STC
Environmental Services Inc.
Environmental Scientists and Engineers

4754 RESEARCH DRIVE SAN ANTONIO, TEXAS 78240 Office (210) 696-6286 / FAX (210) 696-8761

April 23, 2009

Mr. Chris Villarreal
Project Manager
U.S. EPA
Region 6
1445 Ross Ave. (6SF-TS)
Dallas Texas, 75202

Subject: Preliminary Work Plan and Vent Installation
Leon Valley Veterinary Clinic and Building 1 of Savings Square Shopping Center
San Antonio, Texas

Mr. Villarreal:

On behalf of our client, Savings Square Partners Ltd., this letter presents a work plan and schedule for installing air remediation equipment at the properties referenced above. This letter also provides additional details concerning equipment installed at the site in March 2009. A more detailed discussion of the completed and proposed work is presented below.

PROJECT INFORMATION

The U.S. EPA has conducted air testing at multiple properties at the Savings Square Shopping Center, the Leon Valley Veterinary Clinic, and other buildings located near the intersection of Bandera Road and Grissom Road in San Antonio, Texas. The buildings tested by EPA are shown on Figure 1.

The testing revealed that perchloroethylene (PCE) was present in indoor air samples and in the soil vapor under the slab of several buildings. A summary of the test results and the location of samples collected by EPA are shown on Figures 2 and 3.

Based on the testing, we understand that the EPA has targeted two buildingS for the installation of air remediation equipment or vapor mitigation devices. These buildings are:

- Building 1 – Savings Square Shopping Center, 6703,6707,6709, and 6715 Bandera Road - approximately 10,000 square feet. Tenants at this lease space currently include Cash Advance America (6703), Freedom Debt (6707 and 6709), and Bexar County Justice of the Peace and Constable's Office (6715).

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• The Leon Valley Veterinary Clinic – 6703 Bandera Road – approximately 2500 square feet One lease space at Building 1 of the Saving Square Shopping Center was formerly utilized by Rainbow $1.25 Cleaners. This lease space is now utilized by Cash Advance America. Operations by Rainbow $1.25 Cleaners apparently began in approximately 1991 and ceased in approximately 2002. The Rainbow Cleaners lease space has been the target of previous investigations by the Texas Commission on Environmental Quality (TCEQ) and it is known that PCE has been released at this facility. Testing by STC under the slab in this lease space has shown PCE in soil with a maximum concentration of approximately 1 ppm.

It is estimated the Leon Valley Veterinary Clinic began operations sometime after 1977 when the property was sold by the Sigmor Corporation to William Rowe and Thomas Bradford. The Sigmor Corporation, a predecessor to Valero Energy, owned the property prior to 1977 and a service station is known to formerly exist on the land in the 1950's. Service Stations that conduct automotive repair operations may also use PCE.

At the present time, it is unclear whether the PCE concentrations in indoor air found at the Veterinary Clinic are the result of past operations by the service station or could be wholly or partially attributed to migration of vapors from the nearby Rainbow Cleaners lease space. Soil vapor tests by EPA show a somewhat discontinuous plume of PCE in soil vapor samples collected between the Veterinary Clinic and Building 1 of the shopping center. This condition suggests that spillage of PCE at the former gas station could at least be partially attributable to PCE vapor concentrations found at the Veterinary Clinic. To our knowledge, soil testing under the veterinary clinic has not been conducted to date.

REGULATORY STANDARDS FOR PCE IN AIR

We understand the EPA is using certain voluntary standards developed by the Agency for Toxic Substances and Disease Registry (ATSDR) and others to evaluate health threats at the two buildings. These standards are well below limits mandated by the Occupational Safety and Health Administration. A review of various standards, currently being considered by the EPA and other States is presented on the attached Table I.

It is also understood that EPA is currently consulting with the Texas Department of State Health Services (DSHS) concerning standards that may be utilized for this site. Consequently, at the present time, it is unclear exactly what level of PCE must be achieved by the proposed air remediation systems.

However, it is also understood that if any proposed remediation equipment can reduce indoor PCE air concentrations to below the carcinogenic screening level of 2.1 ug/m^3, then any installed system will be deemed to be working satisfactorily. As information becomes available, it is anticipated EPA and/or Texas DSHS may specify an alternate level that is higher than 2.1 ug/m^3.

Further, in developing levels for this particular site, it is respectfully requested that EPA consider standards developed by other States where PCE exposures have been evaluated. In

particular, it is understood that extensive studies have been conducted in states such as New York, and this state currently enforces a limit of level of 100 ug/m^3 for PCE in indoor air at both residential and commercial properties.

EQUIPMENT INSTALLED

A vent system which attempts to withdraw vapors from the vadose zone, and possibly from under the slab of the Cash Advance lease space was installed and has been operational since March 12, 2009.

This vent system is considered an interim measure to possibly abate vapors under the Cash Advance lease space. Two vents designated SSD Vent 1 and SSD Vent 2 were installed. The location and details for the vents are shown on Figures 4 and 5.

The installed vent system is considered an interim measure that may be expanded or replaced by other equipment after further study of the site is conducted and additional tests of indoor air are conducted.

The vent system targeted areas where sewer lines are known to be present. Sewer lines were targeted because these utilities are often laid in trenches that contain more permeable materials such as sand. These more permeable materials may be receptive to vapor withdrawal and may communicate with areas under the slab of the lease space.

SSD Vent 1 was installed immediately adjacent to a 4 inch diameter sewer cleanout (See Figure 4). The pea gravel section of this vent intercepted sandy backfill material around the sewer line (See Figure 5). This sandy material and the sewer line were partially exposed during vent installation. Obvious odors of dry cleaning solvent were also evident during installation.

SSD Vent 2 targeted possible sewer lines associated with the commode and sink located at the north end of Cash Advance Lease Space (See Figure 5). During excavation of SSD Vent 2, no sandy backfill materials or sewer lines were visually evident. Further, little or no olfactory evidence of solvent odors was observed. This finding suggests that sewer lines associated with the sink and commode do not immediately tie into any line located on the alley on the east side of the lease space and probably follow the route shown on Figure 4.

Prior to initiating the system, appropriate registration forms were sent to the Texas Commission on Environmental Quality (TCEQ) for the purpose of fulfilling initial air emissions standards. Testing of emissions from the vents and other actions for final permitting are in progress.

At present, it is unknown if the existing vents will provide sufficient negative pressure to prevent vapors under the slab from migrating into the indoor air space. Further, at present, it is unknown if building materials within the Cash Advance lease space may be off-gassing PCE vapor. Testing to evaluate these possible sources of PCE and further mitigation methods are addressed in subsequent sections of this preliminary work plan.

REVIEW OF MITIGATION TECHNOLOGIES

It is understood that the EPA is considering several methods for reducing PCE in indoor air at the two buildings. These proposed systems are summarized in the table entitled *Screening of Vapor Intrusion Mitigation Technologies.* A copy of this table, which has been provided by EPA, is attached as Table II. A review of these technologies at the two buildings is outlined below.

Building 1 of the Shopping Center

For Building 1, it is understood that the use of positive pressure and a membrane sealant is an acceptable technology. The use of sub-slab depressurization at Building 1 is not considered an acceptable technology because two of three communication tests failed to show any change in pressure.

However, at Building 1, one of the three tests did show acceptable levels of communication. The acceptable tests were found at the Freedom Debt lease space (6709 Bandera Road). Further, due to time constraints, the location of the former cleaners (Cash Advance America) was not tested. Therefore, if additional communication tests are conducted, it is possible that the southern end of Building 1 may be suitable for sub-slab depressurization. The location of the communication tests in Building 1 are shown on Figure 2. A summary of the communication test results is presented on Table III.

In addition, it is unclear at the present time whether building materials may also be contributing to the concentration of PCE indoor air. Such building materials may include concrete, sheetrock, and carpet. It is possible that PCE has permeated these materials and they continue to off-gas PCE into indoor air. These building materials may be contributing to any vapor that is emanating directly from the sub-slab.

Veterinary Clinic

For the Veterinary Clinic, it is understood that a sub-slab depressurization system is an acceptable technology to potentially reduce indoor air concentrations of PCE. Further, it is understood that EPA is considering the installation of equipment that will penetrate the slab of Veterinary Clinic at two or three locations and vent sub-slab vapor to the atmosphere. Consequently, subsequent sections of this work plan sets forth methods and schedules for installing a sub-slab depressurization system that meets these requirements.

Based on the aforementioned conditions, a more detailed discussion of the proposed air remediation systems and a plan of action have been developed and are discussed below:

PROPOSED WORK

The proposed work is subdivided into several phases or tasks. At various points in the project, we will seek EPA concurrence with the proposed actions. Each phase or task is as follows.

Task 1 – Site Access and Initial Building Evaluation

STC will seek access agreements with the building owners to inspect each property and evaluate current building conditions. If site access is unreasonably denied or delayed, STC will notify EPA of any such conditions. Once site access is granted, the inspection and evaluation process will then begin.

At Building 1 of the shopping center, further testing will be conducted before installing any vapor mitigation technologies or air remediation equipment. This testing will include the following:

1. A communication test will be conducted in the Cash Advance America lease space. This test is designed to determine if the Cash Advance lease space may be amenable to sub-slab depressurization

2. Samples of drywall, concrete, carpet, and possible other building materials will be collected at the Cash Advance America lease space. Building materials will also be tested in the Justice of Peace lease space which has a common wall with Cash Advance. These tests will determine if existing building materials may be a source of PCE in indoor air.

3. The indoor air at the Cash Advance America lease space will be re-tested.

At the Veterinary Clinic, a representative of STC will inspect the building and locate areas for slab penetrations that will facilitate a sub-slab depressurization system. Specific target areas will include utility closets and locations where piping can be directed to the building exterior and equipped with a fan to induce negative pressure.

Task 2 – Preparation and Submittal of the Air Remediation Plan

Based on the testing conducted during Task 1, STC will prepare a plan with specifications and details for installation of the selected air remediation equipment or mitigation technologies. This plan will be submitted to EPA for review and concurrence.

At Building 1, the Air Remediation Plan may specify one or more technologies that include a membrane sealant, a positive pressure system, or a sub-slab depressurization system.

At the Veterinary Clinic, the Air Remediation Plan will include details for a Air Remediation Plan. These details will include locations of all proposed vents, piping diameters, and specifications for the fans to be installed.

Task 4 – EPA Approval of Plan and Post Installation Testing Report

After approval of the Air Remediation Plan by EPA, installation of the systems at the two buildings will commence. Upon completion of installation, testing will be conducted to evaluate system performance.

It is proposed that system testing will involve a set of indoor air samples similar to those collected by EPA in 2008. This sampling will involve the same test methods utilized by EPA for collection of indoor air samples and will include the following samples:

- Two samples at Cash Advance America – Former Rainbow Cleaners Lease space – 6703 Bandera Road.
- Two samples at Freedom Debt - 6705 and 6709 Bandera.
- Three samples at Bexar County Justice of the Peace and Constable's Office – 6715 Bandera.
- Two samples at the Veterinary Clinic

Unless previously approved by EPA, sampling locations will be at the same points and heights utilized by EPA in 2008. The EPA site plan showing sampling locations in 2008 is presented on Figures 2 and 3.

All test results will be presented in a Post Installation Testing Report. This report will include the following:

- The certified laboratory reports
- Reports by the HVAC control and possibly other contractors presenting details of the equipment installed.
- Copies of all air permits or documentation showing that the requirements of a Standard Exemption have been fulfilled.
- Photographs of installed equipment.
- Copies of all building permits obtained.
- A narrative description of the work performed.
- A statement regarding the ability of the system to meet the PCE targeted indoor air limits in effect for the project at that time.
- Suggested methods for long term maintenance and monitoring of the systems.

SCHEDULE

The following schedule is estimated for the various project tasks:

Date TBD by EPA – Approval or comments to this Work Plan
May 1, 2009 – Site access agreements approved
July 1, 2009 – Air Remediation Plan submitted to EPA for review
August 1, 2009 - Estimated date of EPA approval or comments to Air Remediation Plan
September 15, 2009 – Installation of all equipment complete
October 15, 2009 – Post Installation Testing conducted.
December 1, 2009 – Submit Post Installation Testing Report to EPA for review
January 15, 2010 – EPA comments on Post Installation Testing Report

SUMMARY AND ADDITIONAL INFORMATION

This letter presents a preliminary work plan for installing air remediation equipment at two buildings targeted by EPA for remediation. This report also provides details concerning the vent system that was installed and is currently operational at Building 1.

Pending approval of this preliminary work plan by EPA, STC will then attempt to secure site access and inspect the buildings. After inspection, an Air Remediation Plan will be submitted to EPA for review and concurrence.

If you have any questions, please do not hesitate to contact me at (210) 696-6288.

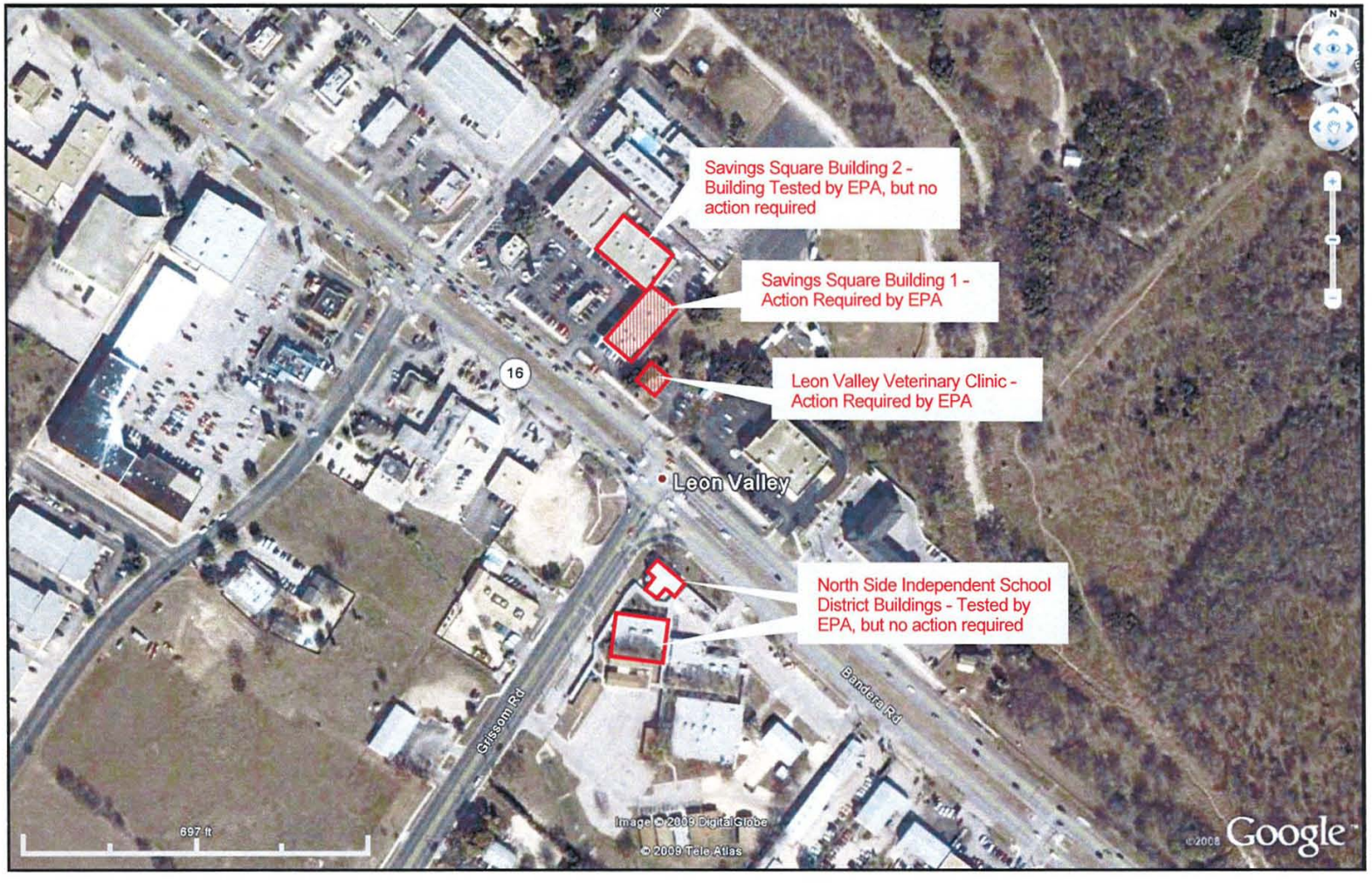
Respectfully,

Craig Tribley P.G.
Vice President
CAPM 00022

Attachments:

Figure 1 – Buildings Tested by EPA
Figure 2 – EPA Testing at Building 1
Figure 3 – EPA Testing at Vet Clinic
Figure 4 – Vent System - Plan View
Figure 5 – Vent System - Profile View

Table I - Indoor Air Vapor Standards for PCE and Other Selected Samples
Table II – Screening of Vapor Intrusion Technologies
Table III – Communication Tests



FILE NAME: Figure 1 - Target Buildings

STC Environmental Services Inc. Environmental Scientists and Engineers	BUILDINGS TARGETED BY EPA FOR TESTING	FIG. 1

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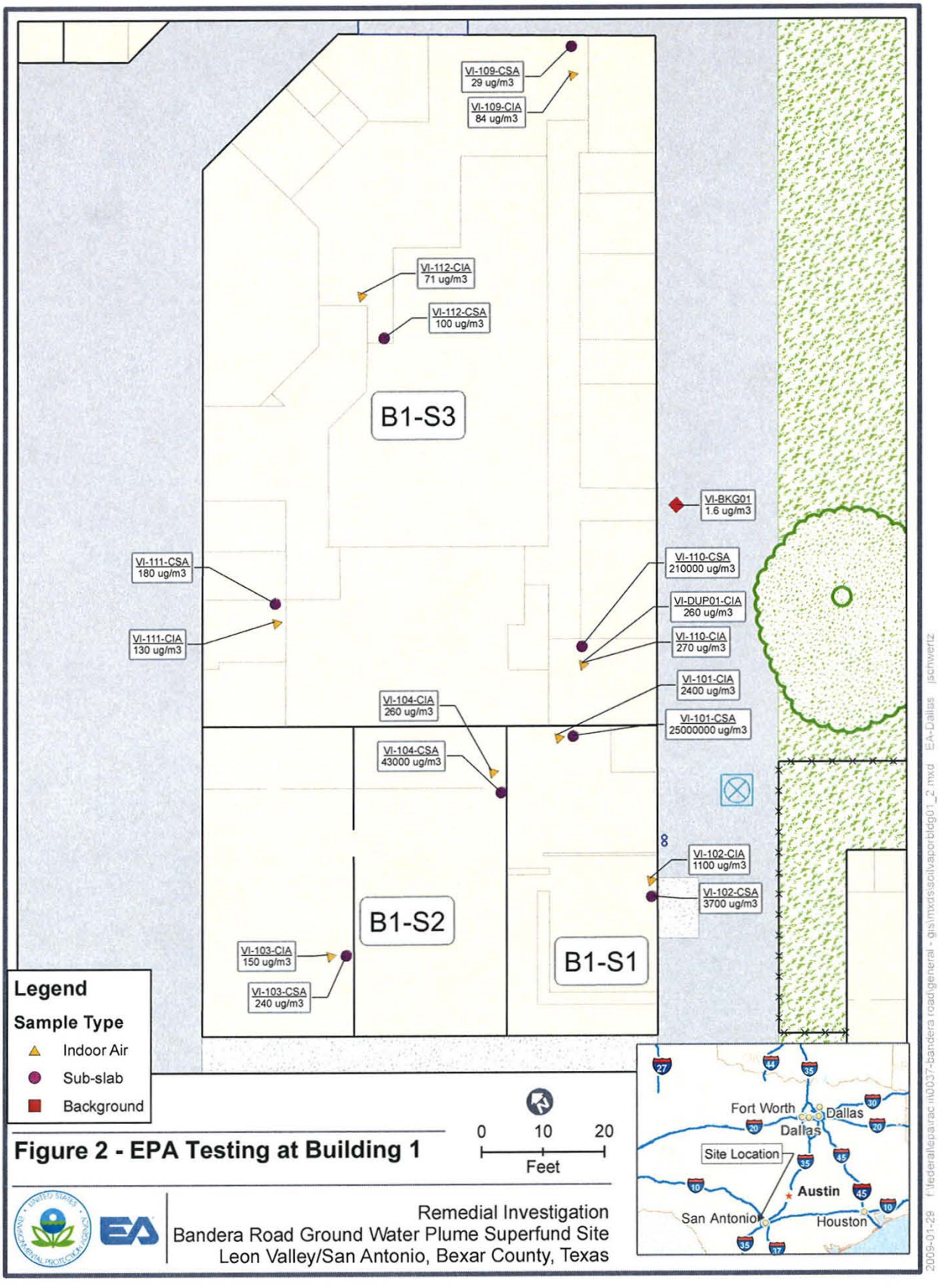


Figure 2 - EPA Testing at Building 1

Remedial Investigation
Bandera Road Ground Water Plume Superfund Site
Leon Valley/San Antonio, Bexar County, Texas

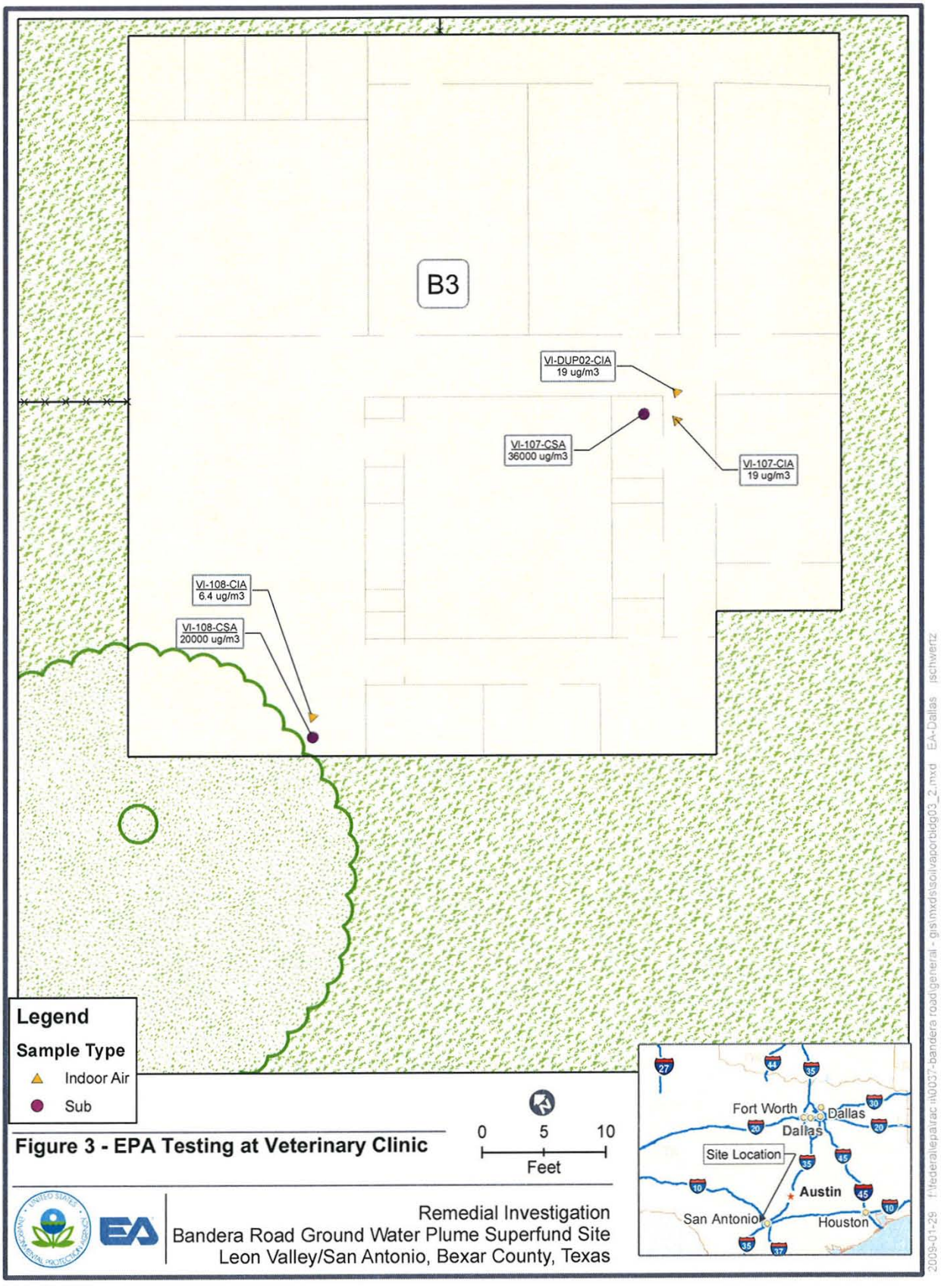
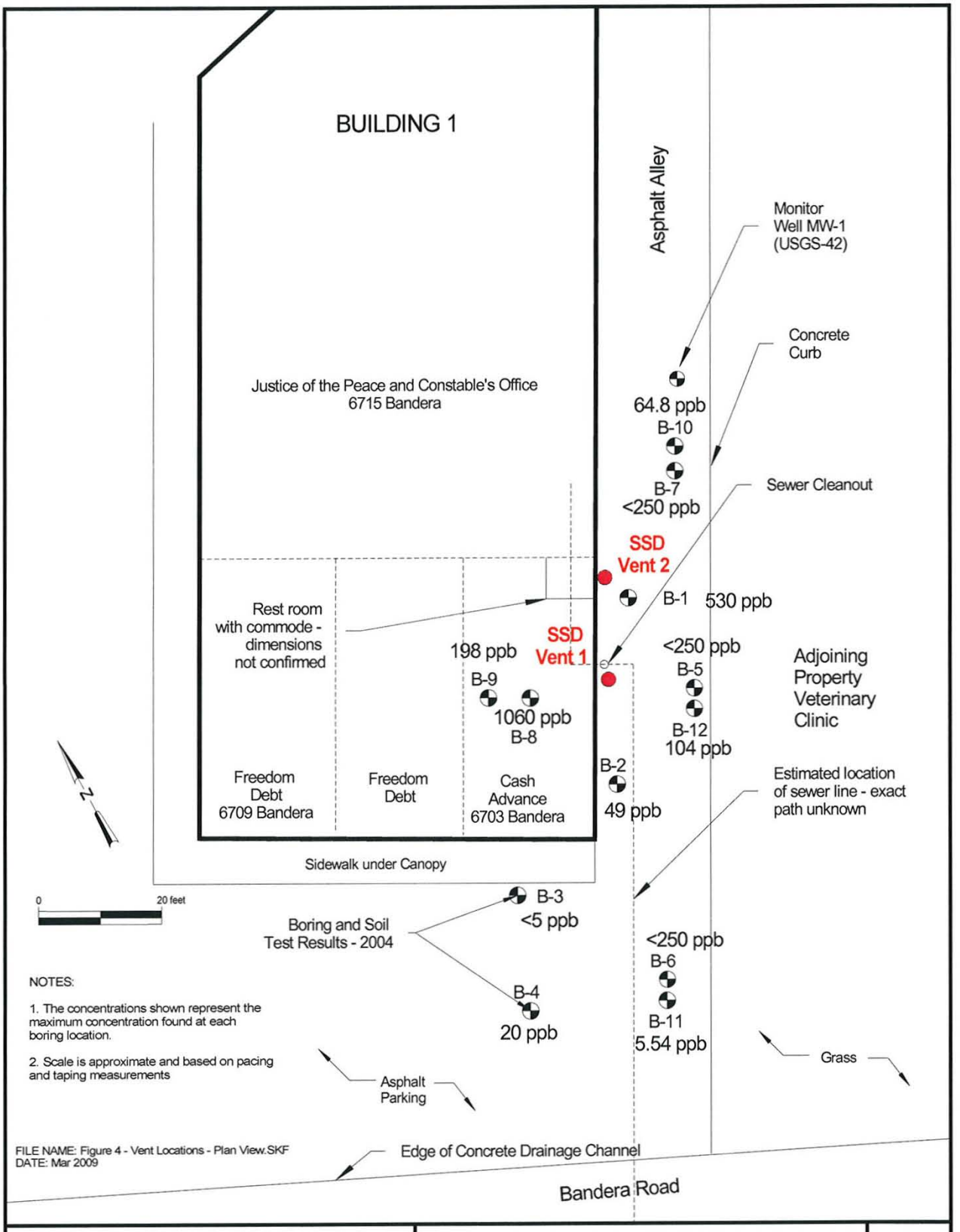


Figure 3 - EPA Testing at Veterinary Clinic



STC Environmental Services Inc. Environmental Scientists and Engineers	VENT SYSTEM - PLAN VIEW	FIG. 4

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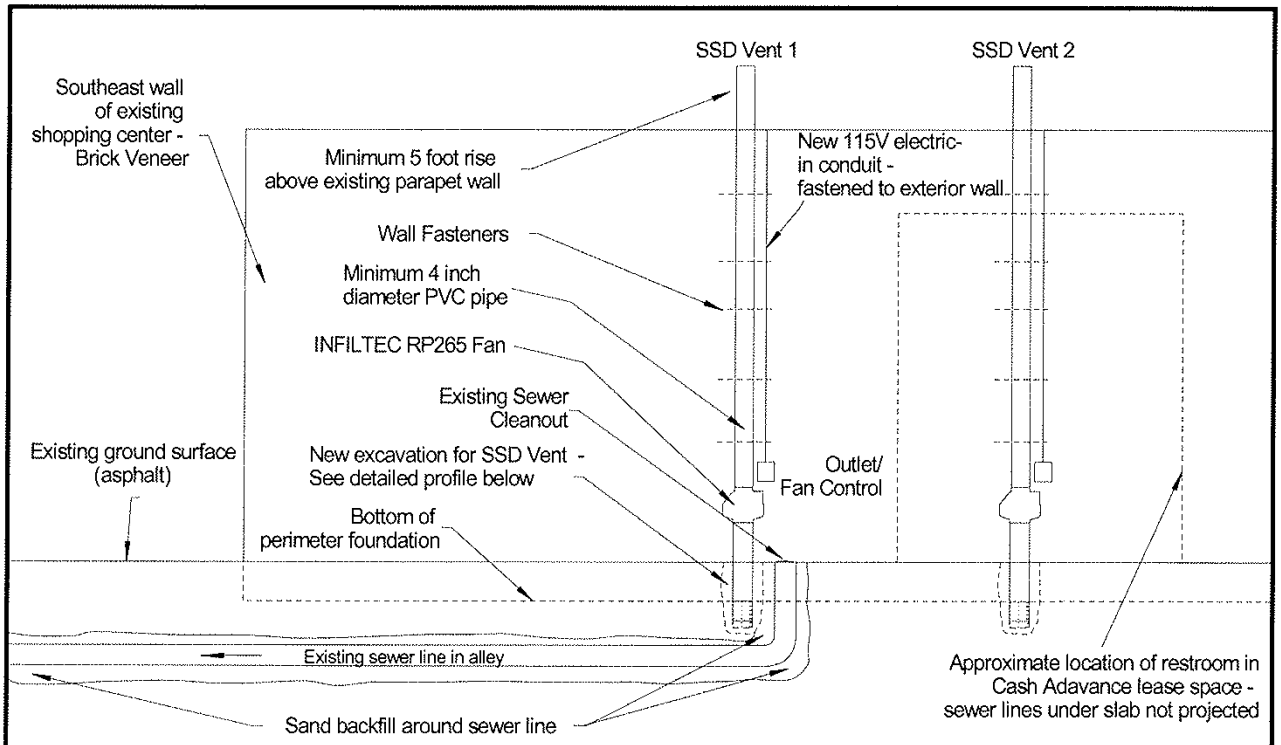
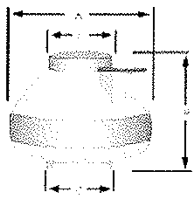


INFILTEC Radon Away high-flow in-line fan specifications

Model	P/N	Fan Duct Diameter	Watts	Maximum Pressure "WC	Typical CFM vs Static Pressure WC				
					0"	.5"	1.0"	1.5"	2.0"
RP140	23029-1	4"	14-20	0.6	94	63	-	-	
RP145	23030-1	4"	37-77	2.1	173	132	94	55	11
RP260	23032-1	6"	52-72	1.8	275	180	105	20	-
RP265	23033-1	6"	86-140	2.5	327	260	207	139	57

*Calculate your estimated annual electrical cost.

Model	Dimensions A	B	C Duct Size
RP140	9.7"	6.5"	4"
RP145	9.7"	6.5"	4"
RP260	11.75"	6.6"	6"
RP265	11.75"	6.6"	6"



FILE NAME: Figure 5 - SSD - Vent Details - Profile View.SKF
DATE: Mar 2009

STC Environmental Services Inc. Environmental Scientists and Engineers	SSD VENT DETAILS - PROFILE VIEW	FIG. 5

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Table I
Indoor Air Vapor Standards for PCE and Other Selected Samples
Veterinary Clinic and Building 1
Bandera Road, San Antonio, Texas

Concentration in ug/m3	Name of Standard or Value	Details/Comments
2.1	Commercial/Industrial Carcinogenic Screening Level	The EPA Regional Screening Level for commercial/industrial exposure for PCE is 2.1 ug/m3 (1E-06 Carcinogenic Risk Level). This is the concentration of PCE in air estimated to cause 1 increased cancer risk in 1,000,000 people that are assumed to be exposed to this concentration for 8-hours a day, 250-days-per-year for 25 years.
19	Maximum level of PCE found in indoor air at Veterinary Clinic	See Figures 2 and 3 for sample locations
100	Air guideline value for the New York State Department of Health	NYSDOH recommends that the average air level in a residential community not exceed 100 micrograms of PERC per cubic meter of air (100 mcg/m3), considering continuous lifetime exposure and sensitive people Source:http://www.health.state.ny.us/environmental/investigations/soil_gas/svi_guidance/docs/svi_main.pdf
128	Typical residential concentration due to use and storage of dry cleaned garments	Source: ATSDR Report on Lockwood Groundwater Plume, Billings Montana http://www.atsdr.cdc.gov/HAC/pha/lockwoodsolvents/lsg_p2.html
271	ATSDR Chronic Inhalation	ATSDR has established a chronic-duration inhalation MRL for PCE of 40 ppbv (271 ug/m3). The chronic inhalation MRL was based on increased reaction times in workers exposed to PCE in dry cleaning shops at an average concentration of 15,000 ppbv for about 10 years. The chronic inhalation MRL has an uncertainty factor of 100.
1,356	ATSDR Acute Inhalation	ATSDR has derived an acute inhalation minimum risk level (MRL) for tetrachloroethene (PCE) of 200 ppbv (1,356 ug/m3). An MRL is the concentration of a compound that is expected to cause no adverse, non-cancerous health effects over a lifetime of daily exposure in a sensitive individual. The acute inhalation MRL is based on increased visual pattern recognition latencies and eye-hand coordination deficits observed in human volunteers exposed to 50,000 ppbv PCE for 4 hours/day for 4 days, but not at 10,000 ppbv for the same duration. The acute inhalation MRL has an uncertainty factor of 10. The acute inhalation MRL specifically addresses short-term, or acute, exposures of 14 days or less.
2,400	Highest indoor air level found in Building 1 at Savings Square Shopping Center as of 1-29-09	Found near north wall of former Rainbow Cleaner Lease space - current tenant is Cash Advance America. See Figures 2 and 3 for sample locations
36,000	Under slab at Vet Clinic	Vapor sample 107 CSA under slab at Vet Clinic. See Figures 2 and 3 for sample locations
170,000	ACGIH	The American Council of Government Industrial Hygienists' (ACGIH) threshold limit value, 8-hour time weighted average (TLV-TWA) for PCE in an occupational setting is 25,000 ppbv (170,000 ug/m3). This is the 8-hour average concentration that that the ACGIH recommends not be exceeded to protect worker health.
678,000	OSHA	The Occupational Safety and Health Administration's (OSHA) permissible exposure level for PCE is 100,000 ppbv (678,000 ug/m3).

TABLE II - SCREENING OF VAPOR INTRUSION MITIGATION TECHNOLOGIES

Technology	Effectiveness	Performance Criteria	Implementability	Cost	Building 1 (Three Tenant Spaces) B1-S1, B1-S2, and B1-S3	Building 3 (Single Tenant Space)
Positive Pressure System	Can be effective in reducing the concentrations of vapors in indoor air Requires retrofitting or installing a system that brings in more outside air and pressurizes the building Typical systems are modified HVAC systems Alternatively, positive pressure can be achieved by introducing outside air into the building using a fan or blower The purpose is to create enough back pressure to prevent soil gas from entering the building However, this approach may result in added moisture intrusion and energy consumption Positive pressurization of buildings is usually practicable only when the building is relatively tight (i e , when there are few doors or other openings) Positive pressure systems inhibit but do not prevent the migration of vapors from the sub-slab Does not mitigate vapors emanating from concrete as potential source material Can be combined with other technologies (e g , membrane/sealant, etc) to increase effectiveness	Must be sized adequately to overcome pedestrian traffic opening and closing outside doors May be difficult to retrofit existing systems effectively that were designed to recirculate air within the building; positive pressure systems are optimized for higher air pressures Requires air balancing and maintenance Increased energy usage for operation of HVAC system	This technology is considered implementable, it may be immediately implementable if the current building design is conducive to this technology This technology is unlikely to disrupt routine business practices if installation occurred during non-working hours	**Low/Medium** Costs dependent on existing HVAC system, building configuration, and pedestrian traffic Costs may range from $1 to $15 per ft2 Typically applied to large commercial structures, may be the most cost effective method if the HVAC system already creates positive pressures, resulting in small or negligible capital costs but potentially increasing energy costs The increased energy costs associated with positive HVAC system operation could exceed $1/ft2 annually	**Technology was retained.** Positive pressure system would likely reduce the indoor air concentrations of vapors emanating from the sub-slab to indoor air	**Technology was retained.** Positive pressure system would likely reduce the indoor air concentrations of vapors emanating from the sub-slab to indoor air
Membrane/Sealant	Can be effective in reducing the emanation of vapors from concrete as potential source material Difficult to seal perimeter and interior walls and cracks in concrete that are not readily visible (i e , under carpet or tile) Would require the removal of carpet and/or tile for implementation Requires access to perforations, which may include building modification The gaps should be sealed with an elastomeric joint sealant (as defined in ASTM C92 87) to further prevent potential vapor intrusion A polyurethane sealant can be used Can be combined with other technologies (e g , positive pressure ventilation system etc) to increase effectiveness	Must be contiguous and a sufficient barrier to vapor migration to be effective Gaps around pipes, wires and other utilities or fixtures that pierce the concrete slab, and control joints, isolation joints, construction joints and other joints made with the concrete slab should be sealed	This technology is considered immediately implementable because it utilizes readily available materials This technology would **moderately disrupt routine business practices** because cabinets, furniture, carpet, tile, etc may be removed to implement.	**Low/Medium** Cost per square foot for the "Liquid Boot" with 2" concrete float cover or polyurea durable spray coating ~$15 to $20 per ft2 for materials Preparation costs and labor are not included and would likely be the majority of the costs	**Technology was retained.** Concrete is likely a source of vapors and installation of a barrier in a localized area may be effective at reducing vapors emanating from the slab The building configuration and occupant materials would require significant modification	**Technology was not retained.** Concrete is not likely a source of vapors and installation of a barrier would be costly due to the building configuration and occupant materials
Sub-slab Depressurization System	Can be effective in depressurizing the sub-slab, which keeps vapors from the sub-slab sources (soil and/or groundwater) from entering the building Does not address vapors emanating from sources within the building structure The effectiveness of this technology can be improved if combined with other technologies (e g , membrane, positive pressure ventilation system, etc)	The depressurization goal is to maintain 0 025 to 0 035 inches (in) WG (6 to 9 Pascals) everywhere under the slab, when the inside and the outside air pressure are the same Low permeability and wet soils may limit performance	This technology is considered immediately implementable because it utilizes readily available materials This technology is unlikely to disrupt routine business practices if installation occurred during non-working hours	**Low** Typical installation costs $2,500 to $5,000 per unit/location or $1 to $5 per ft2 Annual operation and maintenance costs for these systems are typically very low Running a 90-watt fan typically costs less than $100 per year Commercial/industrial systems may use larger, more expensive blowers, which consume more power, often requiring a separate 120 or 240 V AC circuit	**Technology was not retained because it is unlikely to meet performance criteria.** Sub-slab communication for B1-S1 was not evaluated Sub-slab communication for B1-S2 was 0 25 to 0 109 in WG Sub-slab communication for B1-S3 was not measurable (very low)	**Technology was retained.** Sub-slab communication for B3 ranged from 0 046 to 0 074 in WG
Membrane Slab Depressurization System	Can be effective in reducing vapors emanating from the concrete slab (or other interior source) from the interior of the building, thus preventing exposure Difficult to seal perimeter and interior walls Would require the removal of carpet and/or tile for implementation Can be combined with other technologies (e g , positive pressure ventilation system, etc) to increase effectiveness	Must be contiguous and have significant vacuum to be effective	This technology is considered implementable The technology would **significantly disrupt routine business practices** because cabinets, furniture, carpet, tile, etc may be removed to implement	**Medium/High** Cost per square foot is Cost per square foot ~$20 to $25 per ft2 for materials Preparation costs and labor are not included and would likely be the majority of the costs	**Technology was retained.** Concrete is a likely a source of vapors and installation of a barrier in a localized area may be effective at reducing vapors emanating from the slab The building configuration and occupant materials would require significant modification	**Technology was not retained.** Concrete is not likely a source of vapors and installation of a barrier would be costly due to the building configuration and occupant materials
Indoor Air Treatment	Air within the structure can be directed to an pollution control equipment (e g , carbon adsorption systems) to remove volatile organic compounds from the building interior This technique is not widely practiced since it encourages the collection of contaminant vapors within the structure and is dependent on the treatment system's uninterrupted performance to protect occupiers However, it can be an effective mitigation strategy when combined with other techniques to control vapor concentrations in problem rooms Does not prevent the migration of vapors from the sub-slab or mitigate vapors emanating from concrete as potential source material Can be combined with other technologies (e g , positive pressure system, membrane/sealant, etc) to increase effectiveness	Must be sized adequately to overcome pedestrian traffic opening and closing outside doors Typically generates a waste disposal stream Effective capture of some air contaminants can be difficult Energy-intensive, with significant operation, maintenance, and monitoring burden	This technology is considered immediately implementable, however, this technology may be difficult to implement in buildings with multiple occupied spaces that are segregated (i e , typical office configurations) This technology is unlikely to disrupt routine business practices	**Medium** Costs dependent on existing building size, HVAC system, building configuration, and pedestrian traffic Capital costs in the range of $20K per application and annual operating expenses of $15K–$20K per year are not uncommon	**Technology was retained.** This technology would be easily implementable in B1-S1 and B1-S2, however, the configuration of B1-S3 would make this technology difficult to implement	**Technology was retained.** This technology would be difficult to implementable due to the building configuration Sources of volatile organic compounds, other than those from vapor intrusion, within the occupied space may prove troublesome
Soil Vapor Extraction System	Can be effective in depressurizing the sub-slab, which will reduce vapor intrusion to indoor air Most effective at removing soil sources of contamination and re-directing vapors away from the building Does not address vapors emanating from concrete as potential source material Can be combined with other technologies (e g , membrane, positive pressure ventilation system, etc) to increase effectiveness Dependent on mobilizing vapors in sub-slab base material This technology is often used to remediate chlorinated solvent vapors in the vadose zone	To prove source removal, measurable capture of volatile organics by the soil vapor extraction system To prove system is also preventing vapor intrusion, the depressurization goal is to maintain 0 025 to 0 035 inches (in) WG (6 to 9 Pascals) everywhere under the slab, when the inside and the outside air pressure are the same	This technology is considered implementable This technology would briefly disrupt routine business practices if installation occurred during working hours due to noise, however, businesses could feasibly remain open during testing and construction	**High** Start-up costs for a soil vapor extraction system are significant Would require pilot testing and engineering design	**Technology was not retained.** It is unlikely to mitigate the vapor intrusion pathway because vapors may be emanating from the concrete slab and low permeability soils make implementability doubtful Also, this option would require a much longer lead time to design and implement than the other options	**Technology was not retained.** The site-specific construction details (i e , low permeability soils) make implementability doubtful Also, this option would require a much longer lead time to design and implement than the other options

Notes
Shaded technologies are retained for further screening

TABLE III - COMMUNICATION TEST RESULTS

Sample Location	Location Tested	Communication Test Results (Inches of Water)	Description
Freedom Debt Dot Com - Front Offices	VI-103-CSA	-0.109	Vacuum port installed in doorway seperating offices.
Freedom Debt Dot Com - Front Offices	VI-104-CSA	-0.025	Vacuum port installed in doorway seperating offices.
Justice of the Peace Precinct No. 2 and Constable's Office	VI-110-CSA	--	Vacuum port installed next to the east hallway wall of office two.
	VI-111-CSA	--	Vacuum port installed next to the east hallway wall of office two.
Freedom Debt Dot Com - Telemarking Office	VI-105-CSA	-0.003	Two vacuum ports were installed. Port 1 was installed next to the east wall and port 2 was installed next to the west wall.
Leon Valley Veterinary Clinic	VI-107-CSA	-0.046	Vacuum port installed next to the east wall of the exam room.
Leon Valley Veterinary Clinic	VI-108-CSA	-0.074	Vacuum port installed next to the east wall of the exam room.
Northside Learning Center	VI-114-CSA	-0.060	Vacuum port installed in utillity closet across from conference room.

Notes:

The depressurization goal is to maintain 0.025 to 0.035 inches WG (6 to 9 Pascals) everywhere under the slab, when the inside and the outside air pressure are the same.

-- = Not measurable - very low communication