker oil (TPHbo), benzene, ethylbenzene, toluene and xylenes. Elevated TPH as diesel (TPHd) and TPH as motor oil (TPHmo) concentrations recently detected in shallow soil within an underground vault in Building B South apparently represent hydraulic fluid.

1,1,2,2-PCA is a chlorinated derivative of ethane, and has the highest solvent power of any chlorinated hydrocarbon. It was once widely used as a solvent and as an intermediate in the industrial production of PCE, TCE, and 1,2-DCE. However, 1,1,2,2-PCA is no longer used much in the United States due to concerns about its toxicity. 1,1,2,2-PCA is also used as a refrigerant under the name R-130.

The following compounds were detected above indoor air ESLs: PCE, carbon tetrachloride (CT), benzene and ethylbenzene. The presence of PCE in indoor air may be related to PCE found in the subsurface. Benzene, ethylbenzene and CT are not found beneath the Site buildings, and are presumably associated with ambient air or aboveground sources.

2.4 Historic Site Assessment

Site assessment commenced in February 2008 during a Phase I Environmental Site Assessment (ESA) by Basics Environmental, who performed a Phase II ESA to evaluate subsurface conditions in soil and groundwater May 2008. The Phase II ESA documented the presence of subsurface volatile organic compounds. P&D Environmental (P&D) completed a conduit study and additional subsurface assessment, including sampling of subslab soil gas at select locations at the Site, primarily under Building B.

Assessment discovered a trichloroethene (TCE) groundwater plume present on the northeast side of the Site which extends westward partially beneath the Site and near the sanitary sewer coming on to the Site. ACDEH has acknowledged that the TCE originates from an unidentified source located northeast of the Site. Offsite data documents up to 220 micrograms per liter ($\mu\text{g/L}$) TCE in groundwater upgradient and northeast of Site Building B. Based on the orientation of the TCE plume, the groundwater flow direction near the Site is to the southwest. The offsite TCE plume migrating onto the subject Site is illustrated on Figure 4.

The depth to groundwater was measured at approximately 5.5 to 7 feet below grade surface (ft bgs) in former monitoring wells related to the former UST in Amelia Street. The depth to groundwater was also measured at approximately 4.3 to 9.4 ft bgs in soil borings across the Site.

Recent efforts focused on delineation and evaluation of PCE and TCE in subslab gas and the potential for vapor intrusion into Building B. No significant soil impact has been identified at the Site. No PCE impact has been found in Site groundwater, but TCE concentrations do exceed Environmental Screening Levels (ESLs) established by the Regional Water Quality Control Board (RWQCB) near the east side of the Site.

In September 2011, a geophysical survey and exploratory excavation identified a former fuel dispenser pedestal associated with a former gasoline UST on the east side of the property adjacent to G Street and Buildings D and E. The UST was closed-in-place in 2013 due to structural concerns. The closure-in-place report recommended that no further action be performed based on the absence of petroleum hydrocarbons in soil at concentrations of concern for commercial/industrial land use and based on the limited extent of petroleum hydrocarbons in groundwater at the UST pit.

A detailed discussion of the Site background and prior investigations are provided in the following documents.

- Basic Environmental, Inc. (Basics) February 29, 2008 Phase I Environmental Site Assessment Report identified Recognized Environmental Conditions (RECs) at the Site.
- Basics May 7, 2008 Limited Phase II Environmental Site Sampling Report documented the drilling of six boreholes for collection of soil and groundwater samples to investigate RECs identified in the February 29, 2008 report.
- P&D October 12, 2011 Conduit Study and Work Plan documented a magnetometer survey associated with a former fuel dispenser pedestal and exploratory excavation in September 2011 which identified a former gasoline UST on the east side of the property adjacent to G Street. P&D's October 12, 2011 Conduit Study and Work Plan also documents a TCE groundwater plume that originates at an offsite source that has extended beneath the east side of the Site. Based on the orientation of the TCE plume, the groundwater flow direction near the Site is to the southwest.
- P&D July 15, 2013 UST In-Place Closure Report (document 0453.R1). At the time of in-place UST closure in 2013, it was determined that the UST was oriented perpendicular to the orientation identified in the September 2011 investigation. The report recommended that no further action be performed based on the absence of petroleum hydrocarbons in soil at concentrations of concern for commercial/industrial land use and based on the limited extent of petroleum hydrocarbons in groundwater at the UST pit.

2.5 Recent Site Assessment in 2016 and 2017

Recent site assessment completed by PANGEA is documented in PANGEA's *Phase I Environmental Site Assessment* dated August 10, 2016, PANGEA's *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan* dated October 26, 2016, and PANGEA's *Interim Remedial Action Plan* dated April 3, 2017. Site assessment in June 2016 was performed to investigate subsurface and indoor air conditions due to chlorinated VOCs associated with the open regulatory case for the Site, and to evaluate site conditions beyond the extent of prior investigation with respect to historic site use identified in the Phase I ESA. This assessment involved sampling of soil, groundwater, and subslab gas in June 2016 to further evaluate existing conditions under Building B, and to assess subsurface conditions beneath other Site buildings. Indoor air sampling was also conducted to evaluate potential vapor intrusion concerns. Pangea also installed two shallow soil vapor extraction wells and completed vapor mitigation testing.

Additional subslab and soil gas sampling was conducted in December 2016 to implement the initial work scope of the *Vapor Intrusion Assessment Workplan*. Data from the December 2016 sampling is summarized in Table 1.

Prior to the December 2016 sampling, all three buildings were screened with a PID for VOCs to look for potential VOC sources to indoor air. The PID did not detect VOC in either the building or the underlying crawl space in Building C. In Building D, VOCs at a concentration of 0.2 ppm were detected near miscellaneous cleaning supplies in the eastern portion of the building. In Building E, VOCs at a concentration ranging from 3.6 ppm to 7.5 ppm were detected near a shelving unit with paints, primers, and paint thinners along the northern building wall. VOCs at a concentration of 0.5 ppm were also detected near some miscellaneous cleaners in the southeastern corner of the building.

In March 2017, Pangea inspected subsurface conditions within an 'underground vault' within the concrete floor in Building B South. This assessment was documented in the *Interim Remedial Action Plan*. Soil boring P-3 was advanced to 3.5 ft bgs within the vault soil until refusal due to apparent wood fragments (possible wooden vault floor). Soil sampling encountered a brownish black, silty clay with wood fragments at 3 ft bgs. Soil from 3 ft bgs was analyzed for total petroleum hydrocarbons as gasoline, diesel and motor oil (TPHg/TPHd/TPHmo) by EPA Method 8015, VOCs by EPA Method 8260, and polychlorinated biphenyls (PCBs) by EPA Method 8082. TPH compounds were reported at the following concentrations: 1.8 milligrams per kilogram (mg/kg) TPHg, 28,000 mg/kg TPHd, and 49,000 mg/kg TPHmo. From chromatogram evaluation, the laboratory suspects that the hydrocarbons quantified within the diesel and motor oil range represent *hydraulic fluid*. No PCBs or VOCs were detected except for naphthalene at 1.4 mg/kg.

2.6 Recent Tenant Improvements and Trench Vapor Plugs in 2017

In March 2017, Buildings C, D and E were emptied of all contents so tenant improvements could commence in April 2017. Previously stored materials in these buildings may have contributed to select VOC concentrations detected above ESLs in these buildings.

In May 2017, slurry trench plugs were installed along the sanitary sewer lines headed towards Buildings C, D and E. The trench plugs are designed to help prevent PCE or TCE soil gas migration toward these buildings. Trench plug locations and construction detail are shown on Figures 5 and 6, respectively.

For the planned industrial use in Buildings D and E an epoxy coating will be installed over the existing concrete slabs. This epoxy coating will provide additional mitigation of any potential vapor intrusion risk.

3.0 PROPOSED SAMPLING ACTIVITIES

The following work scope is designed to further evaluate the potential for vapor intrusion by resampling existing subslab gas probes and sampling crawl space/indoor air within Buildings C, D, and E. The work scope involves an additional round of sampling from select subslab gas probes and air samples as specified below.

3.1 Subslab Gas Sampling

During prior subslab gas sampling near and within Building C, D and E, no VOCs were detected in most prior subslab gas samples and no VOCs were detected near applicable ESLs. The prior data near Building C and Building D was collected in the wet season. Prior data for Building E was from three of the six probes, and was collected in the dry season.

PANGEA proposes to resample the following nine existing subslab gas probes: Building D (SS-16P and SS-17P), Building E (SS-1P through SS-4P, SS-6P), and near Building C (SS-20P and SS-21P). Subslab gas probe locations are shown on Figure 7. These subslab gas probes were selected to allow comparison to prior data. For cost control, Pangea does not propose sampling all existing probes since no VOCs were detected in most prior subslab gas samples and no VOCs were near applicable ESLs. Additional rationale for sampling at each building is presented below.

Building C: Pangea proposes sampling subslab gas at two locations (SS-20P and SS-21P) adjacent Building C. No VOCs were detected in these probes in December 2016. Note that soil gas sampling was attempted at these locations in December 2016, but subslab gas probes were installed due to tight soil conditions (Pangea also proposes a crawl space air sample as described in Section 3.2)

Building D: Pangea proposes sampling subslab gas at two locations (SS-16P and SS-17P) in Building D. Although no VOCs were detected in these probes in December 2016, PCE was detected at a low

concentration (9.7 ug/m³) in nearby probe SS-19P and a possible former fueling dispenser was located near SS-17P. (Pangea also proposes indoor air sampling in Building D as described in Section 3.2)

Building E: Pangea proposes sampling five of the six subslab gas probes in Building E. Prior sampling of three probes was conducted from the only probes with PID readings during soil gas screening. Although no VOCs were detected near or above ESLs in these probes in June 2016, relatively low concentrations of PCE, TCE, DCE's and 1,1,1-TCA were detected in select probes. No sampling is proposed for probe SS-5P since no VOCs were detected during prior sampling, and conditions will be evaluated by other nearby probes in Buildings D and E. Due to the low VOC concentrations in subslab gas, no indoor air sampling is proposed in Building E.

Subslab gas probes will be sampled following Department of Toxic Substances Control's (DTSC) July 2015 *Advisory – Active Soil Gas Investigation* guidance. Three casing volumes will be purged from each soil gas probe prior to sampling at rate of 100-200 milliliters per minute (ml/min). The probe will be connected to a certified clean, 1-Liter Summa[®] canister with a flow control manifold and placed in a sampling shroud. A quantitative leak check compound such as isopropanol will be introduced into the shroud at the time sampling begins. Isopropanol concentrations will be monitored by a photo ionization detector (PID) and maintained at a target concentration of approximately 10-20 parts per million (ppm). A shroud sample will be collected as well to quantify the concentration of isopropanol in the shroud during sampling.

Subslab gas samples will be transported under chain-of-custody to a California-certified laboratory for analysis of the full list of VOCs, including leak detectant isopropyl alcohol, by EPA Method TO-15.

3.2 Proposed Indoor Air and Crawls Space Sampling

To evaluate conditions at Building C, Pangea proposes to collect a crawl space air sample (CS-1). Pangea will inspect the Site to confirm the crawl space is still accessible and in good condition before collecting a sample.

To evaluate conditions at Building D, Pangea proposes to collect an indoor air sample (IA-4). Pangea will inspect the Site to confirm removal of prior stored materials in this building before collecting a sample. Due to the low VOC concentrations in subslab gas, no indoor air sampling is proposed in Building E.

An ambient air sample (AA2) will be collected from the upwind perimeter of the Site just within the locked gate to Amelia Street. Proposed air sampling locations are shown on Figure 7.

The indoor air, crawl space, and ambient air samples will be collected in general accordance with DTSC's October 2011 *Vapor Intrusion Mitigation Advisory*. Samples will be collected in 6-liter SIM-certified Summa[®] canisters with flow controllers calibrated for a 24-hour sample collection. The indoor and ambient air canister intake points will be in the breathing zone, approximately five ft above grade. The crawl space air

canister intake point will be located away from any exterior walls or vents to prevent outside ambient air from being sampled.

Indoor air and crawl space air samples will be transported under chain-of-custody to a California-certified laboratory for low-level analysis of the following VOCs by EPA Method TO-15 SIM identified as COPCs for the Site: *PCE; TCE; cis-1,2-DCE; vinyl chloride; 1,1-DCE; 1,1-DCA; 1,1,1-TCA; benzene; ethylbenzene; toluene; and total xylenes* (Table 2). The ambient air sample will be analyzed for *full list* VOCs by EPA Method TO-15 SIM.

4.0 SCHEDULE

Due to the tenant improvement schedule, PANGEA is scheduled to implement this workplan during the week of June 19, 2017. Testing is recommended before installation of the planned epoxy coating over the entire existing concrete slabs within Buildings D and E, scheduled for early July 2017. Assessment results will be presented in a *Vapor Intrusion Assessment Report-Buildings C, D & E*. Following confirmation of no significant vapor intrusion concerns and agency review, the project objective is approved occupancy of Buildings C, D and E on September 1, 2017.

5.0 REFERENCES

The regulatory record for this Site can be found on the State of California GeoTracker Website at http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000010203

DTSC, 2015. *Advisory – Active Soil Gas Investigation*. July.
https://dtsc.ca.gov/SiteCleanup/upload/VI_ActiveSoilGasAdvisory_FINAL.pdf

DTSC, 2011. *Vapor Intrusion Mitigation Advisory (VIMA), Revision 1, Final*. October.
https://dtsc.ca.gov/SiteCleanup/upload/VIMA_Final_Oct_20111.pdf

P&D Environmental Inc., 2008. *Limited Phase II Site Sampling Report*. May 7.

P&D Environmental Inc., 2015. *Subsurface Investigation Report*. July 29.

PANGEA, 2016a. *Phase I Environmental Site Assessment Report*. August 10.

PANGEA, 2016b. *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan*. October 26.

PANGEA, 2017. *Interim Remedial Action Plan*. April 3.

SFRWQCB, 2016. San Francisco Bay Regional Water Quality Control Board, *Environmental Screening Levels*, February 22, (Revision 3, May)



8410 Amelia Street
Oakland, California



PANGEA

Site Location Map

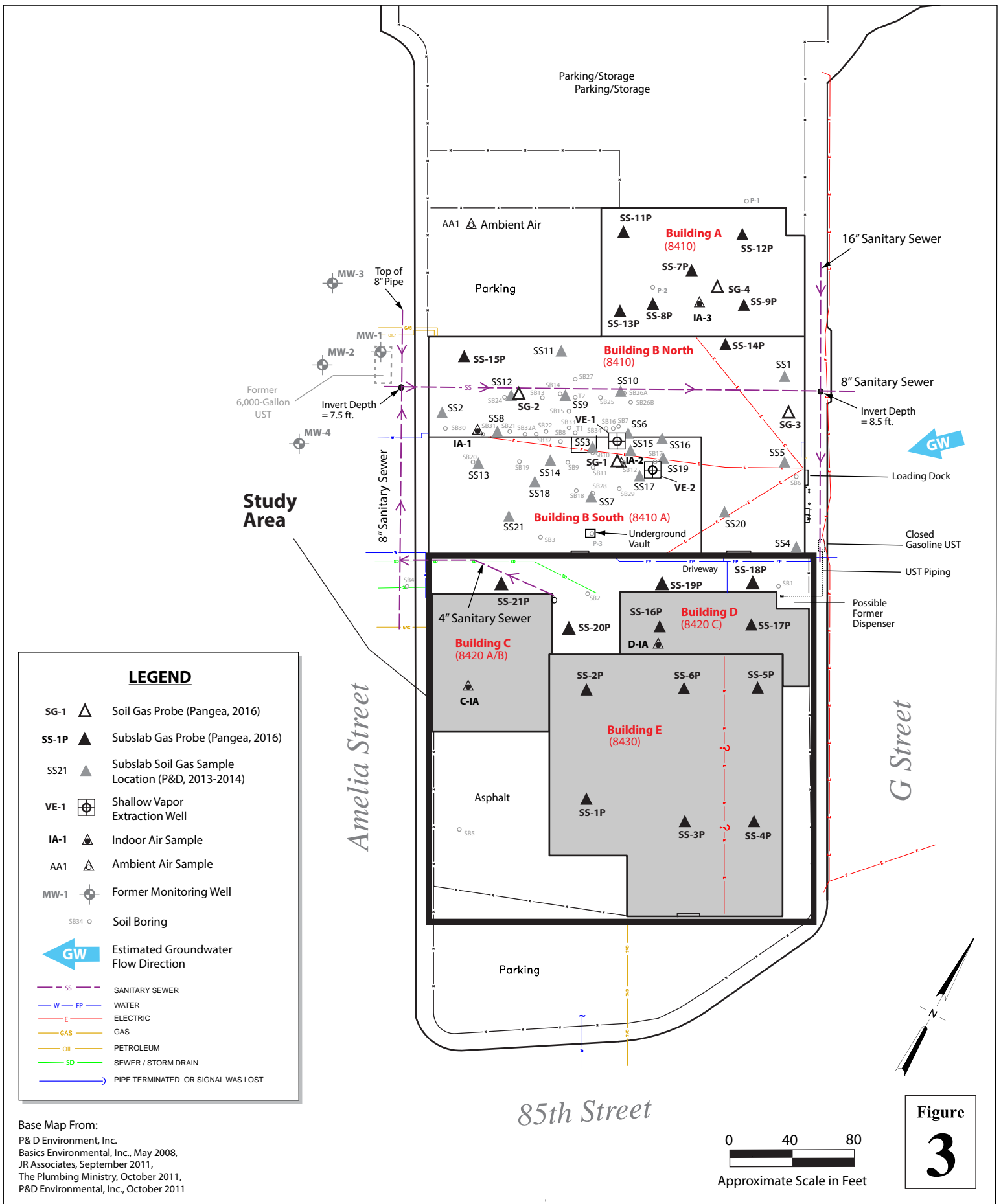


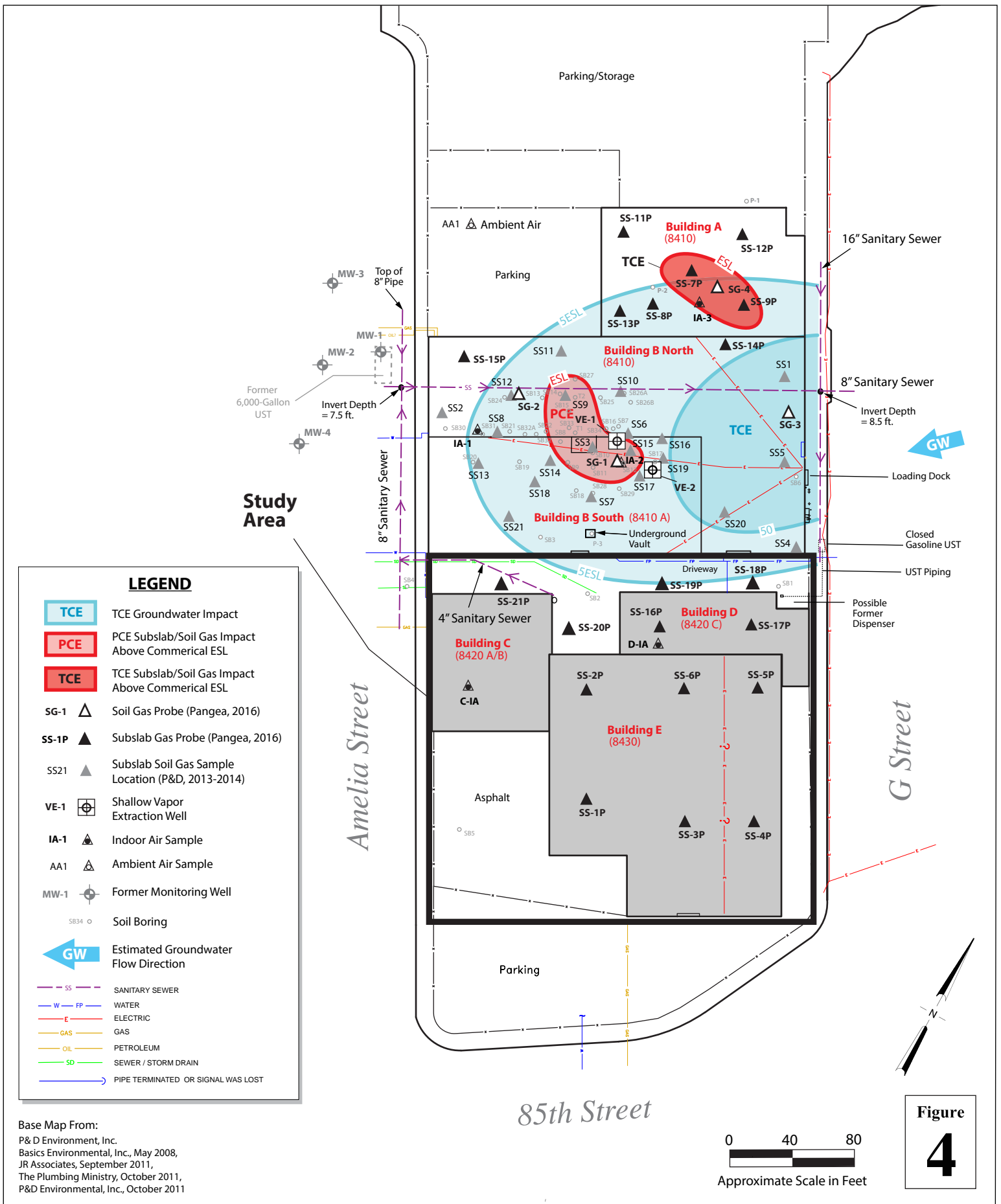
8410 Amelia Street
Oakland, California



PANGEA

Vicinity Map and Nearby
Environmental Cases





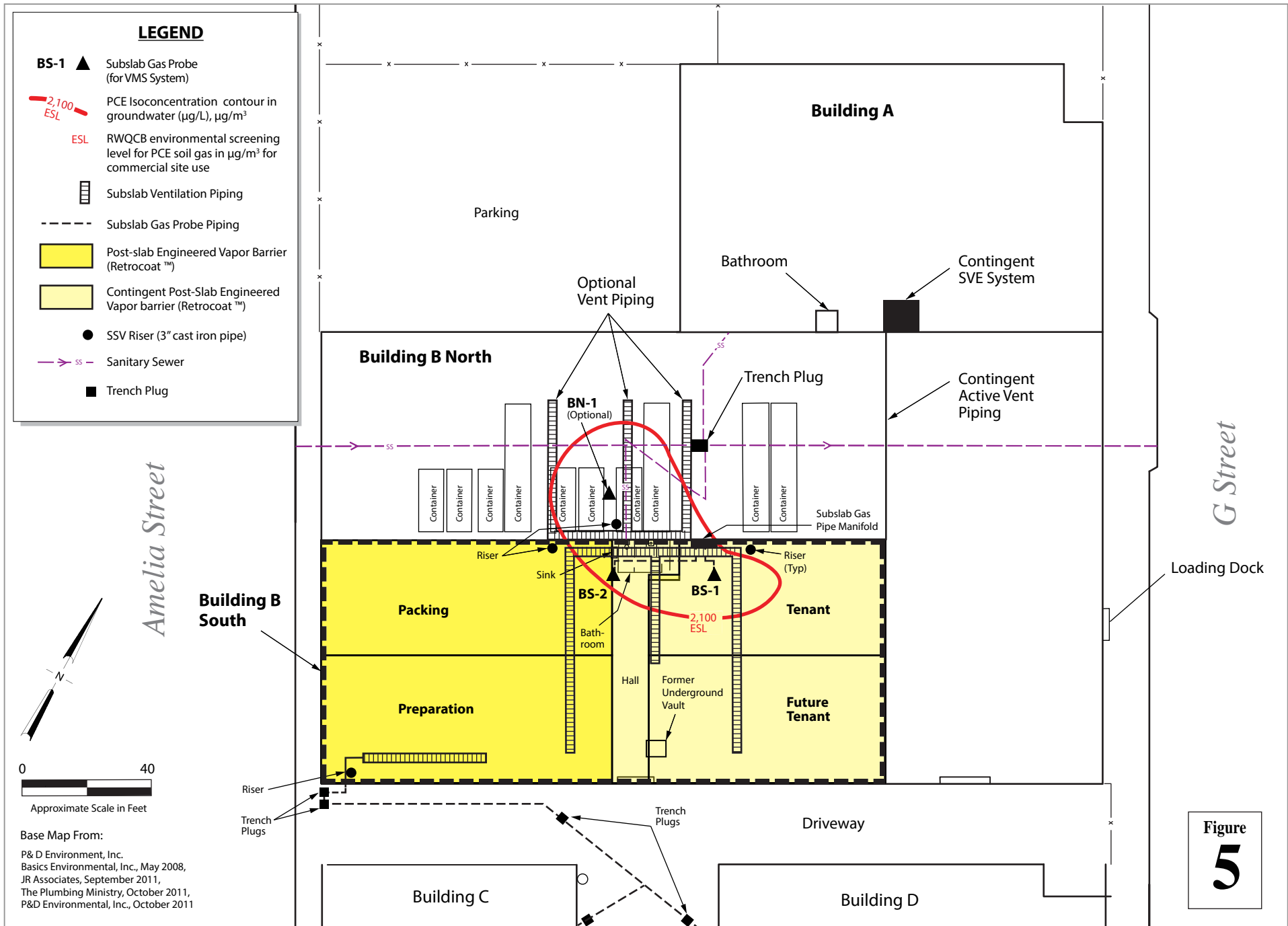
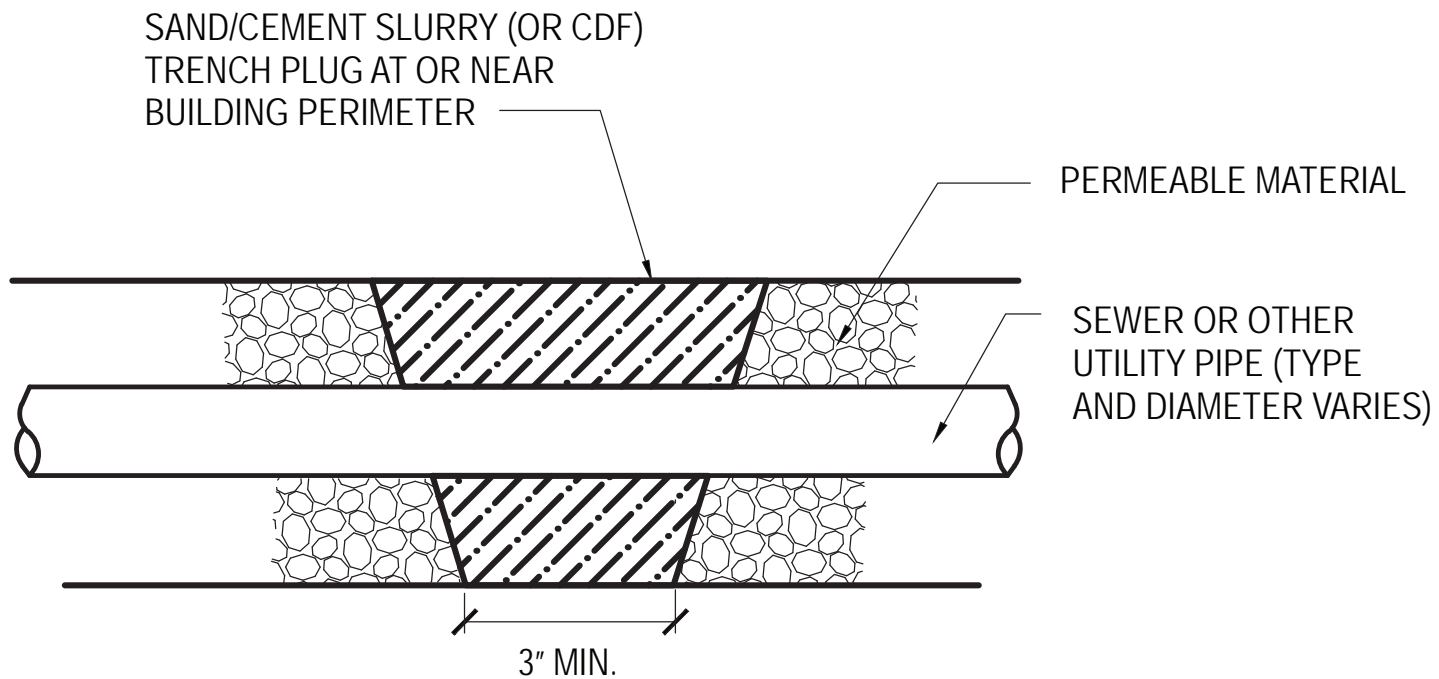


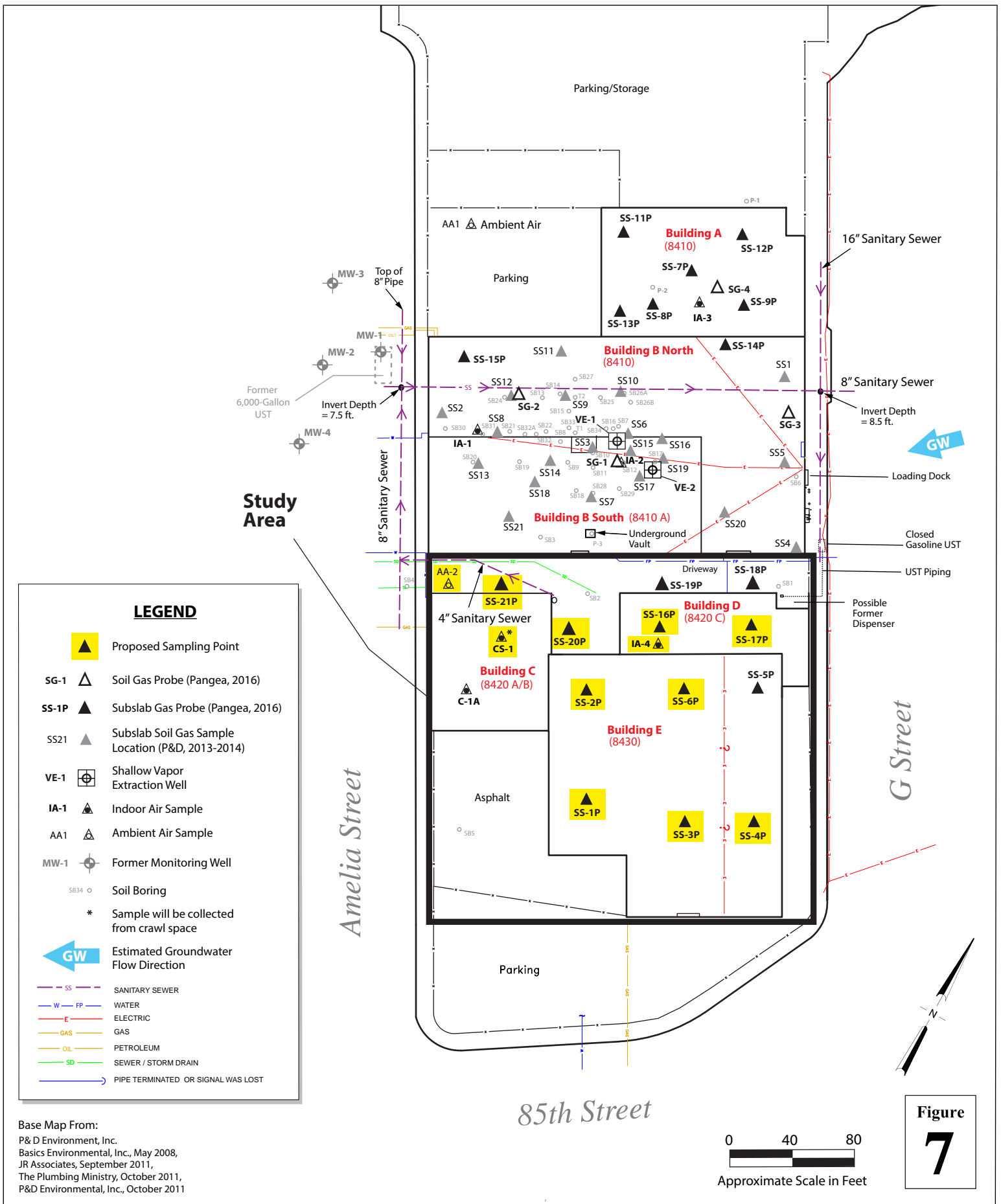
Figure
5



TYPICAL SOIL GAS CUT-OFF BARRIER IN UTILITY TRENCH

Not to Scale

Figure
6



8410 Amelia Street
 Oakland, California



Proposed Subslab, Crawl Space &
 Indoor Air Sampling Locations

Pangea

Table 1. Subslab Gas and Soil Gas Analytical Data - 8410 Amelia Street, Oakland, California

Sample Location / ID	Date	µg/m ³																Notes
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	1,1-DCE	1,1-DCA	1,1,1-TCA	Carbon Tetrachloride	1,1,2,2-PCA	Chloroform	Methyl Ethyl Ketone	Benzene	Ethylbenzene	Toluene	Total Xylenes	Other VOCs	
Soil Vapor ESL, Commercial Land Use:		2,100	3,000	35,000	160	310,000	7,700	4,400,000	290	210	530	22,000,000	420	4,900	1,300,000	440,000	varies	NE
Building A																		
<i>subslab probes</i>																		
SS-7P	6/3/2015	<250	3,200	<250	<250	<250	<250	<250	--	1,100	<250	--	--	<250	<250	<250	*	--
SS-8P	6/15/2016	<8.0	1,400	6	<3.0	<4.7	<4.8	<6.4	<7.4	<8.1	20	<14	<3.8	<5.1	6.9	<5.1	*	--
SS-9P	6/15/2016	<41	9,400	110	<15	<24	<24	<33	<38	<42	51	<71	<19	<26	<23	<26	*	--
	12/22/2016	<6.4	4,400	62	5.1	<3.7	<3.8	<5.1	<5.9	<6.5	19	<2.8	<3.0	<4.1	<3.5	<8.2	*	<9.2
SS-11P	12/22/2016	<13	1,600	92	5,100	<7.3	<7.5	<10	<12	<13	<9.0	<5.5	<5.9	<8.0	<7.0	<16.0	*	<18
SS-12P	12/22/2016	<6.1	17	<3.5	<2.3	<3.5	<3.6	<4.9	<5.6	<6.1	<4.4	<2.6	<2.9	<3.9	<3.4	<7.8	*	9.3
SS-13P	12/22/2016	<20	<16	<12	<7.6	<12	<12	<16	<19	<20	<15	<8.8	<9.5	<13	<11	<26	*	<29
<i>soil gas well(s)</i>																		
SG-4	12/22/2016	<39	<31	100	520	<23	<23	<31	<36	<40	<28	<17	36	<25	97	35	*	<57
Building B																		
<i>subslab probes</i>																		
SS1	10/24/2013	<20	30	<20	<20	<20	<20	<20	--	<20	<20	--	--	<20	<20	<20	---	---
SS2	10/24/2013	<20	<20	<20	<20	<20	<20	<20	--	<20	<20	--	--	<20	<20	<20	---	---
SS3	10/24/2013	6,500	61	<20	<20	<20	<20	38	--	<20	<20	--	--	<20	<20	<20	*	---
SS4	10/24/2013	52.5	<20	<20	<20	<20	<20	<20	--	<20	<20	--	--	<20	<20	<20	---	---
SS5	10/24/2013	<20	<20	<20	<20	<20	<20	<20	<250	<20	<20	--	<250	<20	<20	<20	---	---
SS6	10/31/2013	300	<250	<250	<250	<250	<250	<250	<250	<250	<1,000	<250	<250	<250	<250	<250	#	---
SS7	10/31/2013	<250	<250	<250	<250	<250	<250	<250	<250	<250	<1,000	<250	<250	<250	<250	<250	---	---
	2/26/2014	330	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS8	10/31/2013	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
	2/27/2014	8,900	1,700	280	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
	6/15/2016	<7.5	<6.0	<4.4	<2.8	<4.4	<4.5	<6.0	<7.0	<7.6	<5.4	<13	<3.5	<4.8	<4.2	<4.8	*	--
	12/23/2016	<6.3	<5.0	<3.7	<2.4	<3.7	<3.7	<5.0	<5.8	<6.4	<4.5	<2.7	<3.0	<4.0	<3.5	<8.0	*	<9.1
SS9	10/31/2013	2,800	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS10	11/25/2013	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS11	11/25/2013	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS12	11/25/2013	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS13	3/4/2014	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS14	3/4/2014	1,400	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS15	3/4/2014	4,000	<250	<250	<250	<250	<250	<250	<18	<250	<250	<1,000	<9.3	<250	<250	<250	---	---
	6/15/2016	5,300	<16	<12	<7.4	<12	<12	<16	--	<20	<14	<34	--	<13	<11	<13	---	---
SS16	3/6/2014	380	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	#	---
SS17	3/6/2014	1,400	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS18	3/6/2014	710	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS19	3/12/2014	760	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS20	3/12/2014	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	#	---
SS21	3/12/2014	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	<1,000	--	<250	<250	<250	---	---
SS-14P	12/22/2016	<6.1	370	<3.5	<2.3	<3.5	<3.6	<4.9	<5.6	<6.1	<4.4	<2.6	<2.9	<3.9	<3.4	<7.8	*	<8.8
SS-15P	12/22/2016	<6.6	<5.3	<3.9	<2.5	<3.9	<4.0	<5.3	<6.2	<6.7	<4.8	<2.9	<3.1	<4.3	<3.7	<8.6	*	9.9

Pangea

Table 1. Subslab Gas and Soil Gas Analytical Data - 8410 Amelia Street, Oakland, California

Sample Location / ID	Date	PCE	TCE	cis-1,2-DCE	Vinyl Chloride	1,1-DCE	1,1-DCA	1,1,1-TCA	Carbon Tetrachloride	1,1,2,2-PCA	Chloroform	Methyl Ethyl Ketone	Benzene	Ethylbenzene	Toluene	Total Xylenes	Other VOCs	IPA	Notes
Soil Vapor ESL, Commercial Land Use:		2,100	3,000	35,000	160	310,000	7,700	4,400,000	290	210	530	22,000,000	420	4,900	1,300,000	440,000	varies	NE	
<i>soil gas wells</i>																			
SG-1	12/22/2016	26	140	62	4.3	8.3	<3.8	<5.1	<5.9	<6.4	12	21	29	6.0	74	28	*		<9.2
SG-2	12/22/2016	<39	<31	<23	<15	<23	<23	<32	<36	<40	<28	<17	73	<25	110	51	*		<57
SG-3	12/22/2016	<6.2	<4.9	6.7	5.3	<3.6	<3.7	<5.0	<5.8	<6.3	5.1	9.7	56	15	120	68	*		27
Alley																			
<i>subslab probes</i>																			
SS-18P	12/22/2016	<6.4	<5.1	<3.8	<2.4	<3.8	<3.8	<5.2	<6.0	<6.5	<4.6	<2.8	<3.0	<4.1	<3.6	<8.2	*		21
SS-19P	12/22/2016	9.7	<5.5	<4.1	<2.6	<4.1	<4.1	<5.6	<6.4	<7.0	<5.0	<3.0	<3.3	<4.5	<3.9	<9.0	*		<10
SS-20P	12/22/2016	<6.2	<4.9	<3.6	<2.4	<3.6	<3.7	<5.0	<5.8	<6.3	<4.5	<2.7	<2.9	<4.0	<3.5	<8.0	*		1,500
SS-21P	12/22/2016	<9.2	<7.3	<5.4	<3.5	<5.4	<5.5	<7.4	<8.6	<9.3	<6.6	<4.0	<4.3	<5.9	<5.1	<11.8	*		130
Building D																			
<i>subslab probes</i>																			
SS-16P	12/22/2016	<6.6	<5.3	<3.9	<2.5	<3.9	<4.0	<5.3	<6.2	<6.7	<4.8	<2.9	<3.1	<4.3	<3.7	<8.6	*		<9.6
SS-17P	12/22/2016	<6.6	<5.3	<3.9	<2.5	<3.9	<4.0	<5.3	<6.2	<6.7	<4.8	<2.9	<3.1	<4.3	<3.7	<8.6	*		<9.6
Building E																			
<i>subslab probes</i>																			
SS-3P	6/15/2016	27	130	<4.5	<2.9	230	12	880	<7.1	<7.8	5.7	<13	<3.6	<4.9	<4.3	<4.9	*		--
SS-5P	6/3/2016	<250	<250	<250	<250	<250	<250	<250	--	<250	<250	--	--	<250	<250	<250	*		--
SS-6P	6/3/2016	<250	<250	<250	<250	<250	<250	550	--	<250	<250	--	--	<250	<250	<250	*		--
	6/15/2016	33	<6.4	<4.7	<3.0	<4.7	<4.8	490	<7.4	<8.1	<5.8	<14	<3.8	<5.1	<4.5	<5.1	*		--
Shroud																			
Shroud (SG-3)	12/22/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		360,000

Notes:

Samples analyzed for VOCs by USEPA Method TO-15 or 8260 (EPA 8010 Basic Target List).

µg/m³ = micrograms per cubic meter

Bold values indicate concentrations detected above most conservative listed ESL.

Contaminant detections highlighted in gray

<n = Compound not detected at or above the laboratory method detection limit of n

NE = ESL not established

-- = Not analyzed

* = other contaminants detected at low concentrations. See Laboratory report for details.

= Tertiary Butyl Alcohol (TBA) detected at 9,100 in SS-6, 32,000 in SS-16, and 6,700 in SS-20.

ESL = Environmental Screening Level, from California Regional Water Quality Control Board - San Francisco Bay Region, Interim Revised February 2016 (Revision 3).

VOCs = Volatile Organic Compounds

PCE = Tetrachloroethene

TCE = Trichloroethene

DCE = Dichloroethene

1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane

IPA = Isopropyl Alcohol

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Table 2. Indoor Air Analytical Data - 8410 Amelia Street, Oakland, California

Sample Location / ID	Sample Date	PCE	TCE	cis-1,2-DCE	Vinyl Chloride	1,1-DCE	1,1-DCA	1,1,1-TCA	1,1,1-DCB	Carbon Tetrachloride	1,1,2,2-TCA	Chloroform	Methyl Ethyl Ketone	Benzene	Ethylbenzene	Toluene	Total Xylenes	Other VOCs	Notes
Indoor Air ESL ₂ Commercial Land Use:		2.1	3.0	35	0.16	310	7.7	4,400	1.1	0.29	0.21	0.53	22,000	0.42	4.9	1,300	440	varies	
µg/m ³																			
Building A																			
IA-3	6/16/2016	0.71	<0.17	<0.12	<0.040	<0.062	<0.13	<0.17	1.0	1.4	<0.21	<0.15	11	3.4	6.5	63	32.1	*	
Building B																			
IA-1	6/16/2016	0.65	<0.18	<0.13	<0.043	<0.067	<0.14	<0.18	0.64	1.3	<0.23	0.18	13	10	13	110	66	*	
IA-2	6/16/2016	11	0.43	0.35	<0.048	<0.074	<0.15	<0.20	0.97	0.81	<0.26	<0.18	8.4	12	16	100	79	*	
Building C																			
C-1A	6/16/2016	5.1	0.16	<0.12	<0.038	<0.059	<0.12	<0.16	<0.18	0.88	--	0.36	7.2	0.39	<0.13	16	7.0	*	
Building D																			
D-1A	6/16/2016	0.44	<0.15	<0.11	<0.035	<0.055	<0.11	<0.15	<0.16	0.42	<0.19	<0.13	2.2	0.97	1.4	18	7.1	*	
Ambient Air																			
Ambient Air	6/16/2016	<0.23	<0.18	<0.13	<0.043	<0.066	<0.14	<0.18	<0.20	1.1	<0.23	<0.16	<0.25	<0.27	0.21	1.1	1.01	*	

Notes:

Samples analyzed for VOCs by USEPA Method TO-15.

µg/m³ = micrograms per cubic meter

ESL = Environmental Screening Level, from California Regional Water Quality Control Board - San Francisco Bay Region, Interim Revised February 2016 (Revision 3).

Bold values indicate concentrations detected above most conservative listed ESL.

Contaminant detections highlighted in gray

< n = Compound not detected at or above the laboratory method detection limit of n

* = other contaminants detected at low concentrations. See Laboratory report for details.

VOCs = Volatile Organic Compounds

PCE = Tetrachloroethene

TCA = Trichloroethane

TCE = Trichloroethene

DCE = Dichloroethene

DCA = Dichloroethane

DCB = Dichlorobenzene

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Table 3. Groundwater Analytical Data - 8410 Amelia Street, Oakland, California

Sample Location / ID	Date	µg/L															Notes
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	1,1,2-PCE	1,1-DCE	1,1-DCA	1,1,1-TCA	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Other VOCs	
GW Tier 1 ESL		3.0	5.0	6.0	0.061	1.0	3.2	5.0	62	100	1.0	40	13	20	5.0	varies	
VI ESL - Shallow GW, Residential (≤ 10 ft)		3.0	5.6	110	0.061	NE	170	20	4,900	NE	1.1	3,600	13	1,300	1,200	varies	
VI ESL - Shallow GW, Commercial (≤ 10 ft)		26	49	950	0.53	NE	1,400	180	42,000	NE	9.7	30,000	110	11,000	11,000	varies	
LTCP Criteria		--	--	--	--	--	--	--	--	3,000	--	--	--	1,000	varies		
Grab Groundwater Data																	
SB1-W	4/24/2008	<0.5	1.1	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	2.2	ND	
SB2-W	4/24/2008	<0.5	2.6	0.68	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	2.9	ND	
SB3-W	4/24/2008	<0.5	30	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	1.4	ND	
SB4-W	4/24/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	2.9	ND	
SB5-W	4/24/2008	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	0.68	1.0	<50	<0.5	<0.5	<0.5	<0.5	1.4	ND	
SB6-W	4/24/2008	<2.5	100	4.3	<2.5	<2.5	<2.5	<2.5	<2.5	<50	<0.5	<0.5	<0.5	<2.5	<2.5	ND	
SB7-W	11/5/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	a	
SB8-W	11/25/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	ND	
SB30-W	3/7/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	ND	
P-1-W	6/17/2016	<0.5	0.79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	0.83	ND	
Monitoring Well Data																	
MW-1	7/28/1988	--	--	--	--	--	--	--	--	ND	0.6	ND	ND	ND	--	--	
	11/28/1988	--	--	--	--	--	--	--	--	130	8.2	0.6	ND	5.0	--	--	
	2/16/1989	--	--	--	--	--	--	--	--	120	3.2	ND	2.4	17.0	--	--	
	5/26/1989	--	--	--	--	--	--	--	--	ND	ND	ND	0.5	0.6	--	--	
	7/20/1989	--	--	--	--	--	--	--	--	180	7.2	ND	ND	5.7	--	--	
	10/27/1989	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--	
	12/8/1993	--	--	--	--	--	--	--	--	200	52	ND	ND	ND	--	--	
	3/18/1994	--	--	--	--	--	--	--	--	1,100	430	9.3	17.0	18.0	--	--	
	6/30/1994	--	--	--	--	--	--	--	--	800	160	4.0	29.0	27.0	--	--	
	10/3/1994	--	--	--	--	--	--	--	--	1,400	430	4.0	34.0	14.0	--	--	
	3/11/1996	--	--	--	--	--	--	--	--	1,400	360	4.1	12.0	2.1	--	--	
	9/18/1996	--	--	--	--	--	--	--	--	540	220	1.0	3.5	ND	14.0	--	
	4/2/1997	--	--	--	--	--	--	--	--	2,400	960	10	7	ND	60	--	
MW-2	12/8/1993	--	--	--	--	--	--	--	--	8,500	2,100	660	400	780	--	--	

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Table 3. Groundwater Analytical Data - 8410 Amelia Street, Oakland, California

Sample Location / ID	Date	PCE	TCE	cis-1,2-DCE	Vinyl Chloride	1,1,2,2-PCA	1,1-DCE	1,1-DCA	1,1,1-TCA	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Other VOCs	Notes
		µg/L															
GW Tier 1 ESL		3.0	5.0	6.0	0.061	1.0	3.2	5.0	62	100	1.0	40	13	20	5.0	varies	
VI ESL - Shallow GW, Residential (≤ 10 ft)		3.0	5.6	110	0.061	NE	170	20	4,900	NE	1.1	3,600	13	1,300	1,200	varies	
VI ESL - Shallow GW, Commercial (≤ 10 ft)		26	49	950	0.53	NE	1,400	180	42,000	NE	9.7	30,000	110	11,000	11,000	varies	
LTCP Criteria		--	--	--	--	--	--	--	--	3,000	--	--	--	--	1,000	varies	
	3/18/1994	--	--	--	--	--	--	--	--	700	160	40	71	68	--	--	
	6/30/1994	--	--	--	--	--	--	--	--	1,700	340	78	110	150	--	--	
	10/3/1994	--	--	--	--	--	--	--	--	3,900	1,100	190	290	330	--	--	
	3/11/1996	--	--	--	--	--	--	--	--	1,800	200	93	110	230	--	--	
	9/18/1996	--	--	--	--	--	--	--	--	2,900	410	11	310	87	57	--	
	4/2/1997	--	--	--	--	--	--	--	--	340	62	9	21	33	14	--	
MW-3	12/8/1993	--	--	--	--	--	--	--	ND	3.0	1.6	1.6	3.9	--	--		
	3/18/1994	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--		
	6/30/1994	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--		
	10/3/1994	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--		
	3/11/1996	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--		
MW-4	3/11/1996	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--		
	9/18/1996	--	--	--	--	--	--	--	ND	1.7	ND	1.4	ND	ND	ND	--	
	12/17/1996	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	--	
	4/2/1997	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	--	

Notes:

PCE = Tetrachloroethene

TCE = Trichloroethene

DCE = Dichloroethene

1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane

DCA = Dichloroethane

1,1,1-TCA = 1,1,1-Trichloroethane

TPHg = total petroleum hydrocarbons as gasoline

MTBE = Methyl tert-butyl ether

µg/L = micrograms per liter

ESL = Environmental Screening Level established by San Francisco Bay Regional Water Quality Control Board, Interim Final February 2016 (Revision 3).

a=sec-Butyl benzene (0.66), tert-Butyl benzene (1.4), carbon disulfide (4.3), isopropylbenzene (0.64), and n-Propyl benzene (0.80)

Samples analyzed for VOCs by USEPA Method 8260.

Samples analyzed for MTBE, Benzene, Toluene, Ethylbenzene, and Xylenes by USEPA Method 8021 or 8260.

Gray values indicate concentrations detected above reporting limits.

< X= Compound not detected at or above the laboratory method detection limit

NE = ESL not established

ND = not detected

-- = Not analyzed