

MEMORANDUM

To: Steve Teel, Department of Ecology
From: Samantha Biles and Brad Berggren
Date: November 7, 2022
Subject: Former Milton's Dry Cleaners Building
Site-Specific Sampling and Analysis Plan Addendum

The most recent site-specific Sampling and Analysis Plan (SAP) for the former Milton's Building was completed in 2011 as part of the building's vapor investigation at that time. On February 22, 2021, Washington Department of Ecology issued a letter requiring additional investigation regarding potential vapor intrusion at the former Milton's Dry Cleaner building (currently House of Smoke). Ecology's 2021 requirement for additional investigation includes differential pressure monitoring during the SVE pilot testing associated with the Ecology-directed Treatability Study being implemented by Geosyntec. Sub-slab sampling techniques have evolved over the decade since the last vapor sampling plan was implemented. PNG has developed this updated site-specific sampling plan addendum to incorporate these technology changes into future monitoring events. This memorandum represents an addendum to the 2011 SAP to address building use and configuration changes, as well as updated cross-slab differential pressure monitoring equipment and methodology. Additional tasks related to the future former Milton's building vapor investigation (e.g., indoor and outdoor air sampling) are not addressed here, and will be specified in a future document.

BUILDING SURVEY

The former Milton's Building is a single-story commercial building on an approximately 0.42 acre land parcel located at 6721 NE Fourth Plain Boulevard, Vancouver, Clark County, Washington (Figure 1). The building is currently owned by Mr. Theng Gov. The former Milton's Building has an approximate area of 2,100 square feet with a drive through canopy at the north end of the building covering an approximate area of 875 feet. The remainder of the parcel includes asphalt paved parking areas to the north and east of the building, gravel covered parking areas to the west of the building, and asphalt paved access to the rear door to the south of the building (Figure 2).

An updated site survey was conducted in March 2021. The building use (active operation as retail space for the House of Smoke) and layout observed during the 2021 site survey has changed since the previous 2010 site survey. Aside from the current bathroom and furnace room walls, there are no interior walls separating the main retail space. The large main room consists of display cases for products related to the House of Smoke retail sales business.

Heating Ventilation and Air Conditioning System

The Milton's Building HVAC system is consistent with the system observed in 2010 and consists of a natural gas fueled heat pump system with overhead duct work consisting of one intake duct and one discharge duct. The intake duct draws air through two vents

located inside the main room/retail area of the building. The discharge duct has a pair of vents located in the north half of the building and a second pair of vents is located in the south half of the building. All discharge vents are within the main room/retail area of the building. The furnace also has intake and discharge ductwork that circulate air through roof vents. As noted above, this HVAC system appeared to be the same in 2021 as it was observed during the 2010 site survey.

Chemical Survey

During the 2010 building survey, a total of four rooms were identified. PNG was afforded full access to the building during the survey. Only one locked safe was not accessed during the 2010 survey. Numerous products containing VOCs were identified in the building. The bulk of these products were common office supplies (printer ink, markers, white out etc.), maintenance supplies (paints and adhesives), cleaning supplies (Windex, Lysol, Orange Clean etc.), bathroom supplies (hand soap, moisturizer, air fresheners etc.), and spray pesticides. None of these products contained target chlorinated chemicals.

A second survey was conducted in March 2021 to reflect current building use. As before, PNG was afforded full access to the building during the survey. Products containing VOCs were identified in the building. The bulk of these products were maintenance supplies (ant killer/insecticide), cleaning supplies (Windex, Lysol, bleach, etc.), and bathroom supplies (hand soap, air fresheners, hand sanitizer). Additionally, tobacco and smoke related retail products were for sale within the space including lighters/torches and butane gas canisters. None of these products contained target chlorinated chemicals.

CROSS-SLAB DIFFERENTIAL PRESSURE MONITORING

Previously in 2010, Ecology requested that PNG conduct indoor and outdoor barometric pressure monitoring to document indoor and atmospheric conditions during the air and soil vapor quality sampling event. The goal of pressure monitoring is to provide data to evaluate potential differential pressures between the sub-slab and building indoor air that could influence soil vapor intrusion into the building.

Since the 2011 monitoring event differential pressure monitoring methodology has changed and the updated methodology provides a more accurate assessment of sub-slab vapor intrusion potential. In response to the changes since 2011, PNG will conduct a direct measurement of cross-slab differential pressure during future monitoring events rather than measure subsurface vapor pressure and separately measure outdoor barometric pressure to assess differential pressure.

PNG will install a network of semi-permanent vapor pins at selected locations, consistent with the manufacturer's SOP (Attachment A). A pre-installation building survey and meeting with the building owner and tenant will be conducted to finalize vapor pin locations relative to building features and tenant use. Vapor pins are multi-functional, and will be used for cross-slab differential pressure monitoring as well as future sub-slab soil gas sampling. The former monitoring locations were selected for the 2011 sampling event based on their proximity to the former interior drainage trench features that were filled with concrete during renovation of the former dry cleaner. The current vapor pin installation locations are proposed to be as close as possible to the previous 2011 monitoring locations (Figure 3), but may change from the 2011 monitoring locations due to changes in the interior layout and use of the retail space. Also, during cross-slab differential pressure monitoring, meters will need to be left in place for an extended time (up to one

week continuously for each event). The finalized vapor pin installation locations must protect the pressure meters from damage or tampering, as well as avoid interference with or interruption of retail activities in the House of Smoke occupied space.

The cross-slab differential pressure data collection will utilize CLK-Zephyr II+ data logging micro-monometers, or similar devices, at five vapor pin locations. The micro-manometer is auto-zeroing and has a pressure differential sensitivity to 0.001 inches of water.

PROPOSED SCHEDULE

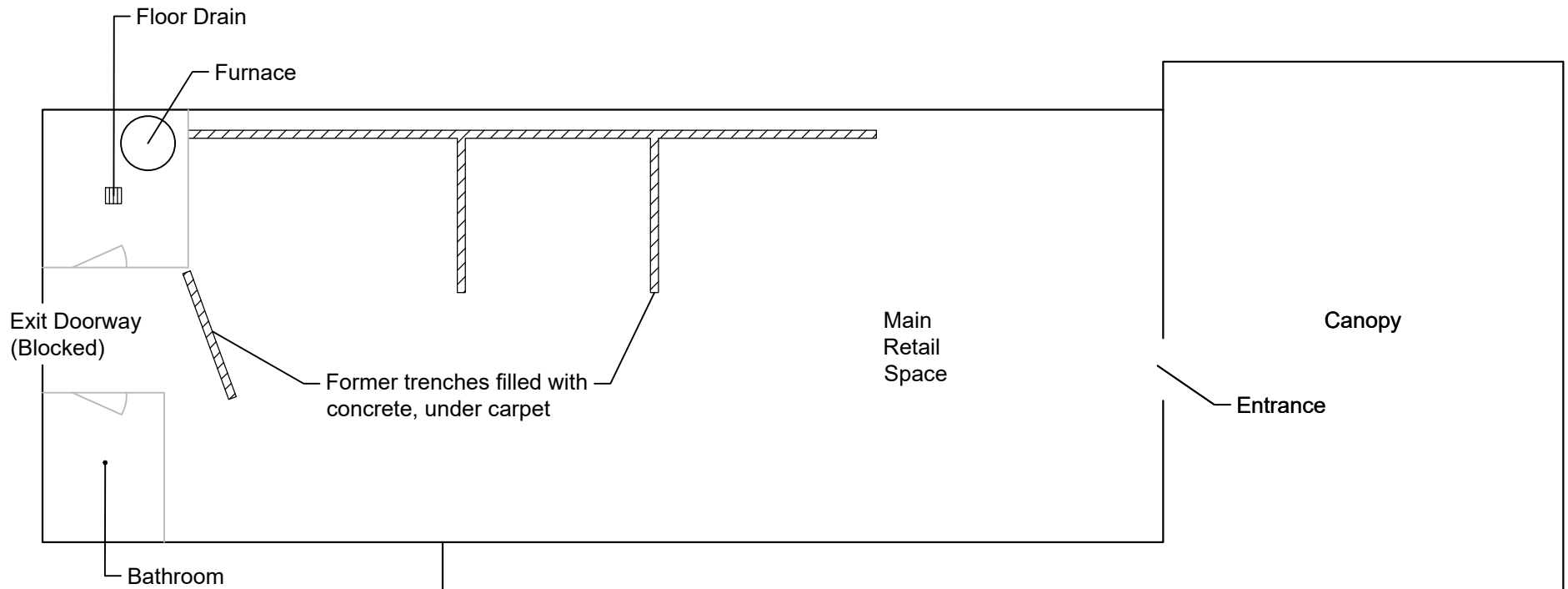
Cross-slab differential pressure monitoring will be conducted during the SVE Treatability Study, as required by Ecology in the February 2021 letter. Timing for the cross-slab differential pressure monitoring will involve coordinating with Geosyntec based on their SVE Treatability Study implementation schedule. This SAP addendum includes monitoring during the initial SVE step test, as well as the two subsequent 7-day constant rate SVE tests of the Ecology approved Treatability Study.

Attachments – Figure 1 – Site Location Map
 Figure 2 – Former Milton's Dry Cleaner Site Features
 Figure 3 – Proposed Sampling Locations

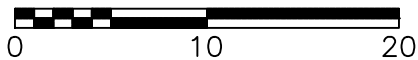
Attachment A – Vapor Pin SOP

Figures

I:\Autocad Files\PNG-Autocad\1987-03 Milton's\2020\April 2020\987-03_BLDG-CS-Miltons-040920.dwg



APPROXIMATE SCALE IN FEET



Note: Based on interviews, 3 additional floor drains existed within the building. Exact locations are unknown.

PNG ENVIRONMENTAL, INC.

6665 SW Hampton St., Ste. 101
Tigard, OR 97223

TEL (503) 620-2387
FAX (503) 620-2977

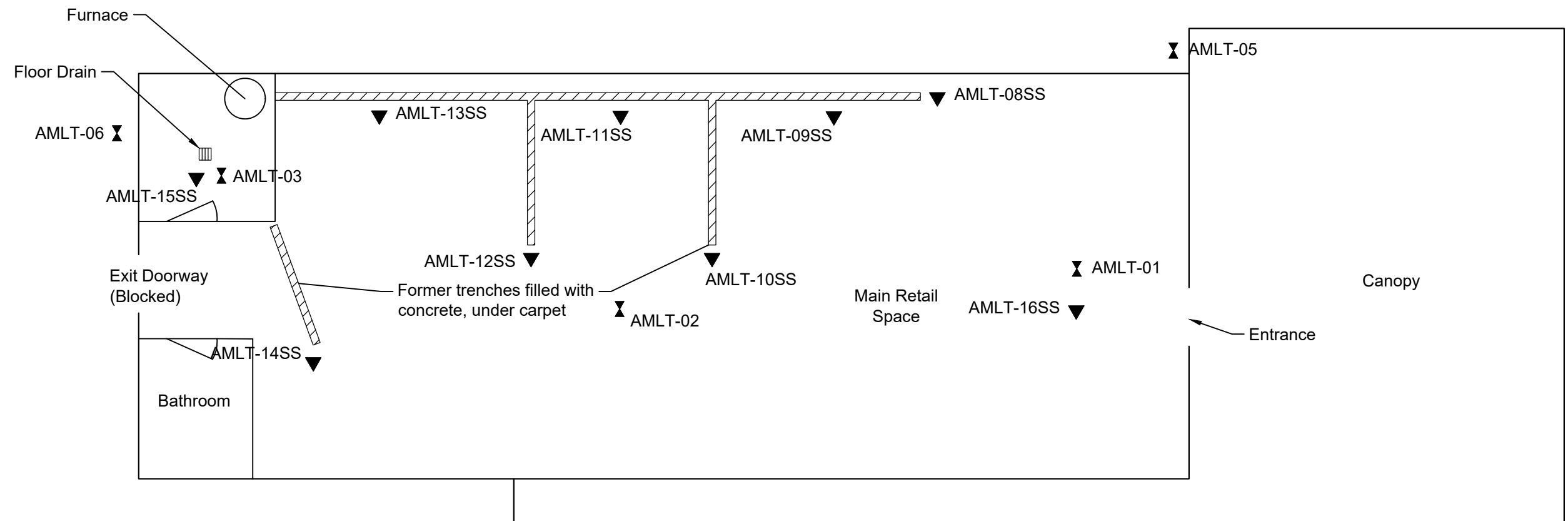
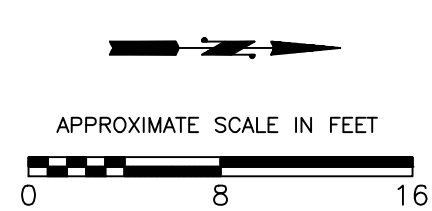
DATE: 3-11-21
FILE NAME: 987-03
DRAWN BY: JJT
APPROVED BY: SV

MILTON'S DRY CLEANERS
6721 E. FOURTH PLAIN BLVD.
VANCOUVER, WASHINGTON




FORMER MILTONS DRY CLEANERS
(HOUSE OF SMOKE)
SITE FEATURES

Project No.
987-03

Figure No.
2



LEGEND

AMLT-01		Air Sample Location
AMLT-11SS		Soil Gas Sample Location
		Former Trenches filled with Concrete flush with floor
J =		Estimated Value. The results fell between the laboratory's practical quantitation limit and the MRL.
U =		Not Detected Above Laboratory Reporting Limits Shown.

Note: PCE/TCE Concentrations in
Micrograms per Cubic Meter (ug/m³).

Note: Based on interviews, 3 additional floor drains existed within the building. Exact locations are unknown.

PNG ENVIRONMENTAL, INC.
6665 SW Hampton St., Ste. 101 TEL (503) 620-2387
Tigard, OR 97223 FAX (503) 620-2977

DATE: 3-11-21
7 FILE NAME: 987-03
7 DRAWN BY: JJT
APPROVED BY: SV

MILTON'S DRY CLEANERS
6721 E. FOURTH PLAIN BLVD.
VANCOUVER, WASHINGTON

PROPOSED SAMPLING LOCATIONS

Project No.
987-03

Figure No.

3

Attachment A

Vapor Pin SOP



Standard Operating Procedure Installation and Extraction of the Vapor Pin® Sampling Device

Updated January 28, 2021

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® sampling device for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® sampling device for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® sampling device [VAPOR PIN® sampling device and silicone sleeve (Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole must be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® sampling device installation/extraction tool;

- Dead blow hammer;
- VAPOR PIN® sampling device flush mount cover, if desired;
- VAPOR PIN® sampling device drilling guide, if desired;
- VAPOR PIN® sampling device protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN® sampling device.



Figure 1. Assembled VAPOR PIN® sampling device

Installation Procedure:

- 1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.
- 2) Set up wet/dry vacuum to collect drill cuttings.
- 3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® sampling device drilling guide is recommended.

VAPOR PIN® sampling device protected under US Patent # 8,220,347 B2 and other US and International Patents

- 4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole **must** be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.
- 5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.
- 6) Place the lower end of VAPOR PIN® sampling device assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.



Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® sampling device shoulder. Place the protective cap on VAPOR PIN® sampling device to prevent vapor loss prior to sampling (Figure 3).



Figure 3. Installed VAPOR PIN® sampling device

- 7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).



Figure 4. [Secure Cover](#) Installed

- 8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.
- 9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN® sampling device. This connection can be made using a short

piece of Tygon™ tubing to join the VAPOR PIN® sampling device with the Nylaflow tubing (Figure 5). Put the Nylaflow tubing as close to the VAPOR PIN® sampling device as possible to minimize contact between soil gas and Tygon™ tubing.



Figure 5. VAPOR PIN® sampling device sample connection

- 10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® sampling device via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.



Figure 6. Water dam used for leak detection

- 11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover until the next event. If the sampling is complete, extract the VAPOR PIN® sampling device.

Extraction Procedure:

- 1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® sampling device (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® sampling device will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.
- 2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.



Figure 7. Removing the VAPOR PIN® sampling device

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN®

sampling device in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, STAINLESS – ½ hour, BRASS 8 minutes

- 3) Replacement parts and supplies are available online.