Sterling Environmental Engineering, P.C.

TROY BELTING & SUPPLY COMPANY
BROWNFIELD CLEANUP PROGRAM
SITE NO. C401067
70 COHOES ROAD
COLONIE, NY

VAPOR MITIGATION SYSTEM
CONSTRUCTION COMPLETION REPORT

Prepared For:

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"Serving our clients and the environment since 1993"

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CERTIFICATION

I, Rodney L. Aldrich, P.E., certify that I am currently a New York State registered professional engineer and that this Vapor Mitigation System Construction Completion Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

______________________________ 1/4/17

Rodney L. Aldrich, P.E. Date

1.0 INTRODUCTION

In accordance with New York State Department of Environmental Conservation (NYSDEC) approved plans, the Vapor Mitigation System (VMS) was installed at the Troy Belting & Supply Company building at 70 Cohoes Road, Town of Colonie, New York. Operation of the vapor withdrawal and treatment system was initiated on October 30, 2015. The system was installed by Troy Belting personnel in accordance with the system design prepared by Sterling Environmental Engineering, P.C. (STERLING). The construction and installation of the VMS was based on the NYSDEC approved VMS Pilot Test Results and Design Report, dated April 28, 2015, revised June 1, 2015 and approved by NYSDEC by letter dated June 16, 2015.

The VMS is designed to at least partially mitigate indoor air contaminants of concern (COCs) identified as Tetrachloroethene (PCE), Trichloroethene (TCE) and 1,1,1-Trichloroethane (1,1,1-TCA), hereinafter "Indoor Air COCs", infiltrating into the occupied space in the building from soil vapor beneath the slab at or near the demonstrated contaminant source. The VMS is also designed to reduce the exposure of building occupants both in the office and in the shop to acceptable levels of the COCs as determined by the Occupational Safety and Health Administration (OSHA) and the New York State Department of Health (NYSDOH), as applicable.

2.0 VAPOR MITIGATION SYSTEM DESIGN AND INSTALLATION

The VMS uses a fan powered vent and piping to draw vapors from the soil beneath the building's slab, creating a vacuum or negative pressure beneath the slab, and discharges vapors to the building exterior. This results in a lower sub-slab air pressure relative to indoor air pressure within a certain area of the slab, which prevents the infiltration of sub-slab vapors into the building within that area. This type of system is recommended in the document entitled, "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006 (NYSDOH Soil Vapor Guidance).

The VMS was designed to allow expansion into a sub-slab depressurization system (SSDS) as recommended in subparagraph 4.1(e)1.iv of the NYSDEC Program Policy DER-10/Technical Guidance for Site Investigation and Remediation. The VMS also could interface with other mitigation measures, should they prove necessary.

The initial remedial objective was to remove Indoor Air COCs where the highest concentration of soil vapor was identified along the northwestern boundary of the building. Two (2) vapor withdrawal systems were installed within the building in the northern portion of the concrete floor slab to create a negative pressure below the slab relative to the pressure of the indoor air (see Figures 1 and 2) and force soil vapor through the VMS for treatment before emitting to the building exterior.

Each withdrawal system consists of a length of perforated horizontal pipe surrounded by stone fill beneath the slab. The design required a minimum vacuum of approximately five (5) inches water column (inWC) negative pressure. This negative pressure difference was selected to create a minimum radius of influence of 31 feet. This distance of 31 feet exceeds the design objective of 30 feet which was twice the radius of influence of approximately 15 feet previously achieved and reported in the VMS Pilot Test Results and Design Report dated April 28, 2015 and revised June 1, 2015. This radius of influence was selected to ensure the VMS collects the majority of the contamination which presumably enters the sub-slab soil from the identified source area adjacent to the building.

From each withdrawal system, the extracted soil vapor is transported through ducts to a carbon treatment system for the removal of Indoor Air COCs within the soil vapor stream. The treated soil vapor is then exhausted through a final ducting system for emission above the roof line.

Figures 1 through 3 depict the VMS installed at the facility. A Photograph Log and Daily Field Reports (provided as Appendix A and Appendix B, respectively) are provided as supplements for the VMS construction information presented in the following sections.

2.1 Withdrawal Systems

The Eastern Extraction Area (EEA) sub-slab soil vapor withdrawal system consists of a right-angled trapezoid-shaped excavation located on the east side of the wall to the east of the main paint booth. The EEA is situated with its longest dimension extending north to south and having the parallel sides a width of 2.4 feet. The western edge measures approximately 4 feet in length and the eastern edge measures approximately 5.2 feet in length (see Detail 1 on Figure 3 and Photograph 1).

The Western Extraction Area (WEA) sub-slab soil vapor withdrawal system consists of a rectangular-shaped excavation located to the west of the former Pilot Test hole, located off the northwest corner of the main paint booth. The WEA is situated with its longest dimension extending east to west, approximately 4.4 feet in length by 2 feet in width (see Detail 2 on Figure 3 and Photograph 2).

Material was removed to a depth of approximately two (2) feet in each withdrawal system. Approximate four (4) inches of angular/sub-angular New York State Department of Transportation (NYSDOT) Type 2 stone was placed in the bottom of each excavation. A horizontal, perforated 4-inch diameter PVC pipe was placed in each withdrawal system. A solid 4-inch diameter PVC pipe connected to one end of the perforated pipe extends upward above the concrete floor slab. The perforated section in the horizontal pipe in each area consists of eight (8) rows of 32 holes, totaling 256 holes of ¼ inch diameter for extraction of soil vapor. Additional stone was placed around the perforated pipe up to the elevation of the bottom of the floor slab, approximately four (4) inches below grade surface (bgs). Two (2) layers of 6-mil polyethylene plastic sheeting were placed over the stone. The excavation was sealed using non-shrinking grout placed above the stone and polyethylene plastic sheeting to surround the vertical solid pipe to match the grade of the original floor. Cracks extending past the excavation were sealed using RTV Silicone sealant (see Detail 4 on Figure 3 and Photographs 3 through 6).

The location of the withdrawal systems were pre-determined to ensure overlap of the zone of influence of the two withdrawal systems to optimize soil vapor collection.

2.1.1 Soil/Concrete Sample Results for Withdrawal Location

Two (2) soil samples were obtained from each of the excavated locations where the withdrawal systems were to be installed. The EEA was sampled on September 17, 2015 while the WEA was sampled on September 21, 2015. These samples were analyzed by Alpha Analytical, Inc. of Mansfield, MA for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), using Methods 8260 and 8270.

Results indicated no SVOCs were detected in either soil sample. Some VOCs were detected and compared against the Unrestricted Use Soil Cleanup Objectives (UUSCOs) in Table 1 of Appendix C. No UUSCOs were exceeded. Laboratory reports of the soil are provided in Appendix C.

The removed concrete was not chemically analyzed. All concrete pieces were intact directly from the excavation. Mr. Christopher O'Neill of NYSDEC was onsite on October 8, 2015 to view the concrete slabs. No staining or odors were noted.

Soils and concrete were approved to be reused onsite as fill materials by Mr. O'Neill's email dated October 8, 2015 (see Appendix C). Troy Belting placed the soils and concrete as part of the backfill in the test pits along the exterior northern building wall.

2.2 Initial Ducting System

The 4-inch diameter duct from the EEA extends approximately 1.6 feet vertically, parallel to the wall, into a 45° elbow. A two (2) foot section of 4-inch diameter PVC duct then extends from the 45° elbow towards the interior wall to the west of the EEA and into another 45° elbow, ultimately connecting to a vertical duct which extends approximately 10.9 feet vertically and parallel to the wall. The duct enters into a 90° elbow, extending the duct approximately 19.1 feet horizontally to the south entering into another 90° elbow, which turns the duct to the west. From this second elbow, the duct extends through the 7-inch thick wall and into the second tee of the 6-inch manifold, where the air flow combines within the manifold with the WEA air flow (see Photographs 7 and 8).

The 4-inch diameter duct from the WEA extends approximately 10.5 feet vertically, parallel to the west wall of the main paint booth, into a 90° elbow. From the elbow, the duct extends 21.5 feet horizontally to the southeast and is above the main paint booth. The PVC duct then passes through a 60° elbow and extends southward and parallel to the building interior wall which is east of the WEA. The duct extends approximately 14 feet horizontally where it then connects to a tee on a 6-inch diameter manifold and combines its flow within the manifold with the EEA air flow (see Photographs 9 through 11).

An aqueous U-tube manometer is attached to the WEA duct emerging from the floor approximately 4.72 feet above the concrete slab. An aqueous U-tube manometer is attached to the EEA duct emerging from the floor approximately 5.2 feet above the concrete slab. The manometers are used to indicate the negative pressure differential at each of the sub-slab withdrawal systems (see Photographs 12 and 13).

Three (3) tee connections are available on the 6-inch diameter manifold duct. One tee on the manifold duct is connected to the WEA air flow, one tee is connected to the EEA air flow and the third tee is capped off and available for a future installation if necessary. The manifold duct is situated approximately 8.5 feet above the concrete slab and is designed to carry the combined flows at approximately the same velocity as exists in the 4-inch diameter ducts (see Detail 3 on Figure 3 and Photograph 11).

2.3 Activated Carbon Treatment System

The 6-inch diameter PVC manifold duct is connected to an Electro Industries Model EM-WX 10 Electric Heater using one (1) foot of flexible 6-inch diameter duct and using a 6-inch x 10-inch rubber reducer at the inlet. From the exit of the heater, approximately four (4) feet of 6-inch flexible duct and PVC ducting is connected to another 6-inch x 10-inch rubber reducer, where the air flow is then directed into one of the two (2) G-10P Steel Vapor Phase Carbon Canisters containing 600 pounds of Carbon Type CSV high capacity virgin carbon (CCLA No. 60). The canisters are supported approximately 1.2 feet above the concrete slab and are connected in series. A sample port was installed before the first carbon canister for measuring and sampling purposes (see Detail 3 on Figure 3 and Photographs 14 through 16).

Approximately 8.1 feet of 6-inch diameter flexible duct and PVC duct connects the G-10P canisters in series. From the exit of the second G-10P canister, a rubber reducer is connected to 6-inch PVC and into 6-inch flexible ducting into a 90° elbow, allowing the final ducting system to extend horizontally along the wall to the exhaust system.

In accordance with the VMS Pilot Test Results and Design Report dated April 28, 2015 and revised June 1, 2015 and the Operations, Monitoring and Maintenance Plan (see Appendix F), breakthrough of Indoor Air COCs in the initial activated carbon canister will be monitored to ensure the carbon is changed frequently enough to provide effective emission treatment at all times. A sample port is provided between the carbon canisters for this purpose.

2.4 Final Ducting System, Fan and Emission

Following the Activated Carbon System, the final 6-inch diameter PVC ducting system extends 28.5 feet and penetrates the exterior wall approximately nine (9) feet above the slab. Flexible ducting is attached to the end of the solid duct to direct the air flow into a Model PB-10A Cincinnati Fan. A condensation port is installed at the base of the fan to permit the periodic removal of condensation from the fan housing. Six (6) inch PVC ducting is connected from the fan to the outlet to additional flexible ducting, through two (2) 90° PVC elbows, creating a “U” in the duct to permit the capture of the majority of the condensation. The final duct extends vertically so that the emission point is approximately 11.4 feet above the roofline. The height of the stack was designed to conform to the recommendation in the NYSDEC Air Guide 1 that a stack discharging at 1.5 times the building height will avoid the emission entering the cavity which forms downwind of a building (see Detail 5 on Figure 3 and Photographs 17 through 20).

The fan is connected to the electrical system in conformance with applicable code. The fan is equipped with a shut off and a variable rate controller. The fan will run continuously, except when changing activated carbon or perhaps when removing condensate.

3.0 VAPOR MITIGATION SYSTEM START-UP INSPECTION & RESULTS

The VMS was activated on October 30, 2015 at 1:00 PM. STERLING conducted a start-up inspection to verify the VMS components were placed and functioning properly. Results of the VMS start-up inspection are described in Section 3.1 and a complete inspection report form is provided in Appendix D. A Photoionization Detector (PID) was used to measure the concentration of Indoor Air COCs in the sub-slab locations before each sub-slab differential pressure measurement. The sub-slab differential pressure testing was performed at the sub-slab soil vapor sampling port locations shown on Figure 4. Differential pressure was measured using an Infiltec digital micro manometer. Results of the VMS differential pressure testing and PID readings are described in Sections 3.3 and 3.4, respectively and provided in Table 1.

3.1 VMS Start-Up Inspection

STERLING inspected the VMS before and during the start-up of the system to verify the components were (1) in the correct locations; (2) connected in the proper order; and (3) connected without gaps or detectable leaks. A non-hazardous smoke test was used to detect leaks. The conditions recorded at start-up provide a baseline for comparison during subsequent weekly inspections.

All components were observed to be installed as designed in the approved VMS Pilot Test Results and Design Report. A smoke test was performed, using an Allegro Industries Qualitative Smoke Fit Test Kit, around the elbows, heater, carbon canisters, extraction points and duct connections to verify all the locations were sealed properly. Non-hazardous smoke was applied and observed to flow around the locations without being drawn into the components which demonstrated the tightness of the VMS.

3.2 VMS Withdrawal Rate Adjustment

Initially, the fan was set by STERLING to operate at approximately 73% power to reach the design differential pressure of -5.0 inWC (see the VMS Pilot Test Results and Design Report dated April 28, 2015 and revised June 1, 2015). The design differential pressure of -5.0 inWC was selected to ensure a detectable negative pressure up to 31 feet from the withdrawal systems. Once the differential pressure was achieved at both withdrawal systems, Troy Belting conferred with STERLING regarding the design sub-slab pressure and resulting radius of influence. Even though the design criteria was achieved, Troy Belting requested to increase the fan power to 100% to increase the differential pressure, to increase the radius of influence, and to remove a greater volume of contaminated sub-slab vapor. Once the pressures stabilized, STERLING observed approximately -9.0 inWC pressure differential between the sub-slab and indoor air at both of the vapor extraction areas.

As a result of operating the fan at 100% power, the detectable negative pressures have extended as far as 62.9 feet from the EEA location (see Figure 6), increasing the radius of influence and creating a larger area for vapor extraction.

3.3 VMS Start-Up PID Results

The concentration of VOCs in each of the sub-slab soil vapor sampling port locations was measured on October 30, 2015 using a PID before each sub-slab differential pressure measurement was obtained. Table 1 demonstrates the PID readings in the sub-slab obtained closer to the source area, near 70-SV-1, were generally greater than those readings further away from the source area, such as 70-SV-2. Overall, the sub-slab soil vapor PID measurements were greater than the indoor air PID measurements of 0.6 parts per million (ppm) in the shop area.

3.4 VMS Start-Up Sub-Slab Differential Pressure Results and Determination of Radius of Influence

STERLING conducted pressure readings from the sub-slab soil vapor sampling ports on November 2 and 9, 2015. A minimum of four (4) 32-second average pressure readings were obtained from each sub-slab soil vapor sampling port within the first hour of the VMS startup. The 32-second period of pressure measurement and the four (4) repetitions was designed to obtain readings averaged over the fluctuations which occur at this industrial facility, including opening and closing of bay doors and usage of facility equipment.

Negative pressure differential readings indicate communication between the location of the fan and the sub-slab soil vapor sampling ports to a minimum of 13.2 feet west from the WEA withdrawal area. Sub-slab soil vapor sampling port 70-SV-7 indicated small but measureable differential pressure readings. Troy Belting notes a frost wall may exist below the current interior wall between 70-SV-7 and the WEA as shown on Figure 2 (the current interior wall was an exterior wall before the western addition was added). These readings indicate there is some communication of negative pressure between the sub-slab soil volume below the addition and the sub-slab soil below the original building.

Additional differential pressure readings were obtained November 9, 2015 from sub-slab soil vapor sampling ports 70-SV-5 and 70-SV-6 due to a noticeable air movement at these locations caused by the operational HVAC units and exhausting equipment in the building on November 2, 2015. STERLING positioned the digital pressure manometer in four orientations, with the ambient air port on the manometer to the sample port in the north, south, east and west directions to obtain an average of the four differential pressure readings obtained per orientation. Pressure readings were observed to be affected by the breeze within the room at 70-SV-5 and 70-SV-6. Table 1 provides the readings at these sub-slab soil vapor sampling ports in their associated orientation.

Negative pressure differential readings indicated communication between the location of the sub-slab soil vapor sampling ports to a minimum of 62.9 feet in the east-southeast direction from the EEA withdrawal area, including 70-SV-4, 70-SV-5, 70-SV-6 and 70-SV-2.

These sub-slab pressure test results demonstrate that the negative sub-slab pressures extends approximately 62.9 feet to the east-southeast from the EEA and to below the addition area to the west of the WEA.

Table 1 provides the differential pressure readings at the sub-slab soil vapor sampling ports. Figure 6 provides the graph of negative pressure readings vs. distance to determine the estimated radius of influence of the VMS from the EEA withdrawal area. The trend line shown on Figure 6 indicates the radius of influence is approximately 81 feet from the EEA, corresponding to the distance where there is no discernable pressure differential.

The differential pressure monitoring of the sub-slab soil vapor sampling ports between the WEA and EEA withdrawal systems verify the zone of influence from the two withdrawal extraction points overlap with no observed gaps present in the vapor collection system.

4.0 VAPOR MITIGATION SYSTEM CHEMICAL SAMPLING PROTOCOL AND ANALYTICAL RESULTS PRE AND POST VMS START-UP

In accordance with VMS Pilot Test Results and Design Report, prepared by STERLING and dated April 28, 2015, revised June 1, 2015 and approved by NYSDEC by letter dated June 16, 2015, air sampling was performed one week prior to the start-up of the VMS and two weeks after the start-up. The purpose of the sampling was to identify the concentrations of Indoor Air COCs present in each location before and after the VMS began operation to assess the effectiveness of the VMS at reducing the concentration of the Indoor Air COCs in the indoor air and sub-slab. Also, the progress of treatment of the removed soil vapor was checked by sampling along the treatment train.

Indoor air, sub-slab soil vapor, combined soil vapor and treated soil vapor samples were collected at the same time the sub-slab samples were obtained. Sampling activities associated with the chemical sampling events are described below.

4.1 Sub-Slab Soil Vapor and Indoor Air Chemical Sampling

Air and soil vapor samples were obtained in conformance with the protocols in the NYSDOH Soil Vapor Guidance. Four (4) 24-hour Summa® canisters were used to collect sub-slab soil vapor from locations SV-1, SV-2, SV-3 and SV-7 and four (4) 24-hour Summa® canisters were used to collect indoor air at locations IA-1, IA-2, IA-3 and IA-8 concurrently and prior to start-up of the VMS during the period from October 21 – 22, 2015. These locations are identified in Table 2 and depicted on Figure 4. Sub-slab soil vapor and indoor air samples were collected concurrently during the sampling period from November 17 - 19, 2015 at the same locations as on October 21 – 22, 2015 after the VMS had been operating for over two weeks. In addition, one (1) duplicate indoor air sample was collected at location IA-8 as a quality control sample.

Three (3) soil vapor samples were collected from the VMS treatment train to ensure the activated carbon was preventing emissions of Indoor Air COCs. These soil vapor sample locations are identified in Table 3 and depicted on Figure 4. The soil vapor samples collected from the VMS treatment train were obtained at the following locations: prior to the carbon canisters, between the two carbon canisters, and after the carbon canisters at the exhaust. The soil vapor samples within the treatment train were obtained to demonstrate the effectiveness of the treatment system.

Prior to collecting the indoor air and sub-slab soil vapor samples, a screening of total chlorinated VOCs was performed using a PID with an 11.7 eV lamp at each indoor air and sub-slab soil vapor sampling location. The purpose of the PID screening was to identify the approximate concentrations of chlorinated VOCs of each location before collecting samples.

Indoor air and sub-slab vapor samples were collected in accordance with the NYSDOH Soil Vapor Guidance. Sampling procedures are described in the following sections.

4.1.1 Indoor Air Sampling

Indoor air samples were collected concurrently with the sub-slab soil vapor samples at locations IA-1, IA-2, IA-3, and at IA-8 identified on Figure 4. The indoor air sample at IA-8 has no associated sub-slab soil vapor port or sub-slab sampling. The indoor air samples were collected from the breathing zone approximately three to five feet above the ground/floor surface in the same area as the sub-slab soil vapor sample, as applicable. Indoor air samples were collected using 6-Liter capacity Summa® canisters fitted with a laboratory-calibrated critical orifice flow regulation device calibrated to allow the collection of the air samples over a 24-hour period.

4.1.2 Soil Vapor (Sub-Slab) Air Sampling

The sub-slab soil vapor (permanent) sampling ports for the VMS were installed in mid-2014 by coring a 4-inch diameter hole through the existing concrete slab, measuring approximately 6-8 inches thick. Each sample port was installed at least five (5) feet from any exterior wall. A one-quarter (1/4) inch diameter soil-gas implant was installed below the concrete slab, allowing the 12-inch screened mesh to be entirely below the concrete slab. Glass beads were used to surround the implant below the slab to allow for soil vapor to be collected through the implant. The implant was sealed to the concrete slab using a non-volatile, non-shrinking bentonite to reduce the potential for infiltration of indoor air into the sub-slab during sub-slab vapor sample collection. A 2-inch bolt-down flush mount cover was installed at the same grade as the surface of the concrete slab to cap and protect the implant when not in use (see Figure 5 for details).

Each sub-slab soil vapor sample was collected using 6-Liter capacity Summa® canister fitted with a laboratory calibrated critical orifice flow regulation device calibrated to allow the collection of the soil vapor. The observed soil vapor sample collection flow rate at each sub-slab location was below the maximum flow rate of 0.2 Liter per minute recommended by the NYSDOH Soil Vapor Guidance to limit

VOC stripping from soil, prevent the short-circuiting of ambient air from ground surface that would dilute the soil vapor sample, and increase confidence regarding the location from which the soil vapor sample was obtained.

Prior to sampling, each sub-slab soil vapor sample port was purged at a flow rate of less than 0.2 Liter per minute. Three to five (3 to 5) volumes of the sampling tubing were purged to remove potentially stagnant air from the internal volume of the soil vapor probe and ensure that soil vapor representative of the conditions beneath the sub-slab was drawn into the certified clean Summa® canister. The tubing was attached directly to a Summa® canister. A sample collection form was completed for each sub-slab soil vapor sample (see Appendix B).

4.1.2.1 Tracer Gas Leak Testing

Before the sub-slab soil vapor samples were obtained, helium gas was used as a tracer to perform a leak test to confirm the seal for the sub-slab soil vapor sampling port was adequate, in accordance with the NYSDOH Soil Vapor Guidance. A structurally competent dome/container was placed over the sub-slab soil vapor sampling port to create a confined air space in the immediate vicinity surrounding the sub-slab soil vapor port. The dome was equipped with one input connection through which helium gas was injected into the confined area and one output connection to which the sub-slab soil vapor sampling port tubing was connected. One (1) tube was attached to a helium tank and helium gas was released into the immediate area surrounding the sub-slab soil vapor sampling port. The second tube (the sampling tube) was connected to the sub-slab soil vapor sampling port on one end and to the helium gas detection device on the other end. Helium gas concentrations were monitored using a MGD-2002 Multi-Gas leak detector by RadioDetection. If helium was detected by the device, the seal on the sampling port was repaired and the tracer gas leak test was repeated until no helium gas was detected at each sub-slab soil vapor sampling location.

4.2 Sub-Slab Soil Vapor and Indoor Air Chemical Sampling Results

Indoor air and soil vapor samples were analyzed by Alpha Analytical, Inc. of Mansfield, Massachusetts following the USEPA's TO-15 GC/MS methodology. Chemical results are provided in Appendix E. Laboratory analytical results are summarized in Tables 2 through 9 and Category B data packages are provided in Appendix D. Data Usability Summary Reports, prepared by a qualified third party, certified Data Validator (Mr. Donald Anné of Alpha Geoscience), are provided in Appendix E. Alpha Analytical laboratory performed the analyses according to the requirements of the analytical methods. The overall performances of the analyses were deemed acceptable and all data is considered usable. Detailed information on the data quality is included in the data validation review provided in Appendix E. Changes recommended by the review were incorporated in Tables 2 through 9.

4.2.1 Indoor Air and Soil Vapor Results

Table 2 contains the concentrations in indoor air and soil vapor samples that were obtained beginning on October 21, 2015 at all the various locations in the building. For each type of sample and location, the Total VOCs are summed from the concentrations in each column and appear at the bottom of the columns. Table 2A contains a summary of the indoor air and sub-slab air results for the compounds listed in the NYSDOH Vapor Guidance Matrices 1 and 2.

A range of petroleum constituents, chlorinated solvents, and solvent degradation products are present which are consistent with past analyses of soil vapor and indoor air.

Table 3 contains the concentrations in indoor air and soil vapor samples that were obtained beginning on November 17, 2015 at all the various locations in the building. Again, for each type of sample and location, the Total VOCs are summed from the concentrations in each column and appear at the bottom of the columns. Table 3A contains a summary of the indoor air and sub-slab air results for the compounds listed in the NYSDOH Vapor Guidance Matrices 1 and 2.

Similar to Table 2, a range of petroleum constituents, chlorinated solvents, and solvent degradation products are present in Table 3 which are consistent with past analyses of soil vapor and indoor air.

The trends and details of these results can be determined through tables which focus on portions of these results along with historical results.

4.2.2 Indoor Air Results

Tables 4, 5, 6, and 7 present the results of testing indoor air over time for PCE, TCE, and 1,1,1-TCA at certain locations where both indoor air and soil vapor results are available. PCE, TCE, and 1,1,1-TCA are solvents which are associated with the historical release which was adjacent to the west side of the north exterior wall of the building. Also, 1,1,1-TCA is a degradation product of PCE.

4.2.3 Indoor Air Results and Trends in October 2015

Tables 4A, 5A, 6A, and 7A compare the concentrations of PCE, TCE, and 1,1,1-TCA reported for the October 21, 2015 samples versus the concentrations reported for prior dates. By October 21, 2015 the solvent products used in the repair operations in the shop area had been fully phased out for approximately three to four months. The concentration of PCE on October 21, 2015 is one to three orders of magnitude lower than on prior dates at all four locations. The concentration of TCE on October 21, 2015 varies from less than one up to three orders of magnitude lower than on prior dates at the four indoor locations described in Section 4.1.1. The percentage reduction of the concentrations of PCE, TCE, and 1,1,1-TCA on October 21, 2015 versus on June 3, 2015 indicate similar reductions at all four indoor locations.

The bottom two rows in Tables 4A, 5A, 6A, and 7A compare the COCs on October 21, 2015 to the range of concentrations of COCs reported for prior dates at the same locations. The concentration of the COCs on October 21, 2015 varies from less than one, to three orders of magnitude lower than on prior dates at all four locations.

These significant reductions in the concentrations of PCE and TCE in indoor air in October 2015 appear to have been achieved by the cessation of use of solvents containing chlorinated compounds in the shop.

4.2.3.1 Indoor Air Results and Trends in October 2015 Compliance with Air Guidelines

Tables 4A, 5A, 6A, and 7A also note the compliance of the concentrations of PCE, TCE, and 1,1,1-TCA with the Air Guidelines identified in Table 3.1 provided in the NYSDOH Soil Vapor Guidance. The shading of the table cell and the bolding of the font of the result denote those concentrations which exceed the Air Guidelines. PCE and 1,1,1-TCA concentrations are less than the Air Guideline at all four indoor air locations in the samples obtained beginning on October 21, 2015. The TCE concentrations at the four indoor air locations exceed the Air Guidelines, although the concentrations are less than an order of magnitude above the TCE Air Guideline of 2 µg/L, as of August 2015.

4.2.4 Indoor Air Results and Trends in November 2015

Tables 4B, 5B, 6B, and 7B compare the concentrations of PCE, TCE, and 1,1,1-TCA reported for the November 17, 2015 samples versus the concentrations on prior dates at each location. By November 17, 2015, the VMS fan had been operating for over two weeks. The concentration of PCE reported for November 17, 2015 is approximately within the same order of magnitude of the concentration reported for October 21, 2015 samples at the four indoor air locations. The concentration of TCE on November 17, 2015 is lower than the concentration on October 21, 2015 at all four indoor locations. The percentage reduction of the concentrations on November 17, 2015 versus on October 21, 2015 are between approximately 76 to 92 percent reductions at the four indoor locations.

The bottom two rows in the Tables 4B, 5B, 6B, and 7B compare the COCs on November 17, 2015 to the range of concentrations of COCs found on prior dates. The concentration of the COCs on November 17, 2015 varies from less than one (1) up to three (3) orders of magnitude lower than reported for prior dates at all four indoor air locations.

These reductions in the concentrations of TCE and the COCs in the indoor air on November 17, 2015 appear attributable to the initiation of the VMS.

4.2.4.1 Indoor Air Results in November 2015 Compliance with Air Guidelines

Tables 4B, 5B, 6B, and 7B also note the compliance of the concentrations of PCE, TCE, and 1,1,1-TCA with the Air Guideline Values identified in Table 3.1 provided in the NYSDOH Soil Vapor Guidance through shading of the table cell and the bolding of the font at those exceeded concentrations. As of November 17, 2015, the PCE, TCE, and 1,1,1-TCA concentrations are less than the Air Guideline Values at all four locations.

Therefore, the cessation of the use of the solvents at the facility containing chlorinated VOCs and the initiation of the VMS system for withdrawing, treating, and discharging contaminated soil vapor has achieved concentrations of PCE, TCE, and 1,1,1-TCA in the indoor air on November 17, 2015 in compliance with the Air Guideline Values.

4.2.5 Soil Vapor Results in November 2015 Compared to Pre-Startup of VMS

Table 8 compares the concentrations of PCE, TCE, and 1,1,1-TCA reported for soil vapor samples beginning on November 17, 2015 versus the concentrations on prior dates. As noted above, the VMS fan had been operating in excess of two weeks as of November 17, 2015. Note that the following four sub-slab soil vapor samples locations are in the table as described in the following: SV-1 in the top left portion of the table, SV-2 in the top right, SV-3 in the lower left and SV-7 in the lower right.

At SV-1, the concentration of PCE on November 17, 2015 is approximately two to four orders of magnitude lower than the concentrations on prior dates. Also, at SV-1, the concentration of TCE on November 17, 2015 is three to four orders of magnitude lower than the concentrations on prior dates. Additionally, at SV-1, the concentration of 1,1,1-TCA on November 17, 2015 is three to four orders of magnitude lower than the concentrations on prior dates.

At SV-2, the concentration of PCE, TCE, and 1,1,1-TCA on November 17, 2015 are approximately in the same order of magnitude as prior concentrations.

At SV-3, the concentration of PCE, TCE, and 1,1,1-TCA on November 17, 2015 are approximately in the same order of magnitude as prior concentrations. PCE concentration is within the range reported for two prior dates. The TCE and 1,1,1-TCA concentrations are slightly lower than the ranges reported for two prior dates.

At SV-7, the concentration of PCE on November 17, 2015 is approximately two orders of magnitude lower than the prior concentration determined on October 21, 2015. Also, at SV-7, the concentration of TCE on November 17, 2015 is four orders of magnitude lower than the prior concentration determined on October 21, 2015. Additionally, at SV-7, the concentration of 1,1,1-TCA on November 17, 2015 is three orders of magnitude lower than the prior concentration determined on October 21, 2015.

With regards to Total VOCs and COCs, at the locations SV-1 and SV-7, both the Total VOCs and the COCs have reduced since the start of the VMS. At the locations SV-2 and SV-3, both the Total VOCs and the COCs have not consistently reduced since the start of the VMS.

The concentrations of PCE, TCE, and 1,1,1-TCA in the soil vapor at SV-2 and SV-3 were not consistently reduced during the period in excess of two weeks that the VMS operated.

The soil vapor results for PCE, TCE, and 1,1,1-TCA demonstrate that SV-1 and SV-7 are sufficiently close to the withdrawal systems that the concentrations of these three Indoor Air COCs are greatly reduced by the initiation of the VMS. The reductions in concentrations at SV-7 are very significant considering that the sequence of construction of the addition where SV-7 is located could have resulted in a frost wall existing below the slab and between the addition and the balance of the building floor slab. Such a frost wall could have reduced the negative vapor pressure that reached below the addition from the VMS. Whether or not such a wall exists, the pressure tests and the chemical analysis of sub-slab vapor for Indoor Air COCs indicate the negative pressure from the VMS extends to SV-7, which is located within the addition.

4.2.6 Assessment of the Activated Carbon Treatment System Prior to Emissions

Table 9 indicates the concentrations of PCE, TCE, and 1,1,1-TCA in the treatment train consisting of activated carbon to absorb the VOC contaminants before emission above the roof of the building.

PCE was measured at 4.03 $\mu g/m^3$ in the PRECAN, or influent sample, at 6.12 $\mu g/m^3$ in the BET, or between the canisters sample, and was not detected at the detection limit of 1.36 $\mu g/m^3$ in the EXHAUST or emission sample.

TCE and 1,1,1-TCA were below detection limits at all three locations.

The results in Table 9 demonstrate that the treated soil vapor has very low concentrations of the Indoor Air COCs and are below the Air Guideline Values in NYSDOH Vapor Guidance, Table 3.1. Table 10A demonstrates the treated soil vapor meets the values calculated from Air Guide 1. Table 10B also indicates that untreated soil vapor meets the values calculated from Air Guide 1. If the concentrations of the Indoor Air COCs in the extracted soil vapor remain below the Air Guide 1 in future monitoring, the activated carbon system may be unnecessary.

4.3 Conclusions and Recommendations for the Vapor Mitigation System Analytical Results Pre and Post VMS Start-Up

Summary and Conclusions

Discontinued use of chlorinated solvents at the facility, and the initiation of the VMS system for withdrawing, treating, and discharging soil vapor has reduced concentrations of PCE, TCE, and 1,1,1-TCA in the indoor air sampled beginning on November 17, 2015 to levels that comply with the Air Guidelines.

Initial reductions in the concentrations of PCE and TCE in indoor air measured in October 2015 demonstrate the largest reductions were achieved by discontinuing the use of solvents containing chlorinated compounds in the shop.

Concentrations of Total VOCs, Target VOCs, PCE, TCE, and 1,1,1-TCA in soil vapor have decreased since the start of the VMS at the locations SV-1 and SV-7. The concentrations of PCE, TCE, and 1,1,1-TCA have been reduced by three to four orders of magnitude.

Concentrations of Total VOCs, Target VOCs, PCE, TCE, and 1,1,1-TCA in soil vapor have not decreased consistently since the start of the VMS at the locations SV-2 and SV-3. However, the VMS may not have been operating for a sufficient period of time (approximately two weeks), to effectively reduce soil vapor concentrations at the time measurements were taken.

Analysis of sub-slab vapor for VOCs indicates the negative pressure from the VMS extends to SV-7, which is located within the addition. A frost wall may exist between SV-7 and the WEA.

Analysis of the treated soil vapor indicates that concentrations of COCs are very low in the exhaust. These results also indicate that the untreated soil vapor meets Air Guidelines. The activated carbon treatment system may not be required in the future if these levels of PCE, TCE, and 1,1,1-TCA prior to activated carbon treatment are maintained. Mitigation has been fully implemented and monitoring will continue to be in accordance with the NYSDOH Soil Vapor Guidance, and the Operations, Maintenance and Monitoring (OM&M) Plan (upon NYSDEC approval).

Recommendations

The VMS negative pressure extends a considerable distance relative to the suspect source contamination adjacent to the building. The indoor air and soil vapor results, along with sub-slab pressure monitoring results, present a strong likelihood that the VMS is capturing the impacted soil gas beneath the slab. Continued monitoring is expected to verify this condition.

STERLING recommends the monitoring required by the NYSDOH and NYSDEC be conducted. The requirements are the VMS will be turned off for 4 to 5 weeks and the indoor air and sub-slab sampling described in Sections 4.1.1 and 4.1.2 of this report will be repeated. If the indoor air results continue to indicate the Indoor Air COCs meet the Air Guidelines and the sub-slab results indicate the concentrations of these same compounds which have determined to be Indoor Air COCs have decreased substantially (meeting or approaching the No Further Action levels of the applicable matrices in the NYSDOH Soil Vapor Guidance) then further operation and monitoring may be prescribed in an attempt to demonstrate that the No Further Action levels have been met. Otherwise operation and monitoring of the VMS as described in the Operations, Monitoring, and Maintenance (OM&M) Plan, including a sample event early in the heating season after the shut-down of the VMS for several weeks will be performed per the NYSDEC and NYSDOH.

5.0 ENGINEERING CONTROLS OPERATIONS, MONITORING AND MAINTENANCE (OM&M)

The operation of the VMS is described in the OM&M Plan which includes the procedures for inspecting, evaluating, and maintaining the VMS (Appendix F). The OM&M Plan includes a differential pressure monitoring program of soil vapor versus indoor air. The OM&M Plan describes the sampling requirements and procedures for system effectiveness and criteria for system shutdowns (short-term (up to 48 hours), long-term (more than 48 hours), and permanent).

S:\Sterling\Projects\2011 Projects\Troy Belting and Supply Co - 2011-31\Reports\VMS Construction Completion Rpt\VMS Construction Completion Report - December 2016\VMS CCR Update_010417.docx

TABLES

TABLE 1

Summary of Results - Vapor Mitigation System Start-Up
Sub-Slab Vapor PID and Differential Pressure Monitoring Readings
Troy Belting & Supply Co., 70 Cohoes Road, Colonie, NY
Brownfield Cleanup Program #C401067

Project Location:	**70 Cohoes Road, Colonie, NY**
Sterling Project Number:	**2011-31**
Date:	**November 2 and 9, 2015**
Sampler:	**Amanda Castignetti**

Location	Date (unless otherwise noted), 11/02/2015	PID Readings (ppm)	Sub-Slab Vapor Pressure (inch of water column)					
			Reading #1	Reading #2	Reading #3	Reading #4	Reading #5	Minimum
70-SV-2	3:00 PM	0.0	-0.005	-0.006	-0.006	-0.005	NT	**-0.005**
70-SV-3	3:05 PM	0.0	-0.000	0.000	-0.000	-0.000	NT	**0.000**
70-SV-4	2:45 PM	0.0	-1.291	-1.293	-1.293	-1.295	NT	**-1.291**
70-SV-*5A	11/9/2015, 9:30 AM	0.0	-0.018	-0.018	-0.019	NT	NT	**-0.018**
70-SV-*5B	11/9/2015, 9:33 AM	0.0	-0.016	-0.010	-0.017	-0.017	NT	**-0.010**
70-SV-*5C	11/9/2015, 9:34 AM	0.0	-0.017	-0.019	-0.019	-0.014	NT	**-0.014**
70-SV-*5D	11/9/2015, 9:36 AM	0.0	-0.019	-0.019	-0.019	NT	NT	**-0.019**
							70-SV-5 Average	**-0.015**
70-SV-*6A	11/9/2015, 9:45 AM	0.1	-0.021	-0.004	-0.017	-0.023	-0.019	**-0.004**
70-SV-*6B	11/9/2015, 9:47 AM	0.1	-0.019	-0.018	-0.014	-0.020	NT	**-0.014**
70-SV-*6C	11/9/2015, 9:49 AM	0.1	-0.019	-0.016	-0.021	-0.019	NT	**-0.016**
70-SV-*6D	11/9/2015, 9:50 AM	0.1	-0.018	-0.020	-0.016	-0.019	-0.019	**-0.016**
							70-SV-6 Average	**-0.013**
70-SV-7	3:45 PM	0.0	-0.011	-0.010	-0.011	-0.013	NT	**-0.010**
70-SV-9N[(1)]	3:15 PM	7.1	-0.162	-0.162	-0.162	-0.162	NT	**-0.162**
70-SV-10[(2)]	3:20 PM	6.5	-0.821	-0.821	-0.820	-0.821	NT	**-0.820**

Note: Readings were obtained on November 2, 2015, approximately 72-hours after start-up on October 30, 2015, unless otherwise noted.

* Digital manometer was oriented in 4 directions due to breeze observed at 70-SV-5 and 70-SV-6 during October 30, 2015 monitoring event.

A = Digital monometer oriented to the east.

B = Digital monometer oriented to the north.

C = Digital monometer oriented to the west.

D = Digital monometer oriented to the south.

NT = Not taken.

[(1)] - sample location was previously identified as 70-SV-8, was renumbered to stay consistent with IA/SV labeling.

[(2)] - sample location was previously identified as 70-SV-9, was renumbered to stay consistent with IA/SV labeling.

Bold indicates minimum differential pressure reading from each sub-slab vapor sampling port.

Table 2
Summary of Analytical Results - Sub-Slab/Indoor Air
October 21-22, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

SAMPLE ID	Units	70-SV-1_102115	70-IA-1_102115	70-SV-2_102115⁺	70-SV-2_102115	70-IA-2_102115⁺	70-SV-3_102115	70-IA-3_102115	70-SV-7_102115	70-IA-8_102115
DESCRIPTION		Source Area		Shop Floor			Conference Room		Addition	Administrative Offices
LOCATION		Northwest in Shop		Northeast in Shop			Northeast in Building		West in Building	Southeast in Building
SAMPLING DATE		10/21/2015	10/21/2015	10/21/2015	10/21/2015 Diluted Sample	10/21/2015	10/21/2015	10/21/2015	10/21/2015	10/21/2015
Tetrachloroethene**	µg/m^3	233	1.76	102	---	2.05	6.66	2.92	739	2.89
Trichloroethene*	µg/m^3	2290	8.6	2490 E	3150 D	10.3	82.2	9.4	14500	7.63
1,1,1-Trichloroethane**	µg/m^3	42.2	0.109 U	709 E	682 D	1.09 U	6.82	0.327	2080	0.169
Chloroform	µg/m^3	4.88 U	0.977 U	56.6	---	0.977 U	2.01	0.977 U	51.3	0.977 U
Dichlorodifluoromethane	µg/m^3	4.94 U	1.66	1.48	---	2.21	1.65	1.99	37.7 U	1.87
Chloromethane	µg/m^3	2.07 U	1.31	0.533	---	1.26	0.413 U	1.32	15.8 U	1.6
Freon-114	µg/m^3	6.99 U	1.4 U	1.4 U	---	1.4 U	1.4 U	1.4 U	53.3 U	1.4 U
Vinyl chloride*	µg/m^3	2.56 U	0.051 U	0.051 U	---	0.511 U	0.511 U	0.051 U	19.5 U	0.051 U
1,3-Butadiene	µg/m^3	2.21 U	0.442 U	0.442 U	---	0.442 U	0.442 U	0.442 U	16.9 U	0.442 U
Bromomethane	µg/m^3	3.88 U	0.777 U	0.777 U	---	0.777 U	0.777 U	0.777 U	29.6 U	0.777 U
Chloroethane	µg/m^3	2.64 U	0.528 U	0.95	---	0.528 U	0.541	0.528 U	20.1 U	0.528 U
Ethanol	µg/m^3	47.1 U	53.1 j	42.6 j	---	45.4 j	18.8 j	158 j	360 U	290 j
Vinyl bromide	µg/m^3	4.37 U	0.874 U	0.874 U	---	0.874 U	0.874 U	0.874 U	33.4 U	0.874 U
Acetone	µg/m^3	47.3	318	81.5	---	163	29.9	252	111	242
Trichlorofluoromethane	µg/m^3	5.62 U	2.27	4.71	---	2.1	5.02	9.72	42.9 U	15.1
Isopropanol	µg/m^3	6.15 U	9.34	5.11	---	8.75	2.95	27	46.9 U	70.8
1,1-Dichloroethene**	µg/m^3	3.96 U	0.079 U	0.127	---	0.793 U	0.793 U	0.079 U	30.3 U	0.079 U
Tertiary butyl Alcohol	µg/m^3	18.3	1.52 U	14.9	---	1.52 U	4.79	1.52 U	57.9 U	1.52 U
Methylene chloride	µg/m^3	8.69 U	1.74 U	1.74 U	---	1.74 U	1.74 U	1.74 U	66.4 U	1.74 U
3-Chloropropene	µg/m^3	3.13 U	0.626 U	0.626 U	---	0.626 U	0.626 U	0.626 U	23.9 U	0.626 U
Carbon disulfide	µg/m^3	3.11 U	0.623 U	0.623 U	---	0.623 U	0.642	0.623 U	67.6	0.623 U
Freon-113	µg/m^3	7.66 U	1.53 U	1.53 U	---	1.53 U	1.53 U	1.53 U	58.5 U	1.53 U
trans-1,2-Dichloroethene	µg/m^3	25.4	0.793 U	1.46	---	0.793 U	0.793 U	0.793 U	30.3 U	0.793 U
1,1-Dichloroethane	µg/m^3	11.5	0.809 U	0.809 U	---	0.809 U	0.809 U	0.809 U	83.8	0.809 U
Methyl tert butyl ether	µg/m^3	3.61 U	0.721 U	0.721 U	---	0.721 U	0.721 U	0.721 U	27.5 U	0.721 U
2-Butanone	µg/m^3	72.6	31.9	52.5	---	19.4	23.5	29.8	56.3 U	24.9
cis-1,2-Dichloroethene**	µg/m^3	1700	0.083	0.079 U	---	1.49	0.793 U	0.079 U	749	0.079 U
Ethyl Acetate	µg/m^3	9.01 U	1.8 U	1.8 U	---	2.12	1.8 U	2.76	68.8 U	7.6
Tetrahydrofuran	µg/m^3	7.37 U	4.34	1.47 U	---	1.98	1.47 U	1.47 U	56.3 U	1.47 U
1,2-Dichloroethane	µg/m^3	4.05 U	0.809 U	0.809 U	---	0.809 U	0.809 U	0.809 U	30.9 U	0.809 U
n-Hexane	µg/m^3	5.08	3.77	1.11	---	3.01	0.705 U	2.95	26.9 U	2.72
Benzene	µg/m^3	3.19 U	1.7	1.33	---	1.61	0.955	1.8	24.4 U	1.79
Carbon tetrachloride*	µg/m^3	6.29 U	0.051 U	0.051 U	---	1.26 U	1.26 U	0.051 U	48 U	0.051 U
Cyclohexane	µg/m^3	3.44 U	2.02	0.771	---	3.48	0.688 U	1.41	26.3 U	1.51
1,2-Dichloropropane	µg/m^3	4.62 U	0.924 U	0.924 U	---	0.924 U	0.924 U	0.924 U	35.3 U	0.924 U
Bromodichloromethane	µg/m^3	6.7 U	1.34 U	1.34 U	---	1.34 U	1.34 U	1.34 U	51.1 U	1.34 U
1,4-Dioxane	µg/m^3	3.6 U	0.721 U	0.721 U	---	0.721 U	0.721 U	0.721 U	27.5 U	0.721 U
2,2,4-Trimethylpentane	µg/m^3	6.45	0.934 U	0.934 U	---	1.34	0.934 U	1.22	35.6 U	1.14
Heptane	µg/m^3	10.9	23.7	2.61	---	10.9	0.906	13.5	31.3 U	14
cis-1,3-Dichloropropene	µg/m^3	4.54 U	0.908 U	0.908 U	---	0.908 U	0.908 U	0.908 U	34.6 U	0.908 U
4-Methyl-2-pentanone	µg/m^3	10.2 U	5.49	2.27	---	5.74	2.05 U	10.7	78.3 U	9.43
trans-1,3-Dichloropropene	µg/m^3	4.54 U	0.908 U	0.908 U	---	0.908 U	0.908 U	0.908 U	34.6 U	0.908 U
1,1,2-Trichloroethane	µg/m^3	5.46 U	1.09 U	1.09 U	---	1.09 U	1.09 U	1.09 U	41.6 U	1.09 U
Toluene	µg/m^3	21.9	122	4.18	---	64.1	5.8	99.5	28.8 U	88.6
2-Hexanone	µg/m^3	32.5	0.82 U	26.6	---	0.82 U	9.34	0.82 U	31.3 U	0.82 U
Dibromochloromethane	µg/m^3	8.52 U	1.7 U	1.7 U	---	1.7 U	1.7 U	1.7 U	65 U	1.7 U
1,2-Dibromoethane	µg/m^3	7.69 U	1.54 U	1.54 U	---	1.54 U	1.54 U	1.54 U	58.6 U	1.54 U
Chlorobenzene	µg/m^3	4.61 U	0.921 U	0.921 U	---	0.921 U	0.921 U	0.921 U	35.1 U	0.921 U
Ethylbenzene	µg/m^3	9.08	8.56	1.57	---	5.3	1.72	12.4	33.1 U	11.5
p/m-Xylene	µg/m^3	35.7	36.8	5.34	---	22.6	6.56	55.2	66.5 U	51.3
Bromoform	µg/m^3	10.3 U	2.07 U	2.07 U	---	2.07 U	2.07 U	2.07 U	78.9 U	2.07 U
Styrene	µg/m^3	4.26 U	0.852 U	1.6	---	0.852 U	1.55	0.852 U	32.5 U	0.852 U
1,1,2,2-Tetrachloroethane	µg/m^3	6.87 U	1.37 U	1.37 U	---	1.37 U	1.37 U	1.37 U	52.4 U	1.37 U
o-Xylene	µg/m^3	15.6	11.3	2.23	---	7.51	2.36	19	33.1 U	17.5
4-Ethyltoluene	µg/m^3	4.92 U	0.983 U	0.983 U	---	0.983 U	0.983 U	1.11	37.5 U	1
1,3,5-Trimethylbenzene	µg/m^3	7.82	0.983 U	0.983 U	---	0.983 U	0.983 U	1.41	37.5 U	1.34
1,2,4-Trimethylbenzene	µg/m^3	11.4	1.89	1.64	---	1.76	1.04	4.27	37.5 U	4.04
Benzyl chloride	µg/m^3	5.18 U	1.04 U	1.04 U	---	1.04 U	1.04 U	1.04 U	39.5 U	1.04 U
1,3-Dichlorobenzene	µg/m^3	6.01 U	1.2 U	1.2 U	---	1.2 U	1.2 U	1.2 U	45.9 U	1.2 U
1,4-Dichlorobenzene	µg/m^3	6.01 U	1.2 U	1.71	---	4.29	1.35	1.2 U	45.9 U	1.2 U
1,2-Dichlorobenzene	µg/m^3	6.01 U	1.2 U	1.2 U	---	26.8	1.2 U	1.2 U	45.9 U	1.2 U
1,2,4-Trichlorobenzene	µg/m^3	7.42 U	1.48 U	1.48 U	---	1.48 U	1.48 U	1.48 U	56.6 U	1.48 U
Hexachlorobutadiene	µg/m^3	10.7 U	2.13 U	2.13 U	---	2.13 U	2.13 U	2.13 U	81.4 U	2.13 14
		70-SV-1_102115	70-IA-1_111715	70-SV-2_111715	70-SV-2_111715	70-IA-2_111715	70-SV-3_111715	70-IA-3_111715	70-SV-7_111715	70-IA-8_111715
Total VOCs	µg/m^3	4596.73	649.59	3616.43	3832.00	418.50	217.06	719.71	18381.70	870.43

Note:
U Qualifier indicates compound was not detected at the reported detection limit for the sample.
IA = Indoor Air sample.
SV = Soil Vapor sample.
--- Not analyzed for.
⁺ Field and laboratory documentation and reported results for 70-SV-2_102115 and 70-IA-2_102115 indicate the sample identification numbers were inadvertently interchanged. The results reported were corrected.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
D Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
j Analyte is present. Reported value may be associated with a higer level of uncertainty than normally expected with the analytical method.

Table 2A
Comparison to Parameters Appearing in the NYSDOH Matrices - Sub-Slab/Indoor Air
October 21-22, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Parameter	Matrix*	Location 1 - 70 - SV/IA - 1	
		Sub-Slab Result, µg/m³	Indoor Air Result, µg/m³
1,1-Dichloroethene (1,1-DCE)	2	3.96 U	0.079 U
1,1,1-Trichloroethane (1,1,1-TCA)	2	42.2	0.109 U
Carbon Tetrachloride	1	6.29 U	0.051 U
cis-1,2-Dichloroethene	2	1700	0.083
Tetrachloroethene (PCE)	2	233	1.76
Trichloroethene (TCE)	1	2290	8.6
Vinyl Chloride	1	2.56 U	0.051 U

Note:
*Matrix assigned from Section 3.0 in the "FINAL Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.
U - Qualifier indicates compound was not detected at the reported detection limit for the sample.
D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Table 2A

Comparison to Parameters Appearing in the NYSDOH Matrices - Sub-Slab/Indoor Air
October 21-22, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Parameter	Matrix*	Location 2 - 70 - SV/IA - 2	
		Sub-Slab Result, µg/m³	Indoor Air Result, µg/m³
1,1-Dichloroethene (1,1-DCE)	2	0.127	0.793 U
1,1,1-Trichloroethane (1,1,1-TCA)	2	682 D	1.09 U
Carbon Tetrachloride	1	0.051 U	1.26 U
cis-1,2-Dichloroethene	2	0.079 U	1.49
Tetrachloroethene (PCE)	2	102	2.05
Trichloroethene (TCE)	1	3150 D	10.3
Vinyl Chloride	1	0.051 U	0.511 U

Note:
*Matrix assigned from Section 3.0 in the "FINAL Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.
U - Qualifier indicates compound was not detected at the reported detection limit for the sample.
D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Table 2A

Comparison to Parameters Appearing in the NYSDOH Matrices - Sub-Slab/Indoor Air

October 21-22, 2015

Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York

Brownfield Cleanup Program #C401067

Parameter	Matrix*	Location 3 - 70 - SV/IA - 3	
		Sub-Slab Result, µg/m³	Indoor Air Result, µg/m³
1,1-Dichloroethene (1,1-DCE)	2	0.793 U	0.079 U
1,1,1-Trichloroethane (1,1,1-TCA)	2	6.82	0.327
Carbon Tetrachloride	1	1.26 U	0.051 U
cis-1,2-Dichloroethene	2	0.793 U	0.079 U
Tetrachloroethene (PCE)	2	6.66	2.92
Trichloroethene (TCE)	1	82.2	9.4
Vinyl Chloride	1	0.511 U	0.051 U

Note:
*Matrix assigned from Section 3.0 in the "FINAL Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.
U - Qualifier indicates compound was not detected at the reported detection limit for the sample.
D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Table 3
Summary of Analytical Results - Sub-Slab/Indoor Air
November 17-19, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

SAMPLE ID	Units	70-SV-1_111715	70-IA-1_111715	70-SV-2_111715	70-IA-2_111715	70-SV-3_111715	70-IA-3_111715	70-SV-7_111715	70-IA-8_111715	DUP-SV_111715	70-SV-PRECAN_111715	70-SV-PRECAN_111715	70-SV-BET_111815	70-SV-BET_111815	70-SV-EXHAUST_111715
DESCRIPTION		Source Area		Shop Floor		Conference Room		Addition	Administrative Offices		VMS System				
LOCATION		Northwest in Shop		Northeast in Shop		Northeast in Building		West in Building	Southeast in Building		Northcentral in Shop				
SAMPLING DATE		11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/17/2015	11/18/2015	11/18/2015	11/17/2015
Volatile Organics												Dilution		Dilution	
Tetrachloroethene**	µg/m^3	4.52	5.11	231	3.68	9.97	4.27	4.63	4.57	5.05	4.03	---	6.12	---	1.36 U
Trichloroethene*	µg/m^3	1.3	1.07	2910	0.79	101	1.49	1.39	1.81	2.47	1.34 U	---	1.07 U	---	1.07 U
1,1,1-Trichloroethane**	µg/m^3	1.09 U	0.109 U	304	0.109 U	6.22	0.109 U	1.09 U	0.109 U	1.09 U	1.36 U	---	1.09 U	---	1.09 U
Chloroform	µg/m^3	0.977 U	0.977 U	60.1	0.977 U	2.33	0.977 U	0.977 U	0.977 U	0.977 U	1.22 U	---	0.977 U	---	0.977 U
Dichlorodifluoromethane	µg/m^3	1.78	1.7 j	9.89 U	1.54 j	1.37	1.44 j	1.75	1.86 j	2.36	1.65	---	1.56	---	2.09
Chloromethane	µg/m^3	0.956	1.12	4.13 U	0.898	0.413 U	0.962	0.993	1.15	0.956	0.845	---	0.942	---	0.861
Freon-114	µg/m^3	1.4 U	1.4 U	14 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.75 U	---	1.4 U	---	1.4 U
Vinyl chloride*	µg/m^3	0.511 U	0.051 U	5.11 U	0.051 U	0.511 U	0.051 U	0.511 U	0.051 U	0.511 U	0.639 U	---	0.511 U	---	2.86
1,3-Butadiene	µg/m^3	0.442 U	0.442 U	4.42 U	0.442 U	0.442 U	0.442 U	0.442 U	0.442 U	0.442 U	0.553 U	---	0.442 U	---	0.442 U
Bromomethane	µg/m^3	0.777 U	0.777 U	7.77 U	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U	0.971 U	---	0.777 U	---	0.777 U
Chloroethane	µg/m^3	0.528 U	0.528 U	5.28 U	0.528 U	0.765	0.528 U	4.22	1.94	0.528 U	0.66 U	---	0.528 U	---	0.668
Ethanol	µg/m^3	273 j	300 j	484 j	186 j	16.7 j	219 j	328 j	309 j	367 j	260 j	---	106 j	---	182 j
Vinyl bromide	µg/m^3	0.874 U	0.874 U	8.74 U	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U	1.09 U	---	0.874 U	---	0.874 U
Acetone	µg/m^3	786	869	42.5	466	14.5	323	520	347	473	1180	---	917	---	35.4
Trichlorofluoromethane	µg/m^3	2.33	2.65	11.2 U	2.23	4.66	4.83	2.09	5.68	5.6	2.37	---	2.1	---	1.12 U
Isopropanol	µg/m^3	65.9	68.8	12.3 U	43.5	1.87	56.5	75.2	113	103	71.8	---	31.5	---	3.83
1,1-Dichloroethene**	µg/m^3	0.793 U	0.079 U	7.93 U	0.079 U	0.793 U	0.079 U	0.793 U	0.079 U	0.793 U	0.991 U	---	0.793 U	---	0.793 U
Tertiary butyl Alcohol	µg/m^3	9.64	1.52 U	15.2 U	1.52 U	1.52 U	1.52 U	1.52 U	1.52 U	1.52 U	1.89 U	---	4.27	---	1.52 U
Methylene chloride	µg/m^3	2.25	18.2	17.4 U	1.74 U	1.74 U	2.18	1.74 U	1.92	1.74 U	10.7	---	2.63	---	1.74 U
3-Chloropropene	µg/m^3	0.626 U	0.626 U	6.26 U	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U	0.783 U	---	0.626 U	---	0.626 U
Carbon disulfide	µg/m^3	0.623 U	0.623 U	6.23 U	0.623 U	0.623 U	0.623 U	0.623 U	0.623 U	0.623 U	0.779 U	---	0.623 U	---	0.623 U
Freon-113	µg/m^3	1.53 U	1.53 U	15.3 U	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U	1.92 U	---	1.53 U	---	1.53 U
trans-1,2-Dichloroethene	µg/m^3	0.793 U	0.793 U	7.93 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.991 U	---	0.793 U	---	0.793 U
1,1-Dichloroethane	µg/m^3	0.809 U	0.809 U	8.09 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	1.01 U	---	0.809 U	---	0.809 U
Methyl tert butyl ether	µg/m^3	0.721 U	0.721 U	7.21 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.901 U	---	0.721 U	---	0.721 U
2-Butanone	µg/m^3	51.9	47.2	14.7 U	34.2	1.68	37.5	30.1	40.1	52.2	313	---	307 E	304 D	6.99
cis-1,2-Dichloroethene**	µg/m^3	0.793 U	0.079 U	7.93 U	0.079 U	0.793 U	0.079 U	0.793 U	0.079 U	0.793 U	0.991 U	---	0.793 U	---	0.793 U
Ethyl Acetate	µg/m^3	4.07	2.89	32.3	2.21	1.8 U	2.1	4.07	4.43	4.65	13.2	---	9.37	---	11.1
Tetrahydrofuran	µg/m^3	1.47 U	1.47 U	14.7 U	1.47 U	1.47 U	1.47 U	1.47 U	1.47 U	1.47 U	2.28	---	1.64	---	1.47 U
1,2-Dichloroethane	µg/m^3	0.809 U	0.809 U	8.09 U	0.809 U	0.809 U	0.809 U	2.49	0.809 U	0.809 U	1.01 U	---	0.809 U	---	0.809 U
n-Hexane	µg/m^3	4.02	4.51	39.5	3	0.705 U	3.42	3.22	4.26	5.18	20.1	---	15.6	---	24.6
Benzene	µg/m^3	1.91	1.59	6.39 U	1.53	0.639 U	1.25	1.97	1.44	1.45	1.51	---	0.84	---	1.01
Carbon tetrachloride*	µg/m^3	1.26 U	0.472	12.6 U	0.459	1.26 U	0.478	1.26 U	0.459	1.26 U	1.57 U	---	1.26 U	---	1.26 U
Cyclohexane	µg/m^3	0.823	0.909	14	0.688 U	0.688 U	0.695	1.79	0.929	1.05	1.55	---	1.23	---	7.92
1,2-Dichloropropane	µg/m^3	0.924 U	0.924 U	9.24 U	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U	1.16 U	---	0.924 U	---	0.924 U
Bromodichloromethane	µg/m^3	1.34 U	1.34 U	13.4 U	1.34 U	1.34 U	1.34 U	1.34 U	1.34 U	1.34 U	1.67 U	---	1.34 U	---	1.34 U
1,4-Dioxane	µg/m^3	0.721 U	0.721 U	7.21 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.901 U	---	0.721 U	---	0.721 U
2,2,4-Trimethylpentane	µg/m^3	0.943	1.22	9.34 U	0.934 U	0.934 U	0.934 U	1.1	0.967	1.02	1.17 U	---	0.934 U	---	0.934 U
Heptane	µg/m^3	5.29	6.56	434	3.76	0.82 U	3.9	5.66	5.08	6.64	12.3	---	9.26	---	305
cis-1,3-Dichloropropene	µg/m^3	0.908 U	0.908 U	9.08 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	1.13 U	---	0.908 U	---	0.908 U
4-Methyl-2-pentanone	µg/m^3	16.2	10.8	20.5 U	10.5	2.05 U	10.6	13.1	11.1	18.3	63.9 j	---	97.1 j	---	10.4
trans-1,3-Dichloropropene	µg/m^3	0.908 U	0.908 U	9.08 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	1.13 U	---	0.908 U	---	0.908 U
1,1,2-Trichloroethane	µg/m^3	1.09 U	1.09 U	10.9 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.36 U	---	1.09 U	---	1.09 U
Toluene	µg/m^3	116	113	270	84.4	4.97	96.9	88.6	112	156	543 E	565 D	437 E	509 D	247
2-Hexanone	µg/m^3	0.82 U	0.82 U	8.2 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	1.02 U	---	0.82 U	---	0.82 U
Dibromochloromethane	µg/m^3	1.7 U	1.7 U	17 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	2.13 U	---	1.7 U	---	1.7 U
1,2-Dibromoethane	µg/m^3	1.54 U	1.54 U	15.4 U	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U	1.92 U	---	1.54 U	---	1.54 U
Chlorobenzene	µg/m^3	0.921 U	0.921 U	9.21 U	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U	1.34	---	1.69	---	0.921 U
Ethylbenzene	µg/m^3	30	30.9	8.69 U	23.4	1.02	21	24.6	22.2	38.6	56.5 j	---	69.9 j	---	3.32
p/m-Xylene	µg/m^3	124	133	17.4 U	99.9	4.69	90.8	106	87.3	154	229 j	---	291 j	---	11.8
Bromoform	µg/m^3	2.07 U	2.07 U	20.7 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.58 U	---	2.07 U	---	2.07 U
Styrene	µg/m^3	0.852 U	0.852 U	8.52 U	0.852 U	0.852 U	0.852 U	1.13	0.856	0.852 U	3.45	---	0.852 U	---	0.852 U
1,1,2,2-Tetrachloroethane	µg/m^3	1.37 U	1.37 U	13.7 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.72 U	---	1.37 U	---	1.37 U
o-Xylene	µg/m^3	39.4	42.6	8.69 U	32.4	1.61	30	33.1	27.8	50	69.1 j	---	93 j	---	3.91
4-Ethyltoluene	µg/m^3	1.44	1.24	9.83 U	1.47	0.983 U	1.63	1.11	1.1	2.19	4.78 j	---	6.54 j	---	0.983 U
1,3,5-Trimethylbenzene	µg/m^3	1.91	1.56	9.83 U	1.53	0.983 U	1.95	1.35	1.24	2.82	4.92 j	---	5.36 j	---	0.983 U
1,2,4-Trimethylbenzene	µg/m^3	5.85	5.46	9.83 U	4.6	1.53	6.69	4.54	3.13	9.09	14 j	---	11.7 j	---	0.983 U
Benzyl chloride	µg/m^3	1.04 U	1.04 U	10.4 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.29 U	---	1.04 U	---	1.04 U
1,3-Dichlorobenzene	µg/m^3	1.2 U	1.2 U	12 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	---	1.2 U	---	1.2 U
1,4-Dichlorobenzene	µg/m^3	1.2 U	1.2 U	12 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	---	1.2 U	---	1.2 U
1,2-Dichlorobenzene	µg/m^3	1.2 U	1.2 U	12 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	---	1.2 U	---	1.2 U
1,2,4-Trichlorobenzene	µg/m^3	1.48 U	1.48 U	14.8 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	1.86 U	---	1.48 U	---	1.48 U
Hexachlorobutadiene	µg/m^3	2.13 U	2.13 U	21.3 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.67 U	---	2.13 U	---	2.13 U
		70-SV-1_111715	70-IA-1_111715	70-SV-2_111715	70-IA-2_111715	70-SV-3_111715	70-IA-3_111715	70-SV-7_111715	70-IA-8_111715	DUP-SV_111715	70-SV-PRECAN_111715	70-SV-PRECAN_111715D	70-SV-BET_111815	70-SV-BET_111815D	70-SV-EXHAUST_111715
Total VOCs	µg/m^3	1552.225	1671.089	4821.4	1007.997	174.885	922.585	1262.203	1112.321	1462.626	2885.325	565	2430.352	813	860.759

Note:
U Qualifier indicates compound was not detected at the reported detection limit for the sample.
IA = Indoor Air sample.
SV = Soil Vapor sample.
--- Not analyzed for.
* Field and laboratory documentation and reported results for 70-SV-2_102115 and 70-IA-2_102115 indicate the sample identification numbers were inadvertently interchanged. The results reported were corrected.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Table 3A
Comparison to DOH Matrices - Sub-Slab/Indoor Air
November 19-21, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Parameter	Matrix*	Location 1 - 70 - SV/IA - 1	
		Sub-Slab Result, µg/m³	Indoor Air Result, µg/m³
1,1-Dichloroethene (1,1-DCE)	2	0.793 U	0.079 U
1,1,1-Trichloroethane (1,1,1-TCA)	2	1.09 U	0.109 U
Carbon Tetrachloride	1	1.26 U	0.472
cis-1,2-Dichloroethene	2	0.793 U	0.079 U
Tetrachloroethene (PCE)	2	4.52	5.11
Trichloroethene (TCE)	1	1.3	1.07
Vinyl Chloride	1	0.511 U	0.051 U

Note:
*Matrix assigned from Section 3.0 in the "FINAL Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.
U - Qualifier indicates compound was not detected at the reported detection limit for the sample.
D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Table 3A
Comparison to DOH Matrices - Sub-Slab/Indoor Air
November 19-21, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Parameter	Matrix*	Location 2 - 70 - SV/IA - 2	
		Sub-Slab Result, µg/m³	Indoor Air Result, µg/m³
1,1-Dichloroethene (1,1-DCE)	2	7.93 U	0.079 U
1,1,1-Trichloroethane (1,1,1-TCA)	2	304	0.109 U
Carbon Tetrachloride	1	12.6 U	0.459
cis-1,2-Dichloroethene	2	7.93 U	0.079 U
Tetrachloroethene (PCE)	2	231	3.68
Trichloroethene (TCE)	1	2910	0.79
Vinyl Chloride	1	5.11 U	0.051 U

Note:
*Matrix assigned from Section 3.0 in the "FINAL Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.
U - Qualifier indicates compound was not detected at the reported detection limit for the sample.
D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Table 3A

Comparison to DOH Matrices - Sub-Slab/Indoor Air

November 19-21, 2015

Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York

Brownfield Cleanup Program #C401067

Parameter	Matrix*	Location 3 - 70 - SV/IA - 3	
		Sub-Slab Result, µg/m³	Indoor Air Result, µg/m³
1,1-Dichloroethene (1,1-DCE)	2	0.793 U	0.079 U
1,1,1-Trichloroethane (1,1,1-TCA)	2	6.22	0.109 U
Carbon Tetrachloride	1	1.26 U	0.478
cis-1,2-Dichloroethene	2	0.793 U	0.079 U
Tetrachloroethene (PCE)	2	9.97	4.27
Trichloroethene (TCE)	1	101	1.49
Vinyl Chloride	1	0.511 U	0.051 U

Note:
*Matrix assigned from Section 3.0 in the "FINAL Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.
U - Qualifier indicates compound was not detected at the reported detection limit for the sample.
D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Table 4A and 4B
2014-2015 Indoor Air Concentrations vs NYSDOH Air Guidelines
Troy Belting Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Table 4A

Indoor Air Concentrations Pre and Post Solvent Use Termination vs NYSDOH Air Guidelines

LOCATION	NYSDOH Air Guideline Values(1)	Units	70-IA-1						Has compound been reduced (Y/N)	Percentage Reduced from June 2015 event.
DESCRIPTION			Source Area - Northwest in Shop							
SAMPLING DATE			5/2/2014	6/4/2014	4/14/2015	6/3/2015	Pre-Solvent Use Termination concentration range	10/21/2015		
Contaminants of Concern (COC)			Pre-Solvent Use Termination					Post-Solvent Use Termination		
Tetrachloroethene**	30	µg/m3	**1,900**	**990**	**423**	**222**	222 - 1900	1.76	Y	99.21%
Trichloroethene*	2	µg/m3	**1,300**	**950**	**33.7**	**20.6**	20.6 - 1300	**8.6**	Y	58.25%
1,1,1-Trichloroethane**	---	µg/m3	11 U	6.6 U	1.09 U	0.109 U	ND	0.109 U	NA	---

	5/2/2014	6/4/2014	4/14/2015	6/3/2015	Total COC Range	10/21/2015
COCs	3200.00	1940.00	456.70	242.60	242.6 - 3200	10.36

Table 4B

Indoor Air Concentrations Pre and Post VMS Start Up vs NYSDOH Air Guidelines

LOCATION	NYSDOH Air Guideline Values(1)	Units	70-IA-1							Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.
DESCRIPTION			Source Area - Northwest in Shop								
SAMPLING DATE			5/2/2014	6/4/2014	4/14/2015	6/3/2015	10/21/2015	Pre VMS concentration range	11/17/2015		
Contaminants of Concern (COC)			Pre-VMS operation						Post VMS operation		
Tetrachloroethene**	30	µg/m3	**1,900**	**990**	**423**	**222**	1.76	1.76 - 1900	5.11	N	
Trichloroethene*	2	µg/m3	**1,300**	**950**	**33.7**	**20.6**	**8.6**	8.6 - 1300	1.07	Y	87.56%
1,1,1-Trichloroethane**	---	µg/m3	11 U	6.6 U	1.09 U	0.109 U	0.109 U	ND	0.109 U	NA	---

	5/2/2014	6/4/2014	4/14/2015	6/3/2015	10/21/2015	Total COC Range	11/17/2015
COCs	3200.00	1940.00	456.70	242.60	10.36	10.36 - 3200	6.18

Note:

"U" qualifier indicates compound was not detected at the reported detection limit for the sample.
IA = Indoor Air sample.
(1) Air Guideline Values are taken from Table 3.1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
COC = Contaminants of Concern
ND Non-detect.
NA Not applicable.
--- indicates not available.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
Bold and highlighted value indicates reported concentration exceeds applicable Air Guideline Values.

Table 5A and 5B
2014 - 2015 Indoor Air Concentrations vs NYSDOH Air Guidelines
Troy Belting Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Table 5A
Indoor Air Concentrations Pre and Post Solvent Use Termination vs NYSDOH Air Guidelines

LOCATION	**NYSDOH Air Guideline Values(1)**	**Units**	**70-IA-2**						**Has compound been reduced (Y/N)**	**Percentage Reduced from June 2015 event.**
DESCRIPTION			**Shop Floor - Northeast in Shop**							
SAMPLING DATE			**5/2/2014**	**6/4/2014**	**4/14/2015**	**6/3/2015**	**Pre-Solvent Use Termination concentration range**	**10/21/2015+**		
Contaminants of Concern (COC)			**Pre-Solvent Use Termination**					**Post-Solvent Use Termination**		
Tetrachloroethene**	30	µg/m3	**1,600**	**2000**	**491**	**146**	146 - 2000	2.05	Y	98.60%
Trichloroethene*	2	µg/m3	**1,200**	**2100**	**41.1**	**25.1**	25.1 - 2100	**10.3**	Y	58.96%
1,1,1-Trichloroethane**	---	µg/m3	7.6 U	11 U	1.09 U	0.109 U	ND	0.109 U	NA	---

	5/2/2014	**6/4/2014**	**4/14/2015**	**6/3/2015**	**Total COC Range**	**10/21/2015**
COCs	2800.00	4100.00	532.10	171.10	171.1 - 4100	12.35

Table 5B
Indoor Air Concentrations Pre and Post VMS Start Up vs NYSDOH Air Guidelines

LOCATION	**NYSDOH Air Guideline Values(1)**	**Units**	**70-IA-2**							**Has compound been reduced (Y/N)**	**Percentage Reduced from October 2015 event.**
DESCRIPTION			**Shop Floor - Northeast in Shop**								
SAMPLING DATE			**5/2/2014**	**6/4/2014**	**4/14/2015**	**6/3/2015**	**10/21/2015+**	**Pre VMS concentration range**	**11/17/2015**		
Contaminants of Concern (COC)			**Pre-VMS operation**						**Post VMS operation**		
Tetrachloroethene**	30	µg/m3	**1,600**	**2000**	**491**	**146**	2.05	2.05 - 2000	3.68	N	
Trichloroethene*	2	µg/m3	**1,200**	**2100**	**41.1**	**25.1**	**10.3**	10.3 - 2100	0.79	Y	92.33%
1,1,1-Trichloroethane**	---	µg/m3	7.6 U	11 U	1.09 U	0.109 U	0.109 U	ND	0.109 U	NA	---

	5/2/2014	**6/4/2014**	**4/14/2015**	**6/3/2015**	**10/21/2015**	**Total COC Range**	**11/17/2015**
COCs	2800.00	4100.00	532.10	171.10	12.35	12.35- 4100	4.47

Note:
"U" qualifier indicates compound was not detected at the reported detection limit for the sample.
IA = Indoor Air sample.
+ Sample was switched with 70-SV-2_102115.
E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
(1) Air Guideline Values are taken from Table 3.1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
COC = Contaminants of Concern
ND Non-detect.
NA Not applicable.
--- indicates not available.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
Bold and highlighted value indicates reported concentration exceeds applicable Air Guideline Values.

Table 6A and 6B
2014 - 2015 Indoor Air Concentrations vs NYSDOH Air Guidelines
Troy Belting Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Table 6A
Indoor Air Concentrations Pre and Post Solvent Use Termination vs NYSDOH Air Guidelines

LOCATION	NYSDOH Air Guideline Values[(1)]	Units	70-IA-3								Has compound been reduced (Y/N)	Percentage Reduced from June 2015 event.
DESCRIPTION			Conference Room - Northeast in Building									
SAMPLING DATE			5/2/2014	6/4/2014	3/9/2015	3/9/2015	4/14/2015	6/3/2015	Pre-Solvent Use Termination concentration range	10/21/2015		
Contaminants of Concern (COC)			Pre-Solvent Use Termination							Post-Solvent Use Termination		
Tetrachloroethene**	30	µg/m3	**1,200**	**1,400**	**1440** E	**2690**	**58.3**	**134**	58.3 - 2690	2.92	Y	97.82%
Trichloroethene*	2	µg/m3	**930**	**1,300**	**459** E	**476**	**5.43**	**17.6**	5.43 - 1300	**9.4**	Y	46.59%
1,1,1-Trichloroethane**	---	µg/m3	11 U	11 U	0.109 U	---	1.09 U	0.109 U	ND	0.327	N	---

	5/2/2014	6/4/2014	3/9/2015	4/14/2015	6/3/2015	Total COC Range	10/21/2015
COCs	2130.00	2700	3166.00	63.73	151.6	63.73 - 3185.26	12.65

Table 6B
Indoor Air Concentrations Pre and Post VMS Start Up vs NYSDOH Air Guidelines

LOCATION	NYSDOH Air Guideline Values[(1)]	Units	70-IA-3									Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.
DESCRIPTION			Conference Room - Northeast in Building										
SAMPLING DATE			5/2/2014	6/4/2014	3/9/2015	3/9/2015	4/14/2015	6/3/2015	10/21/2015	Pre VMS concentration range	11/17/2015		
Contaminants of Concern (COC)			Pre-VMS operation								Post VMS operation		
Tetrachloroethene**	30	µg/m3	**1,200**	**1,400**	**1440** E	**2690**	**58.3**	**134**	2.92	2.92 - 2690	4.27	N	
Trichloroethene*	2	µg/m3	**930**	**1,300**	**459** E	**476**	**5.43**	**17.6**	**9.4**	5.43 - 1300	1.49	Y	84.15%
1,1,1-Trichloroethane**	---	µg/m3	11 U	11 U	0.109 U	---	1.09 U	0.109 U	0.327	ND - 0.327	0.109 U	Y	100.00%

	5/2/2014	6/4/2014	3/9/2015	4/14/2015	6/3/2015	10/21/2015	Total COC Range	11/17/2015
COCs	2130.00	2700	3166.00	63.73	151.60	12.65	12.65 - 3185.26	5.76

Note:
"U" qualifier indicates compound was not detected at the reported detection limit for the sample.
IA = Indoor Air sample.
E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
(1) Air Guideline Values are taken from Table 3.1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
COC = Contaminants of Concern

ND Non-detect.
NA Not applicable.
--- indicates not available.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
Bold and highlighted value indicates reported concentration exceeds applicable Air Guideline Values.

Table 7A and 7B
2014 - 2015 Indoor Air Concentrations vs NYSDOH Air Guidelines
Troy Belting Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Table 7A
Indoor Air Concentrations Pre and Post Solvent Use Termination vs NYSDOH Air Guidelines

LOCATION	NYSDOH Air Guideline Values[(1)]	Units	70-IA-8						Has compound been reduced (Y/N)	Percentage Reduced from June 2015 event.
DESCRIPTION			Administrative Offices - Southeast in Building							
SAMPLING DATE			3/9/2014	3/9/2014	4/14/2015	6/3/2015	Pre-Solvent Use Termination concentration range	10/21/2015		
Contaminants of Concern (COC)			Pre-Solvent Use Termination					Post-Solvent Use Termination		
Tetrachloroethene**	30	µg/m3	**1400 E**	**2660**	**47.3**	**73.9**	47.3 - 2660	2.89	Y	96.09%
Trichloroethene*	2	µg/m3	**462 E**	**496**	**4.12**	**13.8**	4.12 - 496	**7.63**	Y	44.71%
1,1,1-Trichloroethane**	---	µg/m3	0.109 U	---	1.09 U	0.153	ND - 0.153	0.169	N	

	3/9/2015	4/14/2015	6/3/2015	Total COC Range	10/21/2015
COCs	3156.00	51.42	87.85	51.42 - 3157.65	10.69

Table 7B
Indoor Air Concentrations Pre and Post VMS Start Up vs NYSDOH Air Guidelines

LOCATION	NYSDOH Air Guideline Values[(1)]	Units	70-IA-8							Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.
DESCRIPTION			Administrative Offices - Southeast in Building								
SAMPLING DATE			3/9/2014	3/9/2014	4/14/2015	6/3/2015	10/21/2015	Pre VMS concentration range	11/17/2015		
Contaminants of Concern (COC)			Pre-VMS operation						Post VMS operation		
Tetrachloroethene**	30	µg/m3	**1400 E**	**2660**	**47.3**	**73.9**	2.89	2.89 - 2660	4.57	N	
Trichloroethene*	2	µg/m3	**462 E**	**496**	**4.12**	**13.8**	**7.63**	4.12 - 496	1.81	Y	76.28%
1,1,1-Trichloroethane**	---	µg/m3	0.109 U	---	1.09 U	0.153	0.169	ND - 0.169	0.109 U	Y	100.00%

	3/9/2015	4/14/2015	6/3/2015	10/21/2015	Total COC Range	11/17/2015
COCs	3156.00	51.42	87.85	10.69	10.69 - 3157.65	6.38

Note:
"U" qualifier indicates compound was not detected at the reported detection limit for the sample.
IA = Indoor Air sample.
E Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
(1) Air Guideline Values are taken from Table 3.1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
COC = Contaminants of Concern
ND Non-detect.
NA Not applicable.
--- indicates not available.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
Bold and highlighted value indicates reported concentration exceeds applicable Air Guideline Values.

Table 8
Summary of Analytical Results - 2014 - 2015 Sub-Slab Vapor Concentrations Pre and Post VMS Start-Up
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

LOCATION	Units	70-SV-1				Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.	70-SV-2				Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.
DESCRIPTION		Source Area						Northeast Shop					
SAMPLING DATE		5/2/2014	10/21/2015	Pre VMS concentration range	11/17/2015			5/2/2014	10/21/2015+	Pre VMS concentration range	11/17/2015		
Contaminants of Concern (COC)		Pre-VMS operation			Post VMS operation			Pre-VMS operation			Post VMS operation		
Tetrachloroethene**	µg/m3	12000	233	233 - 12000	4.52	Y	98.06%	400	102	102 - 400	231	N	
Trichloroethene*	µg/m3	47000	2290	2290 - 47000	1.3	Y	99.94%	3600	3150 D	3150 - 3600	2910	Y	7.62%
1,1,1-Trichloroethane**	µg/m3	390 U	42.2	ND - 42.2	1.09 U	Y	100.00%	710	682 D	682 - 710	304	Y	55.43%

	Units	5/2/2014	10/21/2015	Total VOCs Range	11/17/2015		Units	5/2/2014	10/21/2015	Total VOCs Range	11/17/2015
Total VOCs	µg/m3	74700.00	4596.73	4596.7 - 74700	1552.23	**Total VOCs**	µg/m3	7351	4249.43	7351 - 4249.43	4821
COCs	µg/m3	59000.00	2565.20	**COCs Range**	8.07	**COCs**	µg/m3	4710	3934.00	**COCs Range**	3445
COCs/Total VOCs	%	78.98%	55.80%	2565.20 - 59000	0.52%	COCs/Total VOCs	%	64.07%	92.58%	3934 - 4710	71.45%

LOCATION	Units	70-SV-3				Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.	70-SV-7_102115			Has compound been reduced (Y/N)	Percentage Reduced from October 2015 event.
DESCRIPTION		Conference Room						Addition to West				
SAMPLING DATE		5/2/2014	10/21/2015	Pre VMS concentration range	11/17/2015			10/21/2015	Pre VMS concentration range	11/17/2015		
Contaminants of Concern (COC)		Pre-VMS operation			Post VMS operation			Pre VMS operation		Post VMS operation		
Tetrachloroethene**	µg/m3	59	6.66	6.66 - 59	9.97	N		739	739	4.63	Y	99.37%
Trichloroethene*	µg/m3	96	82.2	82.2 - 96	101	N		14500	14500	1.39	Y	99.99%
1,1,1-Trichloroethane**	µg/m3	2.3	6.82	2.3 - 6.82	6.22	Y	8.80%	2080	2080	1.09 U	Y	100.00%

	Units	5/2/2014	10/21/2015	Total VOCs Range	11/17/2015		Units	10/21/2015	Total VOCs Range	11/17/2015
Total VOCs	µg/m3	207	217.06	207 - 217.06	174.89	**Total VOCs**	µg/m3	18381.70	18381.70	1262.203
COCs	µg/m3	157.3	95.68	**COCs Range**	117.19	**COCs**	µg/m3	17319.00	**COCs Range**	6.02
COCs/Total VOCs	%	75.95%	44.08%	95.68 - 157.3	67.01%	COCs/Total VOCs	%	94.22%	17454.10	0.48%

Note:
"U" qualifier indicates compound was not detected at the reported detection limit for the sample.
SV - Soil Vapor sample.
+ Sample was switched with 70-IA-2_102115.
COC = Contaminants of Concern
ND Non-detect.
--- indicates not available.
* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.
D Inlcuded when identified compound in the analysis are at the secondary dilution factor.

Table 9
Summary of Analytical Results - VMS Treatment Train Locations
November 17-19, 2015
Troy Belting and Supply Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

SAMPLE ID	Units	NYSDOH Air Guideline Values, µg/m3	70-SV-PRECAN_111715	70-SV-BET_111815	70-SV-EXHAUST_111715
DESCRIPTION			VMS System		
LOCATION			Northcentral in Shop		
SAMPLING DATE			11/17/2015	11/18/2015	11/17/2015
Contaminants of Concern (COCs)					
Tetrachloroethene**	µg/m^3	30	4.03	6.12	1.36 U
Trichloroethene*	µg/m^3	2	1.34 U	1.07 U	1.07 U
1,1,1-Trichloroethane**	µg/m^3	---	1.36 U	1.09 U	1.09 U

Note:

"U" qualifier indicates compound was not detected at the reported detection limit for the sample.

SV = Soil Vapor sample.

--- No guideline is provided.

* Parameter can be found in Matrix 1 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

** Parameter can be found in Matrix 2 in the Final NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

Table 10A
Carbon Treated[1] Soil Vapor Results vs Air Guideline 1 Values[6]
Troy Belting Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Chemicals of Concern, (COC)[2]	November 2015 Soil Vapor Air Concentration (µg/m³)	Calculated Total Annual Emission[3] (lbs/yr)	Short-Term Guideline Concentration (SGC)[4] (µg/m³)	Actual SGC Calculated Result[5] (µg/m³)	Annual Guideline Concentration (AGC)[4] (µg/m³)	Actual AGC Calculated Result[5] (µg/m³)
1,1,1-Trichloroethane	1.09 U*	3.3E-03	9,000	4.3E-04	5,000	6.5E-06
cis-1,2-Dichloroethene	0.793 U*	2.4E-03	---	3.1E-04	63	4.8E-06
Tetrachloroethene	1.36 U*	4.1E-03	300	5.3E-04	4	8.2E-06
Trichloroethene	1.07 U*	3.2E-03	20	4.2E-04	0.200	6.4E-06
Vinyl Chloride	2.86	8.5E-03	180,000	1.1E-03	0.11	1.7E-05

Notes:

* The non-detect value was used to calculate the annual concentrations and short-term concentrations as this indicates the maximum detection for the given COC in the November 2015 sample.

[1] Carbon treated soil vapor is identified as the EXHAUST location in the VMS.

[2] Site specific.

[3] Annual emissions were calculated using NYSDEC Policy DAR-1: Guidelines for the Control of Toxins (DAR-1) and November 2015 soil vapor sample results after carbon treatment for the given COCs.

[4] Short-term and Annual Guideline Concentrations are derived from the Tables in DAR-1.

[5] Actual SGC and AGC values calculated using November 2015 results and DAR-1.

U = Indicates compound was not detected at the reported detection limit for the sample.

Table 10B

Non-Carbon Treated[1] Soil Vapor Results vs Air Guideline 1 Values[6]
Troy Belting Co., 70 Cohoes Road, Colonie, New York
Brownfield Cleanup Program #C401067

Chemicals of Concern, (COC)[2]	November 2015 Soil Vapor Concentration (µg/m³)	Calculated Total Annual Emission[3] (lbs/yr)	Short-Term Guideline Concentration (SGC)[4] (µg/m³)	Actual SGC Calculated Result[5] (µg/m³)	Annual Guideline Concentration (AGC)[4] (µg/m³)	Actual AGC Calculated Result[5] (µg/m³)
1,1,1-Trichloroethane	1.36 U*	4.1E-03	9,000	5.3E-04	5,000	8.2E-06
cis-1,2-Dichloroethene	0.991 U*	3.0E-03	---	3.9E-04	63	6.0E-06
Tetrachloroethene	4.03	1.2E-02	300	1.6E-03	4	2.4E-05
Trichloroethene	1.34 U*	4.0E-03	20	5.2E-04	0.200	8.1E-06
Vinyl Chloride	0.639 U*	1.9E-03	180,000	2.5E-04	0.11	3.8E-06

Notes:

* The non-detect value was used to calculate the annual concentrations and short-term concentrations as this indicates the maximum detection for the given COC in the November 2015 sample.

1 Non-Carbon treated soil vapor is identified as the PRECAN location in the VMS.

2 Site specific.

3 Annual emissions were calculated using NYSDEC Policy DAR-1: Guidelines for the Control of Toxins (DAR-1) and November 2015 soil vapor sample results before carbon treatment for the given COCs.

4 Short-term and Annual Guideline Concentrations are derived from the Tables in DAR-1.

5 Actual SGC and AGC values calculated using November 2015 results and DAR-1.

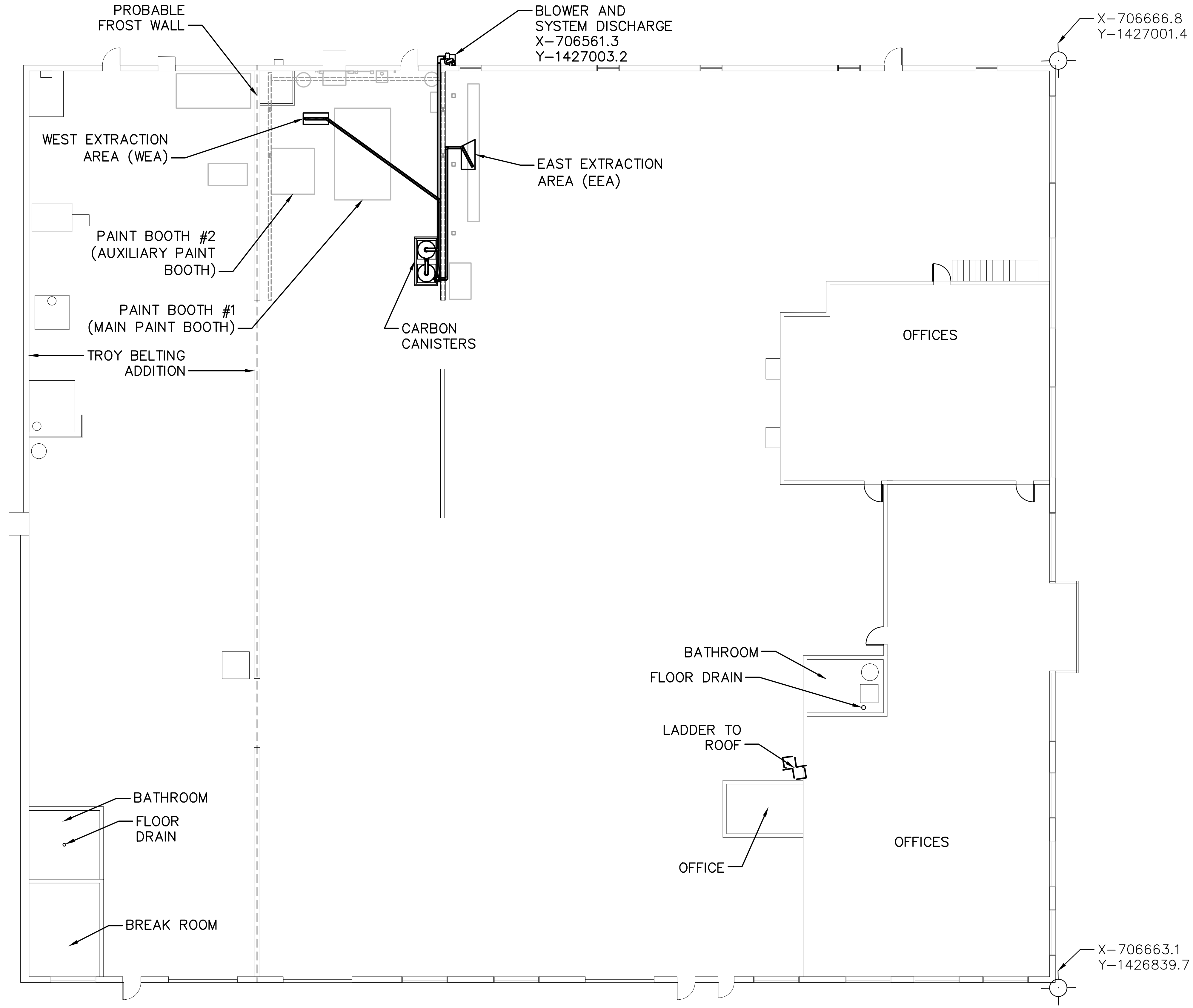
6 These are calculations based on a hypothetical emission of untreated soil vapor. The soil vapor was actually treated prior to emission. These calculations are for evaluation purposes only.

U = Indicates compound was not detected at the reported detection limit for the sample.

FIGURES

SURVEY NOTES:
1. SURVEY POINTS IN NY STATE PLANE NAD83, ZONE NY EAST, US SURVEY FEET.
2. EAST BUILDING CORNERS SURVEYED USING TRIMBLE GEOEXPLORER XH 2005 SERIES GPS DATA LOGGER.
3. POST–PROCESSED HORIZONTAL ACCURACY 1.5–FEET.

BUILDING NOTES:
1. OFFICES AREA INTERNAL WALLS AND DOORWAYS ARE NO LONGER LOCATED AS DEPICTED. EXTERIOR WALLS AND WALLS SEPARATING THE OFFICE FROM THE SHOP ARE LOCATED AS DEPICTED.



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0 10' 20' 40'
(IN FEET)
1 inch = 20 ft.

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BUILDING FOOTPRINT
AS–BUILT PLAN
TROY BELTING & SUPPLY CO.
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., N.Y.

PROJ. No.: 2011–31	DATE: 07/07/2016	SCALE: 1" = 20'	DWG. NO. 2011–31150	FIGURE 1

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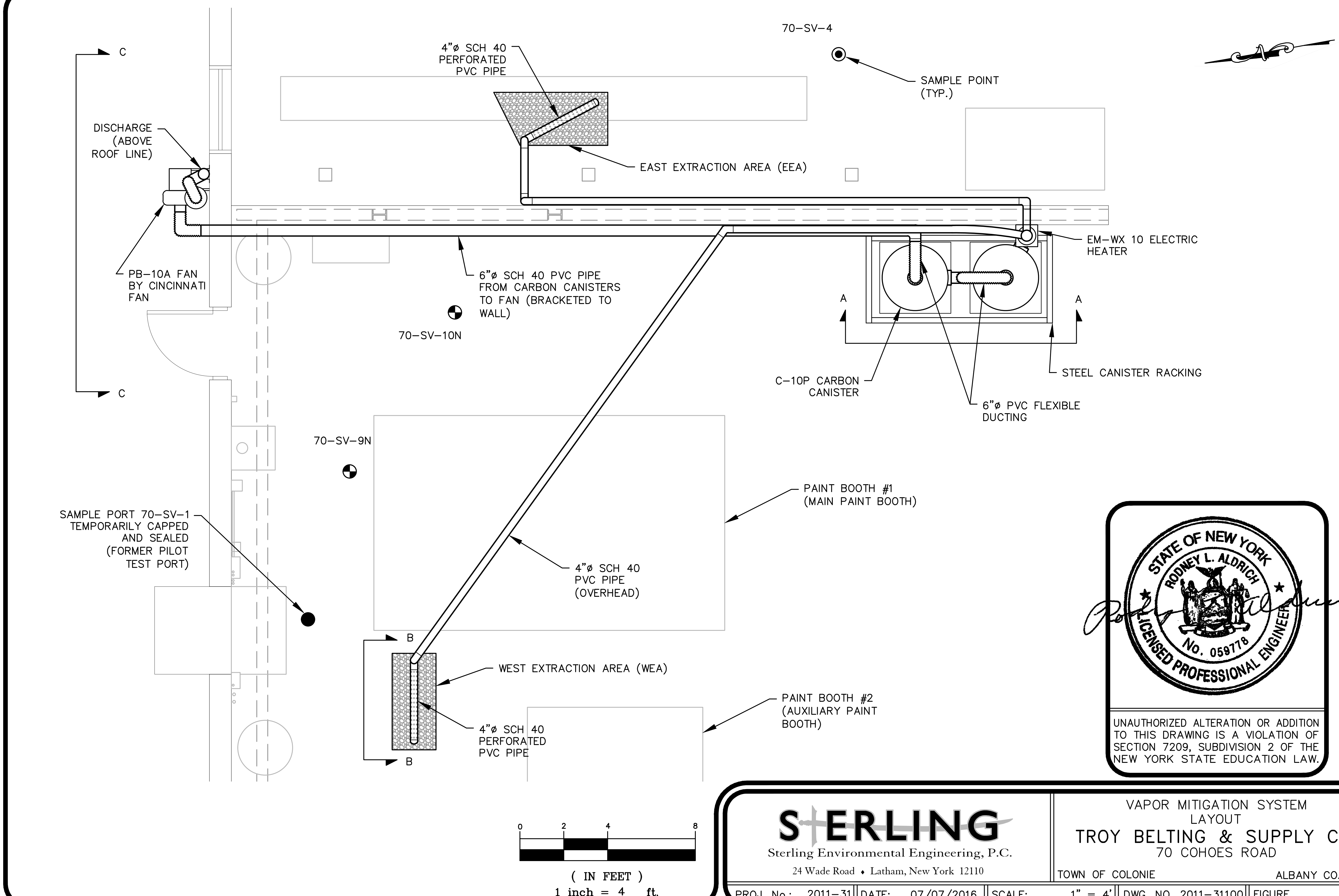

STATE OF NEW YORK
RODNEY L. ALDRICH
No. 059778
LICENSED PROFESSIONAL ENGINEER

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VAPOR MITIGATION SYSTEM
LAYOUT
TROY BELTING & SUPPLY CO.
70 COHOES ROAD

TOWN OF COLONIE						ALBANY CO., N.Y.	
PROJ. No.:	2011–31	DATE: 07/07/2016	SCALE:	1" = 4'	DWG. NO. 2011–31100	FIGURE	2

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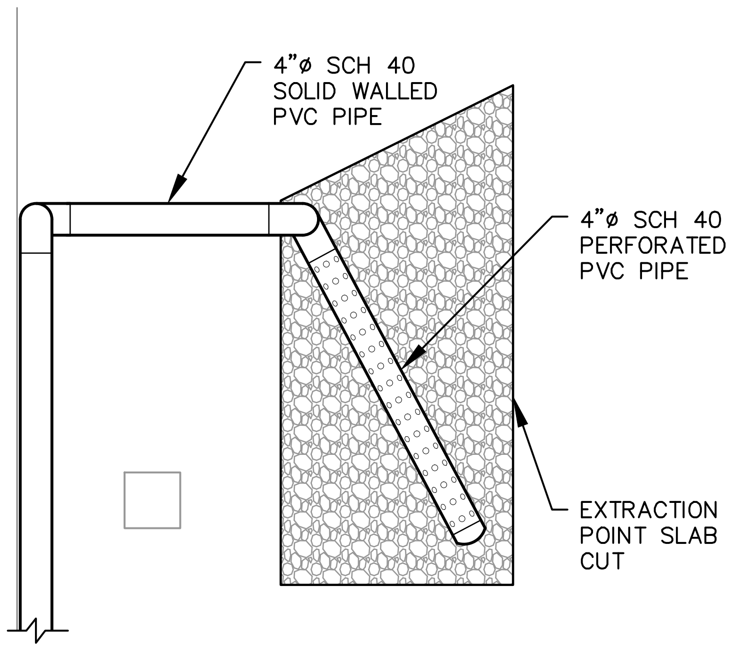
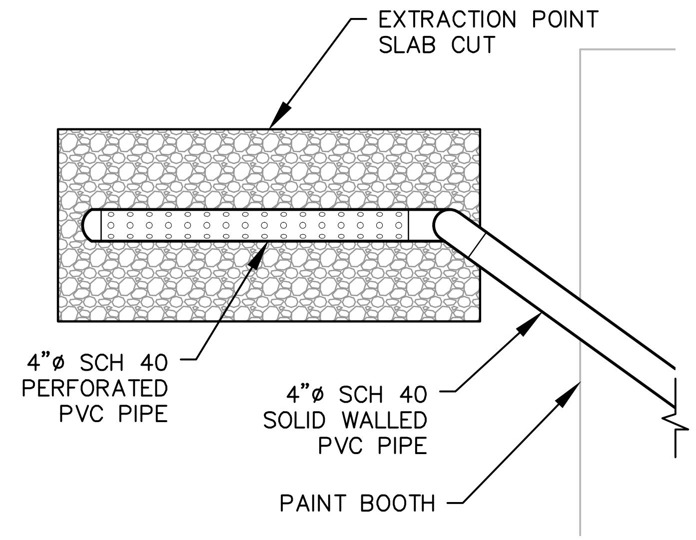
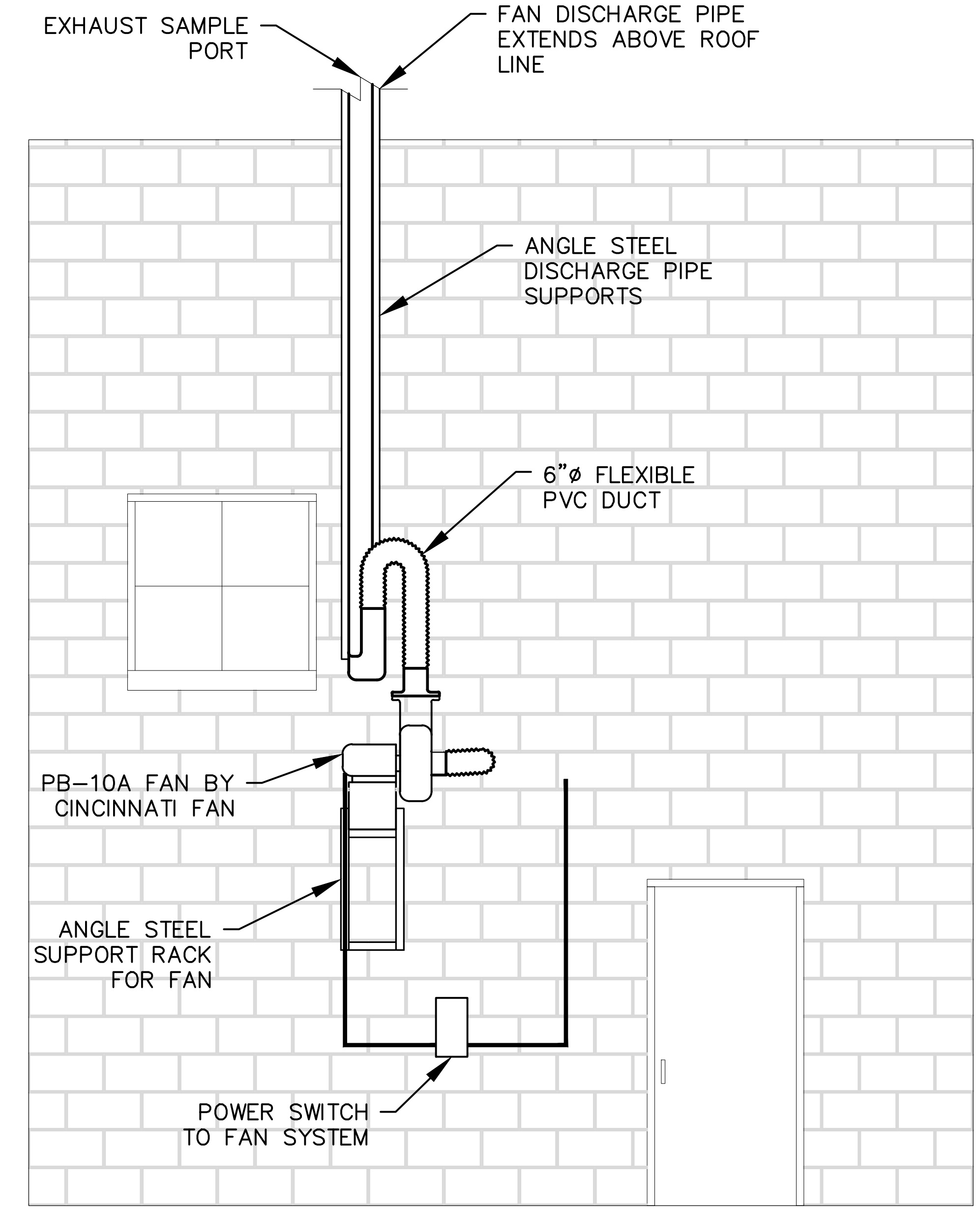


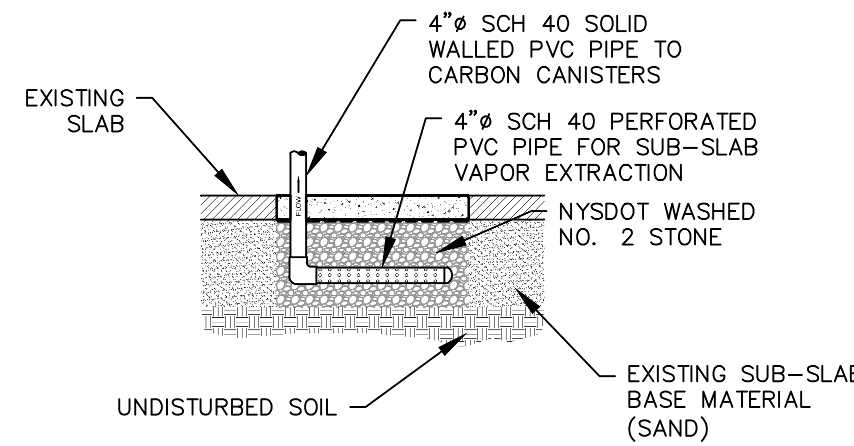
1 EAST EXTRACTION AREA DETAIL
SCALE: 1" = 2'



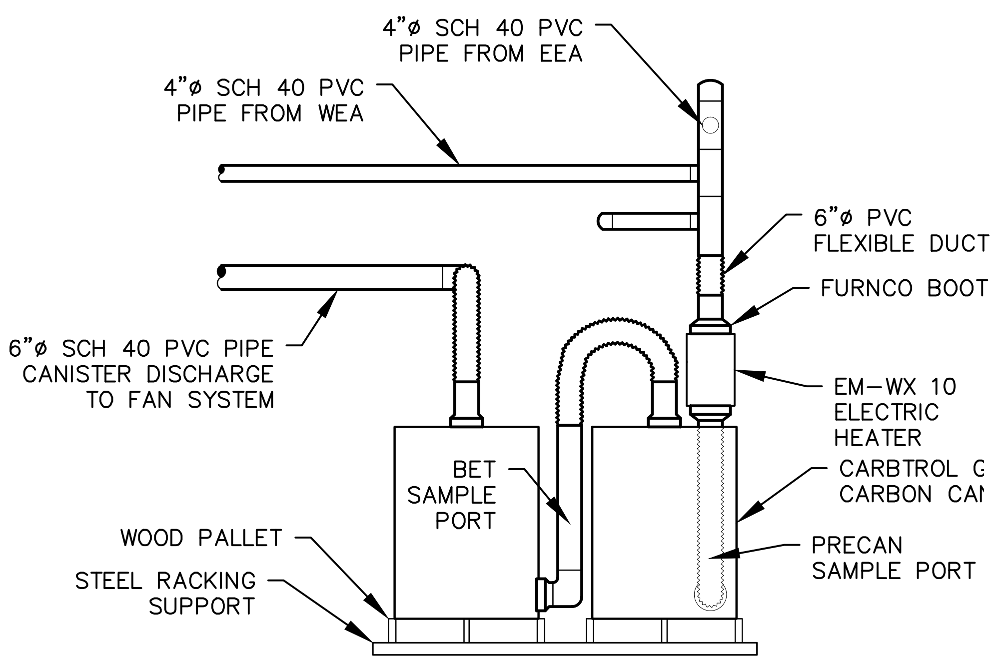
2 WEST EXTRACTION AREA DETAIL
SCALE: 1" = 2'



SECTION C-C
5 FAN DETAIL
SCALE: 1" = 4'



SECTION B-B
4 EXTRACTION AREA SECTION
SCALE: 1" = 4'



SECTION A-A
3 CARBON CANISTER DETAIL
SCALE: 1" = 4'

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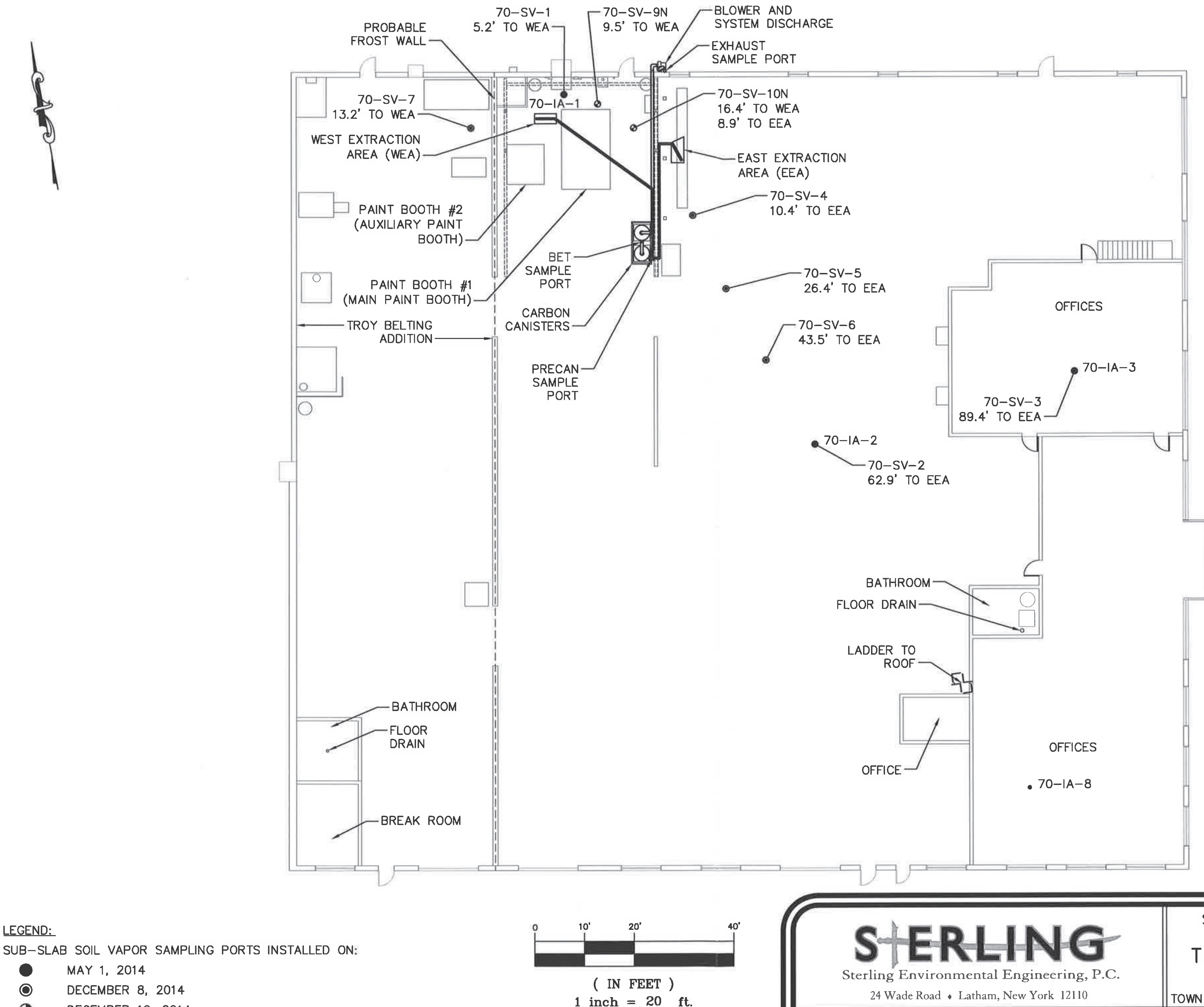
VAPOR MITIGATION SYSTEM
DETAILS
TROY BELTING & SUPPLY CO.
70 COHOES ROAD
TOWN OF COLONIE | ALBANY CO., N.Y.

PROJ. No.: 2011-31	DATE: 07/07/2016	SCALE: AS NOTED	DWG. NO. 2011-31101	FIGURE 3



LEGEND:

SUB-SLAB SOIL VAPOR SAMPLING PORTS INSTALLED ON:

- ● MAY 1, 2014
- ◉ DECEMBER 8, 2014
- ◕ DECEMBER 16, 2014

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SUB-SLAB SOIL VAPOR & INDOOR AIR SAMPLING LOCATIONS PLAN

TROY BELTING & SUPPLY CO.

70 COHOES ROAD

TOWN OF COLONIE — ALBANY CO., N.Y.

PROJ. No.: 2011-31	DATE: 07/07/2016	SCALE: 1" = 20'	DWG. NO. 2011-31103	FIGURE 4

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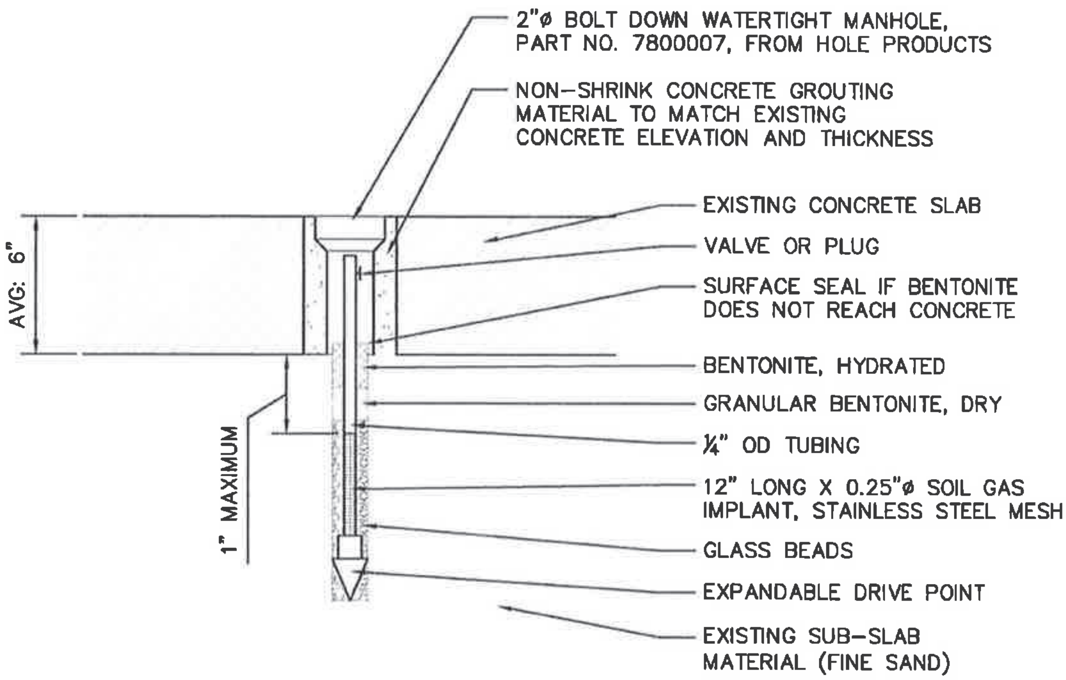

SOIL VAPOR PORT DETAIL

PLAN VIEW (N.T.S.)

STERLING

Sterling Environmental Engineering, P.C.

24 Wade Road • Latham, New York 12110

SUB-SLAB SOIL VAPOR SAMPLING PORT DETAIL

TROY BELTING & SUPPLY CO.

70 COHOES ROAD

TOWN OF COLONIE			ALBANY CO., N.Y.
PROJ. No.: 2011-31	DATE: 3/28/16	SCALE: N.T.S.	DWG. NO. 2011-31105	FIGURE 5

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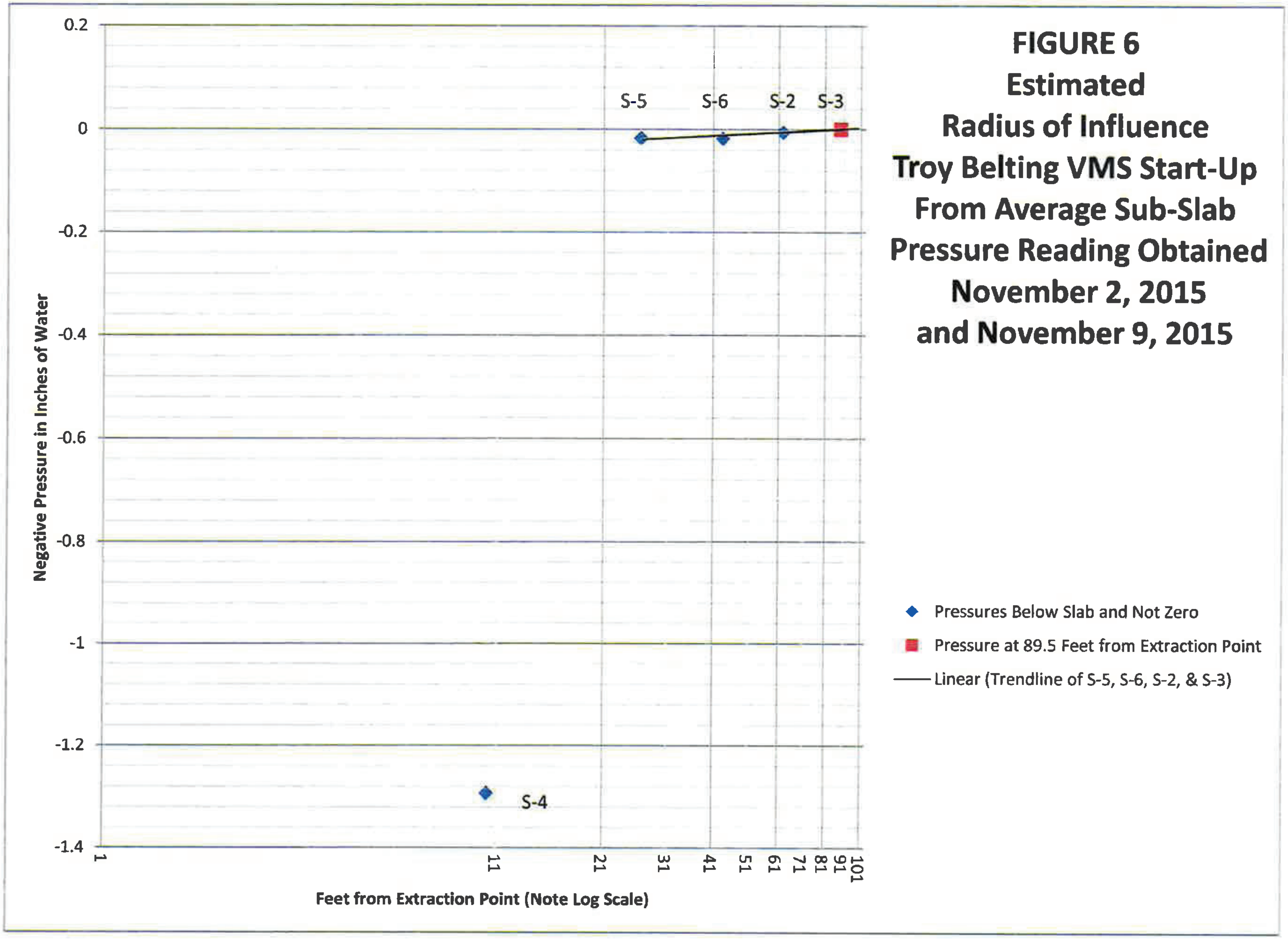


FIGURE 6
Estimated Radius of Influence Troy Belting VMS Start-Up From Average Sub-Slab Pressure Reading Obtained November 2, 2015 and November 9, 2015

APPENDIX A

PHOTOGRAPH LOG

Photograph 1: View looking north at the right angled trapezoid-shaped sub-slab withdrawal location identified as the Eastern Extraction Area (EEA). The east wall separating the Western Extraction Area (WEA) is visible in the top left corner of the photograph.

Photograph 2: View looking southwest at the rectangular-shaped sub-slab withdrawal location identified as the WEA.

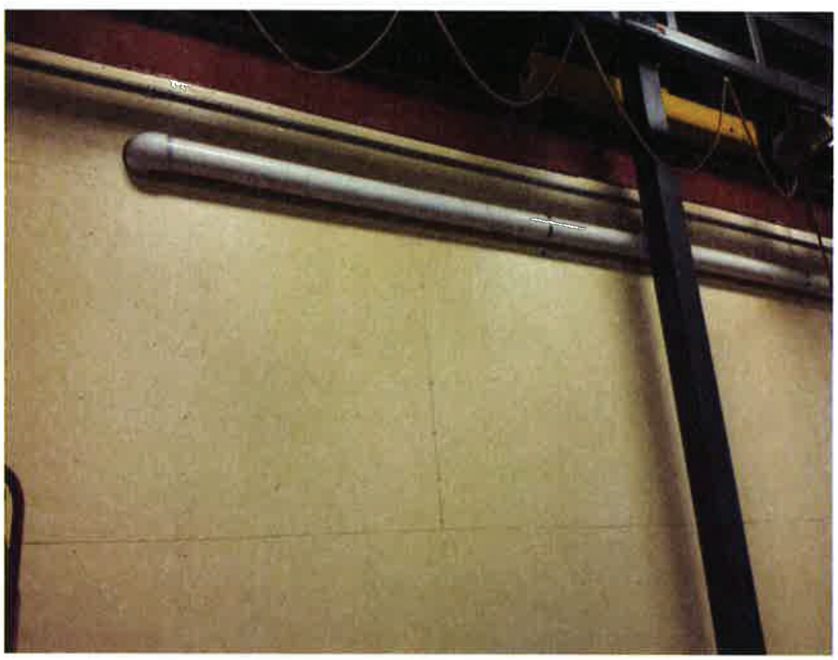
Photograph 3: View of the materials found in the WEA and EEA. Each withdrawal point had approximately 2 feet of materials excavated.

Photograph 4: View of one of the 4-inch diameter PVC perforated pipe with eight (8) rows of 32 holes (totaling 256 holes) drilled to allow air flow from the sub-slab materials in the EEA. A similar PVC perforated pipe was situated in the WEA.

Photograph 5: View of 4-inch diameter PVC perforated duct installed into the soil vapor collection box at the EEA above an approximately 4-inch diameter layer of angular/sub-angular Type 2 stone below the duct.

Photograph 6: View of the non-shrinking grout placed in the WEA footprint (top left corner) to the similar grade of the existing concrete slab. Saw-cut locations past the excavation were sealed using the non-shrinking grout.

Photograph 7: View looking south at the EEA 4-inch diameter G10P PVC duct and withdrawal location. The system is observed to travel parallel with the east wall in the top of the photograph.

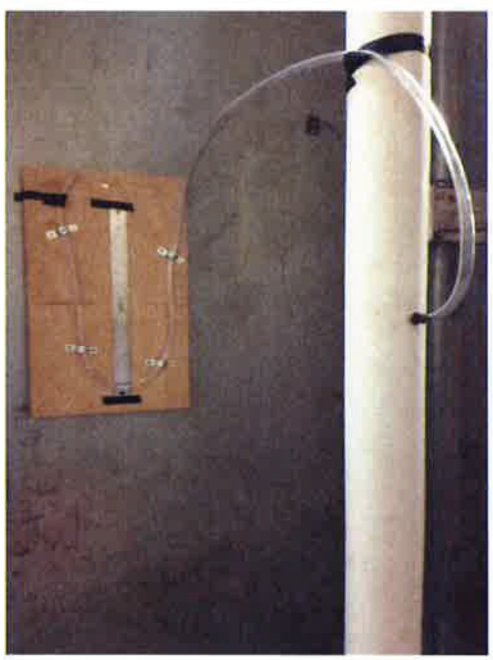


Photograph 8: View looking at the EEA duct extending from the right to the left of the photograph. The 90° elbow in the top left is observed to protrude through the 7-inch east wall, into the 6-inch manifold.

Photograph 9: View looking east at the WEA 4-inch diameter PVC duct exiting the concrete slab. The duct extends from the WEA, into a 90° elbow and horizontally to the southeast over the paint booth.

Photograph 10: View of the WEA duct system extending from the left to the right of the photograph, and turning to be parallel with the east wall. Also, the 6-inch diameter duct extends from the right of the photograph to the center to the exterior building wall after exiting the carbon canisters.

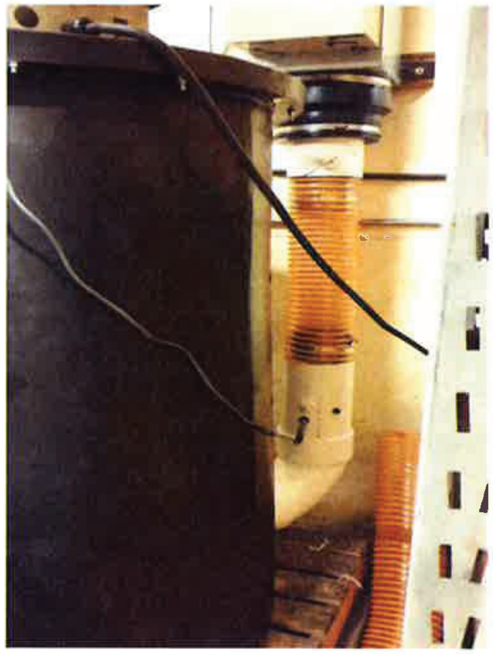
Photograph 11: View looking east at the 4-inch diameter duct from the WEA entering into the 6-inch manifold at the top of the photograph. The bottom tee faces the wall and receives the 4-inch duct (not visible) from the EEA. The bottom tee of the manifold is observed below the 4-inch WEA duct and is capped for future use if needed. The EM-HX 10 Electric Heater is in the center right of the photograph and the first G-10P carbon canister is observed in the bottom right.



Photograph 12: View of the WEA aqueous manometer connected to and monitoring the 4-inch PVC ducting system.

Photograph 13: View of the aqueous manometer installed in the 4-inch diameter PVC EEA duct.

Photograph 14: View of the EM-HX 10 Electric Heater with an 8-inch rubber reducer at both the inlet and outlet. The first G-10P carbon canister is observed in the bottom left of the photograph.



Photograph 15: View of the 6-inch flex duct connected to the 6-inch PVC duct at the outlet of the EM-HX 10 Electric Heater. A 90° PVC elbow is observed entering the inlet of the first G-10P carbon canister in the bottom of the photograph.

Photograph 16: View of the 6-inch PVC and flex ducting of the carbon treatment system. The 6-inch flex duct and PVC duct connecting the two G-10P canisters is observed in the right center of the photograph. The 6-inch flex duct and PVC duct from the outlet of the second G-10P carbon canister is in the left of the photograph.

Photograph 17: View looking northeast at the 6-inch PVC final ducting system extending through the exterior wall in the left center of the photograph.

Photograph 18: View looking east at the Model PB-10A fan and emission system on the exterior of the Troy Belting facility. The duct is observed extending through the exterior wall in the right center of the photograph and is connected to the fan inlet.

Photograph 19: Close-up view looking at the fan and emission system on the exterior of the Troy Belting facility. Flexible 6-inch duct connects to the 6-inch PVC "U" which will have a drain installed to remove the majority of condensation. The fan's condensation drain is visible at the lower right.

Photograph 20: View looking southwest at the emission stack approximately 11.4 feet above the Troy Belting facility roofline.

APPENDIX B

DAILY FIELD REPORTS AND SUB-SLAB SOIL VAPOR SAMPLING NOTES

S ERLING
Sterling Environmental Engineering, P.C.

DAILY FIELD REPORT

Project Name: Troy Belting & Supply Company **Project No.:** 2011-31

Client Name: Troy Belting & Supply Company **Date:** 11/9/15

Location: 70 Cohoes Road Watervliet NY 12189 **Weather:**

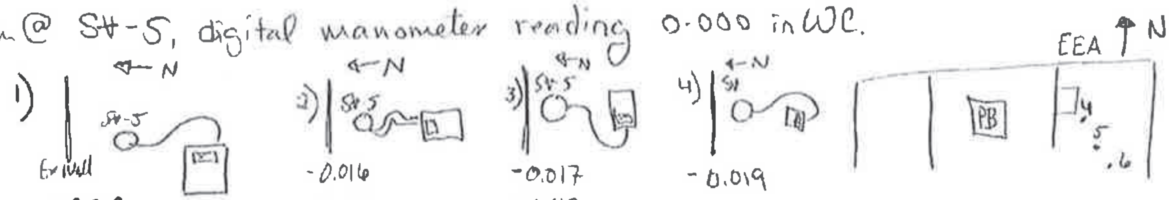
Inspector: AC, Sterling

Work Description, Comments, Discussion, Problems, Instructions:

Plan: remeasure ~~th~~ pressure differential @ SV-5 + 6, measure SV locations from walls for drawing placement

915am AC onsite. Meet w/ Josh H, → will help measure SV locations

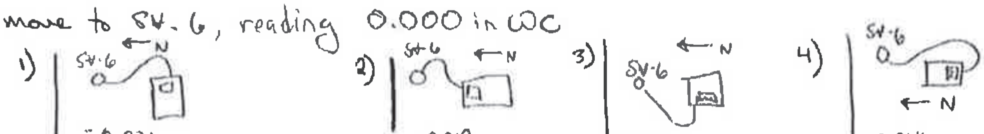
930am @ SV-5, digital manometer reading 0.000 in WC.



1)	2)	3)	4)
-0.018	-0.016	-0.017	-0.019
-0.018	-0.010	-0.019	-0.019
-0.019	-0.017	-0.019	-0.019
	-0.017	-0.014	

*

945 move to SV-6, reading 0.000 in WC



1)	2)	3)	4)
-0.021	-0.019	-0.019	-0.018
-0.004	-0.018 > walkers	-0.016 > walkers	-0.020
-0.017	-0.014	-0.021	-0.016
-0.023	-0.020	-0.019	-0.019
-0.019			-0.019

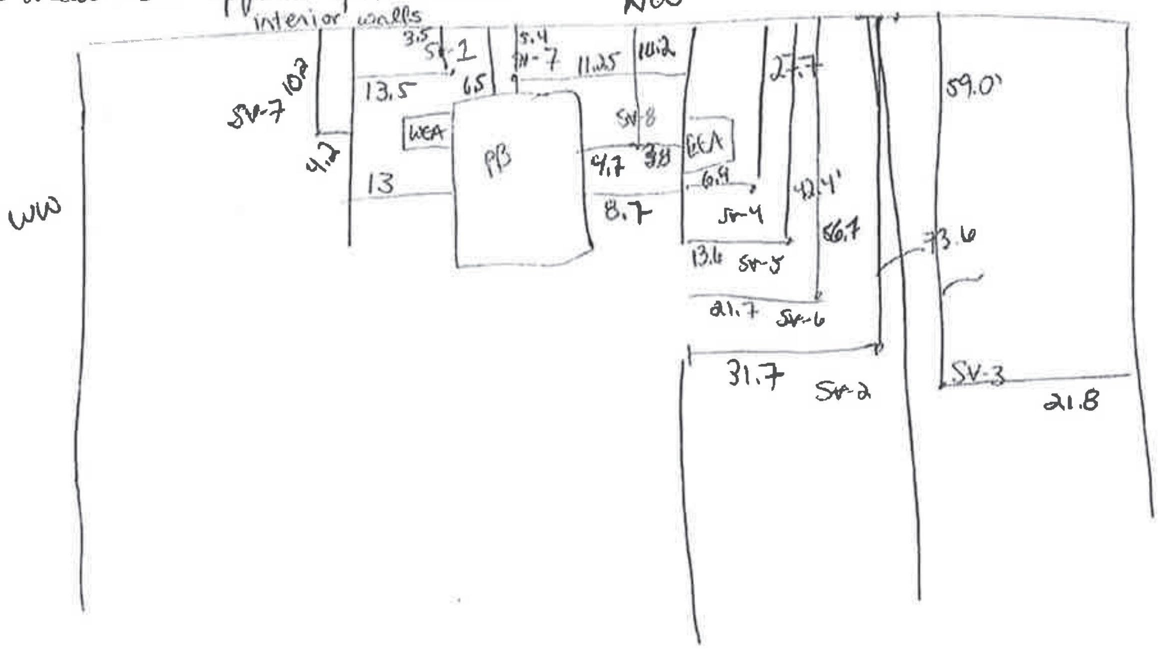
*feel lots of air movement
→ HVAC system running. (verified w/ JH)

10am AC views crack near SV-1 + paint booth. Crack appears to be sealed.

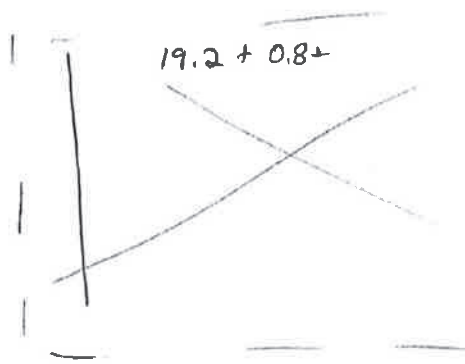
Visitors (Name, Affiliation):

Signature:

1015 AC measures offsets of NW walls + interior walls



- Cracks sealed RTV Silicone per JH



1030
- RLA/Chris O'Neill onsite to ~~see~~ ~~to~~ view HMS

→ ~~A~~ Per C.O, add sample canisters @ outlet, before 1st Carbon canister, and between (11 total)

~~to~~ 1130 AC offsite. RLA/CO to observe installation of MW-11S on adjacent N property (72 Cohoes Rd)

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Sterling Environmental Engineering, P.C.

DAILY FIELD REPORT

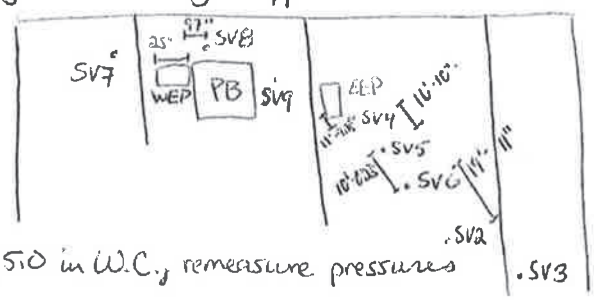
Project Name: Troy Belting & Supply Company
Project No.: 2011-31
Client Name: Troy Belting & Supply Company
Date: 11/2/15
Location: 70 Cohoes Rd, Watervliet, NY 12189
Weather: P.cloudy, ~50°F
Inspector: A. Castignetti, Sterling (AC)

Work Description, Comments Discussion, Problems, Instructions:

1215pm AC onsite for VMS inspection after 72 hours operation
plan: check VMS components, pressures, PID readings, additional measurements

1225pm PID Reading @ designated locations, background reading 0.5ppm

	WEP	EEP	BC	BETC
ppm	5.7	5.9	4.7	0.4



1235pm Begin to obtain pressure readings
* per RLA phone call, turn fan to measure ≙ 5.0 in W.C., remeasure pressures

115pm J. Huestis with Troy Belting (TB) increases fan to 43.9 Hz (design = 60 Hz) for pressures @ WEP and EEP ≙ 5.0 in W.C.

RLA onsite

readings	#1	#2	#3	#4	PID (ppm)
SV-2	-0.005	-0.006	-0.005	-0.005	0.0
SV-3	-0.000	0.000	-0.000	-0.000	0.0
SV-4	-1.291	-1.293	-1.293	-1.295	0.0
SV-5	-0.017	-0.016	-0.017	-0.017	0.0
SV-6	-0.021	-0.023	-0.021	-0.021	0.1
SV-7	-0.011	-0.010	-0.011	-0.013	0.0
SV-8	-0.162	-0.162	-0.162	-0.162	7.1
SV-9	-0.821	-0.821	-0.820	-0.821	6.5

Visitors (Name, Affiliation):

Signature:

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Sterling Environmental Engineering, P.C.

DAILY FIELD REPORT (Continued)

Project Name: Troy Belting & Supply Company **Project No.:** 2011-31

245 pm RLA + AC increase fan to 100% power = 60 Hz ~41% load
EEP velocity ≅ 34 cfm WEP velocity ≅ 57.0 cfm

-- RLA offsite
4pm AC offsite.

Signature: [signature]

APPENDIX C

LABORATORY DATA SUMMARY TABLE FOR WEA AND EEA AND CORRESPONDENCE FROM NYSDEC REGARDING CONCRETE INTEGRITY AND REUSE

Table 1

Summary of Detected Analytical Results - Soil
Troy Belting and Supply Company, Watervliet, New York

Parameter	UUSCO (mg/kg)	TB-EP-091715 (mg/kg)	TB-WP-092115 (mg/kg)
Volatile Organic Compounds			
Acetone	0.05	0.0032 J	0.026
cis-1,2-Dichloroethene	0.25	0.0005 J	0.0014
m, p-Xylene (Mixed Xylenes)	0.26	0.00025 J	0.00041 J
Tetrachloroethene	1.3	0.00083 J	0.0016
Toluene	0.7	0.001 J	0.00072 J
Trichloroethene	0.47	0.0049	0.011

Notes:

UUSCO: Unrestricted Use Soil Cleanup Objectives Table 375-6.8(a)

EP Eastern Extraction Area (Vapor Mitigation System)

WP Western Extraction Area (Vapor Mitigation System)

J Analyte detected at a level less than the laboratory reporting limit and greater than or equal to the laboratory method detection limit. Concentrations are estimated.

--- No standard provided.

Amanda Castignetti

From: O'neill, Christopher (DEC) [christopher.oneill@dec.ny.gov]
Sent: Thursday, October 08, 2015 1:09 PM
To: Amanda Castignetti
Cc: jsmith@troybelting.com; RLeistensnider@nixonpeabody.com; David Barcomb (dbarcomb@troybelting.com); Karpinski, Steven (HEALTH); Deming, Justin (HEALTH); Mark Millspaugh; Mark Williams; Rod Aldrich; Quinn, James A (DEC); Ostrov, Rich (DEC)
Subject: RE: Vapor Mitigation Soil Sample Results, Troy Belting and Supply, C401067 (File #2011-31)

In accordance with your soil and concrete re-use request, provided below, NYSDEC visited the Troy Belting site on 10-8-2015, and found that there is a relatively small amount (seven 55-gallon drums) of soil involved in this re-use scenario. In addition, there are only two relatively small concrete slabs involved in this re-use request.

Given the analytical results for volatile and semi-volatile compounds for the soil, NYSDEC hereby approves of the on-site re-use of these drummed soils as fill within the site boundaries. Please note that this re-use is an exception based on the particular circumstances, as normally full analytical laboratory data (VOC, SVOC, Pesticides, PCBs, metals) is required for re-use considerations.

Given the integrity of the concrete slabs and the lack of staining or other contaminant indications, NYSDEC hereby approves of the on-site re-use of these concrete slabs as fill material within the site boundaries.

The re-use locations for the soils (as removed from the drums) and the concrete involved in this specific re-use request/approval must be documented for inclusion in the construction/engineering reports for the on-site soil vapor extraction (SVE) system installation, since these materials were generated during the SVE installation activities.

To reiterate, this request has been considered as a special case, such that future re-use scenarios should be planned in accordance with the prescribed need for full TCL/TAL analytical data.

Feel free to contact me at 518-357-2394 if there are any questions.

From: Amanda Castignetti [mailto:Amanda.Castignetti@SterlingEnvironmental.com]
Sent: Friday, October 02, 2015 9:29 AM
To: O'neill, Christopher (DEC)
Cc: jsmith@troybelting.com; RLeistensnider@nixonpeabody.com; David Barcomb (dbarcomb@troybelting.com); Karpinski, Steven (HEALTH); Deming, Justin (HEALTH); Mark Millspaugh; Mark Williams; Beverly Commerford; Rod Aldrich
Subject: Vapor Mitigation Soil Sample Results, Troy Belting and Supply, C401067 (File #2011-31)

Mr. O'Neill,

The soil (Fill) excavated and drummed from the two vapor mitigation system extraction points, installed beneath the northern portion of the Troy Belting facility, was sampled on September 17, 2015 (East Port) and September 21, 2015 (West Port). Each sample was tested for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) by Alpha Analytical of Westborough, Massachusetts. The attached analytical reports are provided for your records. No SVOCs were detected in either soil sample.

Table 1 (attached) provides a summary of VOC detections in the two soil samples as well as comparison to the Unrestricted Use Soil Cleanup Objectives (UUSCO) in 6 NYCRR Part 375. The drummed materials are below the UUSCOs and, according to DER-10, should be allowed to be beneficially reused onsite.

In regards to the concrete removed from these two locations, which was in contact with the sampled material and currently staged in the northern parking lot, STERLING interprets that the concrete may also be reused onsite as Fill material.

Please advise regarding approval to reuse the Fill (drummed soil and staged concrete) within the Troy Belting property.

Thanks and we look forward to your reply.

Rod and Amanda

Amanda Castignetti, EIT
Environmental Engineer
Sterling Environmental Engineering, P.C.
24 Wade Road
Latham, New York 12110
Telephone: (518) 456-4900
Fax: (518) 456-3532
amanda.castignetti@sterlingenvironmental.com

APPENDIX D

VMS START-UP INSPECTION FORM

Vapor Mitigation System (VMS)
Startup Inspection Form

Facility: Troy Belting & Supply Company
Location: 70 Cohoes Road, Town of Colonie, NY

Date/Inspection Number: 10/30/2015, 1 PM

Name of Inspector: Amanda Castignetti, STERLING

Signature:

INSTRUCTIONS:
Complete the following checklist for each item weekly.
Mark Y for YES
Mark NA for DOES NOT APPLY
Mark N for NO

Item	Description	Comments	
Setup of System			
1	Location of Heater.	Between manifold and carbon canisters.	
2	Location of Carbon Canisters.	After heater.	
3	Location of manifold.	Before heater.	
4	How many ducts into manifold?	2 ducts in, 1 capped, 1 duct out.	
5	Is extra opening of manifold closed off?	Yes	
6	Placement of fan.	Elevated outside exterior wall.	
7	Placement of stack/height above roof.	Bracketed to exterior wall, extends ~11.4ft above roofline.	
VMS Piping System			
8	Are there any cracks or openings in the ducts, including the elbows?	No	
9	Are there any visual cracks or sagging of ducting?	No	
10	Are there any cracks or openings in connections to canisters/heater/fan?	No	
11	Are any cracks or openings in canisters present?	No	
Manometers		Western Manometer	Eastern Manometer
12	Installation at both extraction points?	Yes	Yes
13	Are there any cracks, gaps, bulging present in tubing?	No	No
14	Are the brackets sagging or pulling out?	No	No
15	Is any blockage, pinches, or kinks present in tubing?	No	No
16	Are the meniscuses present on both sides of the "U"?	Yes	Yes
17	What is the elevation of the bottom of the meniscus on the left, right, and difference in inches?	L: -4.5 inWC, R: -4.5 inWC Difference = -9.0 inWC	L: -4.5 inWC, R: -4.5 inWC Difference = -9.0 inWC
18	Is the pressure reading negative relative to indoor air?	Yes, ~-4.617 inWC	Yes, ~-4.617 inWC
Temperature Probe			
19	Is the temperature probe installed in correct location?	Yes	
20	Is the temperature reading between 90 and 100 degrees fahrenheit?	Yes, ~91.3°F	
21	Are there any cracks or gaps in the connection to the PVC duct?	No	
Heater			
22	Are there any indications the heater is not functioning correctly?	No	
23	Are there any cracks or gaps in the connection to the PVC duct?	No	
Fan & Outside Piping			
24	Is the fan not turning, vibrating abnormally, shaking, or smoking?	No	
25	Are the brackets sagging or pulling out?	No	
26	Is there any sagging of the fan or ducting visible?	No	
27	Is the exhaust opening clear of any obstacle?	Yes	
28	Is there any cracking on the building or ducting visible or any openings in the duct?	No	
29	Are there any cracks or gaps in connections of any ducting present?	No	
Concrete Floor			
30	Are there any cracks or openings in concrete slab at or surrounding the ducting in the extraction areas?	No	
31	Are there any signs of collision or impact to the ducts?	No	

Notes:

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Sterling Environmental Engineering, P.C.

Vapor Mitigation System (VMS)
Startup Inspection Form

Equipment Checks

TSI 9565 Velocicalc Air Velocity Meter		Comments	
1	Measurement of air flow through extraction points, cubic feet per minute (cfm).	Western Extraction Point ~57.0 cfm	Eastern Extraction Point ~ 34.0 cfm
2	Are velocities equal of extraction points?	No	No
3	Pressure reading of extraction points, inches water column (inWC).	inWC	inWC
4	Are pressure differential readings equal to or greater than design of -4.50 inWC at extraction points?	Yes	Yes
PID - 11.7 eV lamp			
5	VOC reading of background (reading of the Shop).	0.6 ppm	
6	VOC reading before carbon canisters (after heater).	2.8 ppm	
7	VOC reading between carbon canisters.	0.2 ppm	

Notes:

STERLING
Sterling Environmental Engineering, P.C.

APPENDIX E

VMS CHEMICAL ANALYSIS RESULTS, LABORATORY DATA AND DUSR (PROVIDED ON CD)

APPENDIX F

OPERATION, MONITORING & MAINTENANCE (OM&M) PLAN

SterLING

Sterling Environmental Engineering, P.C.

TROY BELTING & SUPPLY COMPANY
BROWNFIELD CLEANUP PROGRAM
SITE NO. C401067
70 COHOES ROAD
COLONIE, NY

OPERATIONS, MONITORING AND MAINTENANCE (OM&M)
PLAN OF THE VAPOR MITIGATION SYSTEM

Prepared For:

Troy Belting & Supply Company
70 Cohoes Road
Watervliet, New York 12189

Prepared by:

Sterling Environmental Engineering, P.C.
24 Wade Road
Latham, New York 12110

January 4, 2017

"Serving our clients and the environment since 1993"

TROY BELTING & SUPPLY COMPANY
BROWNFIELD CLEANUP PROGRAM
SITE NO. C401067
70 COHOES ROAD
COLONIE, NY

OPERATIONS, MONITORING AND MAINTENANCE (OM&M)
PLAN OF THE VAPOR MITIGATION SYSTEM

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Figures

Appendices

CERTIFICATION

I, Rodney L. Aldrich, P.E., certify that I am a New York State registered professional engineer and that this Operations, Monitoring and Maintenance (OM&M) Plan of the Vapor Mitigation System was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities will be performed in accordance with the DER-approved plan and any DER-approved modifications.

	1/4/17
Rodney L. Aldrich, P.E.	Date

ACRONYM REFERENCE LIST

COCs	Contaminants of Concern
CVOCs	Chlorinated Volatile Organic Compounds
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
inWC	inch of water column
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OM&M	Operations, Monitoring and Maintenance
PCE	Tetrachloroethene
QC	Quality Control
SDS	Safety Data Sheet
TCE	Trichloroethene
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VMS	Vapor Mitigation System
VOC	Volatile Organic Compound

OPERATIONS, MONITORING AND MAINTENANCE (OM&M) PLAN
OF THE VAPOR MITIGATION SYSTEM

This Operations, Monitoring and Maintenance (OM&M) Plan is prepared in support of the Vapor Mitigation System (VMS) installed at Troy Belting & Supply Co. (Troy Belting) (the Facility) on Figure 1, located at 70 Cohoes Road, Town of Colonie, New York. The purpose of this OM&M Plan is to address the applicable routine operational, monitoring and maintenance procedures employed for the VMS.

1.0 MITIGATION OF POTENTIAL INDOOR AIR QUALITY IMPACTS

This document outlines operational and maintenance activities for the VMS installed at the Facility. The VMS includes a vapor mitigation system and air and vapor chemical monitoring located in the northern portion of the building. Details of these systems are outlined in the following sections. Details regarding the construction and operation of the VMS are provided in Section 2.0 and the Vapor Mitigation System Construction Completion Report, dated December 18, 2015.

1.1 Vapor Mitigation System (VMS)

The VMS is designed to create a lower pressure in the sub-slab at or near the vapor withdrawal locations creating a gradient inducing air flow toward the sub-slab within the radius of influence, thereby preventing the most contaminated sub-slab vapors from entering the building (within the radius of influence) or potentially the entire building if the mitigation of vapors from the contamination is prevented from infiltrating beneath the building.

1.2 Air and Vapor Monitoring

The chemical monitoring of indoor air and sub-slab vapor (in locations with an active vapor mitigation system), provides data to evaluate the function of the physical mitigation systems and to make adjustments as required.

2.0 SUMMARY OF RESPONSE ACTIONS

2.1 Contaminants of Concern (COCs)

The known contaminants of concern (COCs) for soil vapor located at the Facility are chlorinated volatile organic compounds (CVOCs), including Tetrachloroethene (PCE) and Trichloroethene (TCE).

Reported levels of CVOCs in groundwater collected from 2011 to 2015 from monitoring wells located near the suspected source area on the Troy Belting property indicate the COCs include PCE, TCE, 1,1,1-Trichloroethane, and related degradation byproducts.

Reported levels of CVOCs in the indoor air collected from 2012-2015 indicate a source is introducing CVOCs into indoor air. Troy Belting completed an inventory of the Safety Data Sheets (SDSs) of products/chemicals used within the Facility to identify a potential sources of CVOCs. Review of the SDSs indicates the use of products/chemicals containing COC. Troy Belting personnel removed products/chemicals that were potential sources of CVOCs in mid-2015.

As a result of the COCs present in the sub-slab vapor and indoor air samples, as well as in groundwater, Troy Belting completed:

1. Preparation of this OM&M Plan in accordance with the Vapor Mitigation System Pilot Test and Design Report, prepared by Sterling Environmental Engineering, P.C., dated February 27, 2015 and revised June 1, 2015.

2. An inventory and use evaluation was performed in 2014 of products used within the building that may contain COCs.

3. The sources and pathways of COCs with the potential to enter the building were reviewed and assessed.

4. Inventory, monitoring and mitigation programs were established to assess and ensure a reduced exposure of the occupants of the building to CVOCs. Troy Belting management directed the staff to cease using solvents which contained PCE, TCE, and 1,1,1-Trichloroethane.

5. Construction and operation of a vapor mitigation system for mitigating the sub-slab exposure pathway by creating a negative air pressure zone below the building in the area of the suspected source.

3.0 SUMMARY OF POTENTIAL SOURCES AND FACTORS THAT MAY IMPACT INDOOR AIR QUALITY

The primary potential sources impacting indoor air quality are sub-slab vapors containing COCs due to historic uses.

3.1 Sub-Slab Vapor

Soil vapor containing COCs can reach the building sub-slab directly from impacted soil and groundwater, through preferential migration pathways such as underground utility conduits and bedding. Soil and groundwater containing COCs are known to exist at a former spill location north of the northern wall of the building; and northwards and northeastward from that spill location.

3.2 Groundwater Sources

The previous groundwater investigations have produced data on groundwater containing COCs as summarized in Section 2.1.

3.3 Potential Preferential Pathways of COC Migration

A preferential pathway for soil vapor migration is a natural or artificial route through which vapors can pass more easily than through surrounding materials. Naturally existing routes include fractured rock and soils. Artificial routes include open slab penetrations, open slab cracks, former tank locations, buried utilities, and crushed stone beneath such utilities, as well as footers, slabs or other concrete structures.

A former creek bed was identified on the Troy Belting property, extending below the current building from the southwest to the northeast. The creek bed is located to the south and east of the potential source area and the unknown materials used as fill provide a potential preferential pathway for COC migration.

The potential source of the COCs in groundwater is located adjacent to the north side of the building. All sub-slab utilities appear to be within the southern third of the building footprint, therefore the buried utilities are not a potential preferential pathway for soil vapor intrusion.

4.0 INTRODUCTION AND PURPOSE OF ENGINEERING CONTROLS

Engineering controls were implemented in response to the CVOCs identified in the groundwater and soil vapor below the Facility. These controls include the building floor slab cover system (although not originally engineered as a vapor controlling cover system) and the active VMS.

4.1 Differential Pressure Monitoring Program

The Facility will continue to operate the differential pressure monitoring system to monitor the operation of the existing VMS. The sub-slab VMS creates a pressure gradient from the building interior to the sub-slab. Vapors removed from the sub-slab are treated and discharged to the atmosphere. Details of the monitoring programs are outlined in the following sections.

4.1.1 Present Differential Pressure Monitoring Locations

Currently, there are nine (9) sub-slab soil vapor locations used for differential pressure monitoring in the shop and offices as shown on Figure 2. These locations were installed in conformance with Figure 3 - Sub-Slab Soil Vapor Sampling Port Detail and are described in Section 6.5.2.

4.1.2 Sub-Slab Soil Vapor Differential Pressure Monitoring Procedure

Differential pressure monitoring at all the sub-slab soil vapor monitoring locations will be conducted by connecting the poly-tubing from the sub-slab soil vapor sampling port tubing to the Infiltec digital micro manometer, and obtaining three (3) to five (5) thirty-two second average pressure readings. These readings will be recorded and used to monitor the radius of influence of the VMS.

4.1.3 Differential Pressure Monitoring Schedule

The differential pressure in the sub-slab soil vapor ports were monitored once at the completion of construction, and will be monitored two (2) times during the 2015-2016 heating season. After the 2015-2016 heating season, the differential pressure will be monitored on a monthly basis. The differential pressure monitoring is conducted to ensure negative pressure is being maintained throughout the VMS components and sub-slab as designed. In the future, Troy Belting may request reducing the number of pressure monitoring locations due to the demonstrated extent of the reduced pressure zone.

The differential pressure in the VMS withdrawal system ducts in the shop are monitored continuously by the aqueous manometers installed at each location to demonstrate negative pressure is maintained. These differential pressure values are recorded daily and documented on the Workday Inspection Form provided in Appendix A.

5.0 OM&M FOR THE VAPOR MITIGATION SYSTEM

This section includes procedures to inspect, evaluate, repair and maintain the VMS components.

5.1 Vapor Mitigation System (VMS)

Most VMS operations include static components, such as solid and perforated ducts, and mechanical components, such as the fan. Components must be properly monitored and maintained to ensure continuous VMS operations year-round. Inspections to each component of the VMS will be performed in accordance with Section 8.0. All observations, maintenance issues, repairs, and notifications will be reported by the applicable requirements in Section 8.1.6 and recorded on the appropriate forms provided in Appendix A and kept onsite (see Section 8.1.6 for notification and reporting requirements related to these observations/maintenance/repair issues.)

5.1.1 Fan Operation

The electrical/mechanical fan unit must be maintained in proper working condition to sustain the intended sub-slab depressurization.

5.1.1.1 Inspection Procedures for Fan and Exhaust

Within the first 45 days of the start of the heating season (November 1st), the Troy-Belting inspector must obtain access to the fan unit to view the air flow frequency meter, located on the northern interior wall, adjacent to the VMS piping extending through the exterior wall to the fan unit. The operation of the fan should be verified by listening for the sound or feeling the vibration of the unit on the outer housing. The exhaust opening should be examined from the roof to ensure that air is flowing and that nothing is obstructing the exhaust (such as bird nests). The area surrounding the exhaust should be examined to ensure that no building air intakes are within ten (10) feet of the exhaust point. The design and operations air flow rates of this fan unit is to set the unit to 60Hz which produces the maximum revolutions per time unit allowed for this fan according to manufacturer’s specifications. STERLING has determined that in the present configuration the air flow rate is approximately 118 cubic feet per minute (cfm). The frequency meter which controls the fan’s power supply and speed should have a reading necessary to achieve the design air flow.

5.1.1.2 Maintenance Procedures for Fan and Exhaust Line

If the fan is not operating correctly (no sound, smoking, noisy or reduced air flow), the circuit breaker will be checked to determine if the breaker has tripped and the electrical power to the fan has been interrupted. If the breaker has tripped, the electrical circuit will be investigated by a qualified electrician to determine if repairs are necessary. Blockages in the exhaust will be removed. Condensation drains will be checked weekly (October through April) to ensure condensation has not accumulated sufficiently to impede air flow. The inspection results will be recorded on the Workday Inspection Form.

5.1.2 Gas Impermeable Layer

The gas impermeable layer and the negative pressure ducting are critical components in the VMS. The gas impermeable layer (plastic sheeting) exists only at the vapor extraction areas. Otherwise, permeable medium to fine sand is below the floor slab. The gas impermeable layer does not require maintenance or inspection, except when construction penetrates the concrete slab.

5.1.3 Inspection Procedures for Negative Pressure Ducting

The negative pressure PVC ducts emerging from the slab at the extraction locations, extending through the interior of the building, and connecting to the base of the fan, must be inspected weekly and the results recorded on the Weekly Inspection Form. The equipment and the ducts must be inspected within the building, outside the building, and above the roof to ensure no holes, cracks or penetrations are present that could allow building air or outside air to infiltrate the system, thereby reducing the negative pressure gradient withdrawing air from the sub-slab gas permeable layer.

The performance of the negative differential pressure system will be monitored daily and reported on the Workday Inspection Log to ensure that a negative pressure is maintained at the sub-slab monitoring locations by observing the permanently installed aqueous manometers. The differential pressure must be a maintained negative pressure of at least 9.0 inch water column (inWC) at both extraction areas.

The permanent aqueous manometers that monitor the PVC ducts at each withdrawal location, and which connect the withdrawal point to the exhaust fan will be inspected daily and values will be recorded on the Workday Inspection Log (provided in Appendix A).

5.1.4 Maintenance Procedures for the Negative Pressure System

If a hole, crack or penetration occurs in the negative pressure portion of the duct, it will be repaired and documented on the Visual Inspection Form and in accordance with Section 8.1. Any item found to be newly penetrating the slab, duct or other pressure maintaining equipment will be removed. The system will be temporarily shut down and the damaged portion of duct will be removed and a new duct portion will be installed. If the damaged duct area is relatively small, caulk or a plug may be inserted into the gap as long as care is taken not to create a significant obstruction in the duct that could hinder air flow. After repairs, the system will be restarted. Non-toxic smoke will be generated near the repair, with a small, handheld smoke tube, to visually confirm the repair is completely sealed**.**

Whenever negative pressure in the system is not achieved, the first focus will be on the fan. If the fan is working properly, attention will be turned to the negative pressure portion of the solid ducts. If the solid portion of the duct is fully intact and the fan is operating properly, a hole, crack or gap in the cover and/or vapor barrier systems or accumulated condensation may be limiting the reduced pressure zone from reaching the monitoring points, or the pressure gauges at the sub-slab soil vapor sampling points have failed.

5.1.5 Carbtrol Carbon Canisters

The activated carbon in the G-10 canisters may periodically reach capacity to absorb CVOCs and the saturated carbon will need to be replaced with fresh activated carbon. The need for the change will be determined based on CVOC concentrations in the soil vapor monitored at three (3) locations in the vapor treatment train. The monitoring points are identified as:

1. “BEFORE”: the soil vapor prior to CVOC removal by activated carbon,
2. “BETWEEN”: soil vapor immediately downstream of the first carbon canister; and,
3. “AFTER”: soil vapor immediately downstream of the second carbon canister (see Figure 4).

Carbon change-out will be performed when “breakthrough” (i.e., carbon saturation with CVOCs) occurs in the first carbon canister in the vapor treatment train. Breakthrough is a function of the period of time the system was online, the rate of soil vapor withdrawn from the sub-slab, and the CVOC concentration within the extracted soil vapor. Periodic monitoring of the COCs in the VMS treatment train will be conducted concurrently with the chemical sampling described in Section 6.5, as necessary, to verify the activated carbon is eliminating/reducing the COC concentrations of the withdrawn soil vapor. Monitoring will initially be performed using a photoionization detection (PID) meter with a 9.8 ev lamp.

A PID reading at the BETWEEN sample location that is 75 percent of the PID reading measured at the BEFORE sample location may indicate that breakthrough of the first carbon canister has occurred. In this event, either the carbon may be changed out, or the vapor at the BEFORE and BETWEEN locations may be sampled using a SUMMA canister for laboratory analysis to confirm and quantify the COC concentrations at the BETWEEN location. The carbon must be changed out if any COC concentration in the BETWEEN laboratory sample is 25 percent of the concentration of the same compound in the BEFORE sample.

When breakthrough occurs in the first carbon canister, the second carbon canister will be plumbed to be the first carbon canister, and a canister with new carbon will be installed as the second carbon canister in the vapor treatment train. The VMS sampling locations will be checked to ensure they match the new sequence of flow and will be repositioned, if required. The details of removing, changing and managing spent and new carbon, and hazardous waste storage and disposal of spent carbon, is provided in the following sections.

5.1.5.1 Carbon Canister Change-Out Procedure

If the activated carbon in the first of the carbon canisters has been determined to have been saturated and can no longer effectively remove the COCs from the air stream, the spent activated carbon will be replaced in that canister, the second carbon canister will be plumbed to be the first carbon canister, and the new carbon will be installed as the second carbon canister in the vapor treatment train. The carbon canisters will be replaced in accordance with the following sections.

5.1.5.1.1 Spent Carbon Removal

The spent carbon from the first carbon canister (approximately 600 lbs) will be removed (using a vacuum) and placed in steel or plastic 55-gallon drums. The spent carbon will be identified and managed as hazardous waste with the following code names and CAS #s as determined by the NYSDEC and in accordance with 6 NYCRR Part 371.4.

- F001 PCE; CAS #127-18-4
- F002 TCE; CAS #79-01-6

The drums that are filled with spent carbon will either be transferred to a hazardous waste storage area for disposal within 90 or 180 days as appropriate to the generator status, or will be immediately disposed. Accordingly, the generator status is expected to be "Small Quantity Generator" (SQG), which allows 220 to 2,200 pounds of hazardous waste generation per month.

5.1.5.1.2 Fresh Activated Carbon Replacement

Fresh activated carbon will be transferred into the empty carbon canister which will be used as the second carbon canister in the vapor treatment train. The likely means of transfer will be a sack supported by the built-in crane in the shop where the canisters are located. However, other safe means may be utilized.

5.1.5.1.3 Piping Switch

The piping will be modified using the flexible duct so that the carbon canister previously in the second position becomes the first canister in the vapor treatment train. The canister with the newly replaced carbon will be plumbed so that it is the second carbon canister in the treatment train.

5.1.5.1.4 Itemized Checklist and Requirements

A checklist identifying the requirements and actions for a complete activated carbon canister change-out is in Appendix E. The actions will be taken and the checklist will be filled out for each activated carbon change-out.

5.1.6 Activated Carbon Treatment Shutdown

The need for carbon treatment of the soil vapor extracted by the Vapor Mitigation System will be evaluated with respect to seasons of a year other than winter or throughout the year after one year's data or more has been collected. No change will be made to the carbon treatment system or its operation without prior approval from the NYSDEC.

5.1.7 VMS Shutdown

The VMS may need to be temporarily shut down to perform routine maintenance. Depending on actual sub-slab vapor characteristics, it may be appropriate to have the VMS cycle on and off periodically during its operational life. The need for air sampling after shutdown or after system restart will be determined based on the period of time the system was offline, the reason for the temporary shutdown, the continued operation of supplemental mitigation measures, if any are installed, the status of the site remediation, and other factors. Any air sampling will be completed using the procedures described in the Vapor Mitigation Report dated February 27, 2015 and revised June 1, 2015 (included as Appendix C).

Soil vapors containing COCs may be sufficiently mitigated so that the system can be permanently shutdown at some point in the future. Prior to system shutdown, the NYSDEC will be notified and provided the necessary documentation and sampling demonstrating the effectiveness of CVOC removal as described in Section 4.5 of the "New York State Department of Health Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006 (NYSDOH Soil Vapor Guidance) document.

The NYSDEC will be notified for any necessary or routine changes, modifications or emergency shutdowns to the VMS and/or its components throughout the VMS lifecycle. Approval by the NYSDEC will be necessary for all requested shutdowns of the VMS.

6.0 CHEMICAL MONITORING PROGRAMS

Outdoor air, indoor air and sub-slab samples will be obtained in the shop and offices of the building to assess the CVOC concentrations at the sub-slab soil sampling ports and in the indoor environment. The results will determine the proper response to any CVOC concentrations. The sub-slab pressures relative to indoor air will be measured in accordance with Section 4.1.

6.1 Indoor Air and Sub-Slab Chemical Monitoring Programs

During sampling, indoor air or sub-slab vapor is drawn into a Summa® canister. The sample canisters are submitted to a certified laboratory for analysis. Sampling procedures and protocols are provided in Section 6.5.

6.2 Historical and Preplanned Chemical Monitoring Locations

Sub-slab sample vapor ports were installed within the building in the concrete floor slab to facilitate the collection of sub-slab vapor samples for chemical analysis and to monitor differential pressure, as necessary. The locations (see Figure 2) are identified as follows:

- 70-SV-1
- 70-SV-2
- 70-SV-3
- 70-SV-5
- 70-SV-6
- 70-SV-7
- 70-SV-10N

In addition, the following locations are used for sub-slab differential pressure monitoring only:

- 70-SV-4
- 70-SV-9N

Within the shop and offices, indoor air samples have been coupled with companion sub-slab locations identified above (see Figure 2). The locations where indoor air samples (and their companion sub-slab vapor samples) are collected are:

- 70-IA-1 (70-SV-1)
- 70-IA-2 (70-SV-2)

- 70-IA-3 (70-SV-3)

Within the offices, the indoor air sample location identified as 70-IA-8 has not had a companion sub-slab sample location. Similarly, the sub-slab sample location identified as 70-SV-7 in the shop area has not had a companion indoor air sample location.

6.3 Slab Penetrations Survey Methods

A pre-sampling inspection will be performed prior to each sampling event to identify and minimize conditions that may interfere with the proposed testing. The inspection will take into account the type of structure, floor layout, air flows and physical conditions of the area of the building. This information will be compared to the Building Inventory Form provided by the NYSDOH Soil Vapor Guidance.

Conditions identified in the building inventory during the previous sampling events include the following:

- construction characteristics, including foundation joints, cracks and utility penetrations or other openings that may serve as preferential pathways for vapor intrusion;
- recent renovations or maintenance to the building (e.g., fresh paint, new carpet or furniture);
- mechanical equipment that can affect pressure gradients (e.g., heating systems, clothes dryers or exhaust fans);
- use or storage of petroleum products (e.g., fuel containers); and
- recent use of petroleum-based finishes or products containing volatile chemicals.

Each room on the floor being tested will be inspected. This is important because products stored in separate areas may affect the air of the room being tested.

To avoid potential interferences and dilution effects, occupants will be instructed to make a reasonable effort to avoid the following for twenty-four (24) hours prior to sampling:

- opening any windows or vents;
- operating ventilation fans unless special arrangements are made;
- smoking in the building (which is banned at all times);
- painting;
- using any auxiliary heating equipment (e.g., kerosene heater);
- operating or storing any automobile in the building;
- allowing containers of gasoline or oil to remain within the building, except for any existing fuel oil tanks;
- cleaning, waxing or polishing furniture, floors or other woodwork with petroleum- or oil-based products;
- using air fresheners, scented candles or odor eliminators;
- engaging in any hobbies that use materials containing volatile chemicals;
- using cosmetics including hairspray, nail polish, nail polish removers, perfume/cologne, etc.;
- lawn mowing, paving with asphalt, or snow blowing;
- applying pesticides;
- using building repair or maintenance products, such as caulk or roofing tar; and
- bringing freshly dry-cleaned clothing or furnishings into the building.

6.4 Methods for Selecting Additional Sampling Locations

The following conditions and considerations were used to select the sampling locations for soil vapor and indoor air samples:

Soil Vapor Chemical Sample Locations:

- Locations were selected nearest to the COC source area.

Indoor Air Chemical Sample Locations:

- Locations 70-IA-1 and 70-IA-2 were selected on the north and west sides of the shop based on previously identified COCs in soil vapor.

- Locations 70-IA-3 and 70-IA-8 were selected in the north and south sections of the offices to monitor the indoor air conditions for office workers.

The soil vapor and indoor air sample locations are depicted on Figure 2.

6.5 Chemical Sampling Procedures and Protocols

The sampling protocol for indoor air and soil vapor samples for the shop will adhere to the NYSDOH Soil Vapor Guidance. Summa® canisters will be attached to permanent sub-slab soil vapor sampling ports and/or located in the appropriate indoor air location and will be collected concurrently, as necessary

Sampling protocol for indoor air and soil vapor samples were, and will be, collected in accordance with the NYSDOH Soil Vapor Guidance and are described below.

6.5.1 Indoor Air Sampling

Indoor air samples will be collected concurrently with their companion soil vapor samples as indicated in Section 6.2. The samples will be collected from the breathing zone between three and five (3 and 5) feet above the ground/floor surface in the same area as the soil vapor sample. Indoor air samples will be collected using 6-Liter capacity Summa® canisters fitted with a laboratory-calibrated critical orifice flow regulation device sized to allow the collection of the air samples over a specific time period.

6.5.2 Soil Vapor (Sub-Slab) Air Sampling

The soil vapor (permanent) sampling ports for the VMS were installed from mid-2014 to mid-2015 by coring a 4-inch diameter hole through the existing concrete slab, measuring approximately 6-8 inches thick. Each sample port was installed at least five (5) feet from any exterior wall. A one-quarter (1/4) inch diameter soil-gas implant was installed below the concrete slab, allowing the vertical 12-inch screened mesh to be entirely below the concrete slab. Glass beads were used to surround the implant below the slab to allow for soil vapor to be collected through the implant. The implant was sealed to the concrete slab using a non-volatile, non-shrinking bentonite to reduce the potential for infiltration of indoor air into the sub-slab during sub-slab vapor sample collection. A 2-inch bolt-down flush mount cover was installed at the same grade as the surface of the concrete slab to cap and protect the implant when not in use (see Figure 3 for details).

The soil vapor samples will be collected using 6-Liter capacity Summa® canisters fitted with a laboratory calibrated critical orifice flow regulation device sized to allow the collection of the soil vapor. The observed soil vapor sample collection flow rate will be below the maximum flow rate of 0.2 Liter per minute recommended by the NYSDOH Soil Vapor Guidance to limit CVOC stripping from soil, prevent the short-circuiting of ambient air from ground surface that would dilute the soil vapor sample, and increase confidence regarding the location from which the soil vapor sample will be obtained.

Prior to sampling, each sample port will be purged at a flow rate of less than 0.2 Liter per minute into a Tedlar® bag and exhausted to the outdoor ambient air. Three to five (3 to 5) volumes of the sampling tubing will be purged to remove potentially stagnant air from the internal volume of the soil vapor probe and ensure that soil vapor representative of the conditions beneath the sub-slab is drawn into the certified clean Summa® canister. Once purging is completed, the tubing will be attached directly to a Summa® canister. A Sample Collection Form will be completed for each sub-slab soil vapor sample (see Appendix B).

6.5.3 Tracer Gas Leak Testing

Before soil vapor samples are obtained, helium gas will be used as a tracer to perform a leak test in order to confirm the seal for the soil vapor sampling port is adequate and in accordance with the NYSDOH Soil Vapor Guidance. A structurally competent dome/container will be placed over the sub-slab soil vapor sampling port to create a confined air space in the immediate vicinity surrounding the sub-slab soil vapor port. The dome will be equipped with one input connection through which helium gas will be injected into the confined area and one output connection into which the sub-slab soil vapor sampling port tubing is connected. One (1) tube will be attached to a helium tank and helium will be released into the immediate area surrounding the sub-slab soil vapor sampling port. The second tube (the sampling tube) will be connected to the sub-slab soil vapor sampling port on one end and to the helium detection device on the other end. Helium concentrations will be monitored using a helium leak detector. If helium is detected by the device, the seal on the sampling port must be repaired and the tracer gas leak test will be repeated until no helium gas is detected at each sub-slab soil vapor sampling location.

6.6 Sample Analysis and Reporting

All Summa® canister samples will be submitted to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified analytical laboratory for analysis of VOCs by USEPA Method TO-15. The following reporting limits will be achieved for the indoor and outdoor air samples:

- TCE and Vinyl Chloride and Carbon Tetrachloride: 0.25 micrograms per cubic meter ($\mu g/m^3$)
- All other compounds: 1 $\mu g/m^3$

6.7 Sample Results Data Validation

To assess analytical quality and the usability of the data, a qualified third-party will review the analytical data package and all associated laboratory QA/QC information. The assessment will determine whether:

- The data package is complete;
- Holding times have been met;
- The Quality Control (QC) data fall within the protocol limits and specifications;
- The data have been generated using established and agreed upon analytical protocols;
- The raw data confirm the results provided in the data summary sheets and QC verification forms; and
- Correct data qualifiers have been used.

A Data Usability Summary Report (DUSR) will be prepared in accordance with Appendix 2B, “Guidance for the Development of DUSRs” of DER-10. The DUSR will be prepared by a qualified third party that is independent from the firm that obtained the samples and is independent from the laboratory performing the analysis. The DUSR will determine whether the analytical data for all samples, as presented, meets the project’s criteria for data quality and data use, and will be submitted for regulatory review and approval. Specific conclusions and recommendations will be provided. A summary report that includes data laboratory reports and DUSRs will be provided to the New York State Department of Environmental Conservation (NYSDEC).

6.8 QA/QC Plan

All QA/QC samples will be collected in accordance with the NYSDEC Division of Environmental Remediation DER-10 – Technical Guidance for Site Investigation and Remediation (May 2010). Specifically, duplicate and Matrix/Matrix Spike Duplicate samples will be collected at a frequency of one (1) per 20 samples.

7.0 EXPOSURE ASSESSMENT AND ACTION DETERMINATION

Troy Belting will evaluate air data in accordance with the current NYSDOH Soil Vapor Guidance. Based on evaluations, appropriate remedial actions to mitigate potential exposures related to soil vapor containing COCs will be developed and submitted to the NYSDEC and NYSDOH for review and approval.

7.1 Mitigation Methods and Post-Mitigation and Pre-Termination Sampling Procedures

The following types of mitigation have been implemented for the Troy Belting Facility:

- A chemical product inventory was completed in late Spring 2015 within the shop to identify any potential sources of COCs in products used for daily operations.
- The usage of these chemicals discovered to contain COCs were phased out of daily operations between June and July 2015.
- A vapor mitigation system consisting of a vapor barrier and vapor extraction system has been installed in the shop as documented in the Construction Completion Report dated January 4, 2017.

In addition to chlorinated compounds being present, such as PCE and TCE, the less chlorinated degradation compounds are present at lower concentrations.

The following actions will be taken if the monitoring of VMS demonstrates mitigation is no longer required, after approval of NYSDEC and NYSDOH.

- Initial pre-termination sampling will be conducted after all active vapor mitigation systems have been turned off for several weeks to ensure that the subsurface soil vapors have reached a state of equilibrium before chemical sampling.

- Additional pre-termination sampling may be required to determine if there is a rebound in soil vapor COC concentrations. Sufficient chemical sampling will be completed to evaluate the potential for rebounding effects associated with the termination of the system.

8.0 INSPECTION, DOCUMENTATION AND REPORTING PLAN

This Inspection, Documentation and Reporting Plan has been developed for the Facility to ensure inspection results are readily available for review. Details of the Inspection, Documentation and Reporting Plan, including inspection types and frequencies, are provided in the following sections and in Appendix D.

8.1 Inspections and Notifications

All components of the VMS will be inspected and monitored as specified below and reported on the appropriate forms provided in Appendix A.

8.1.1 Workday Inspections

Inspections will be performed every workday by Troy Belting personnel to verify the temperature of the sub-slab soil vapor entering into the carbon canisters is maintained between the temperatures of 90°-100°F. Troy Belting personnel will also record the pressure readings of the aqueous manometers at both the western and eastern extraction areas to verify the sub-slab pressure is less than the indoor air pressure to the degree required by the design pressure difference of 4.4 inWC. Inspections of the fan flow frequency will be performed each facility workday by Troy Belting personnel to verify the fan is operating at the design frequency of 60Hz. Temperature, pressure and fan flow frequency readings will be recorded on the Workday Inspection Log (provided in Appendix A). This log will be retained, and will be submitted in accordance with Appendix D. Discrepancies will be addressed by adjusting the heater or repairing the blower or system and recording repairs on the Workday Discrepancy Form.

8.1.2 Weekly Inspections

Visual inspections of all components of the VMS, as described in Section 5.0, will be conducted and reported on the Visual Inspection Form provided in Appendix A. These inspections will be performed by Troy Belting personnel and will assure the integrity of the VMS components and their current physical conditions are maintained. These weekly inspections will note any potential deficiencies in the VMS system. The form will provide documentation of any necessary repairs and/or actions taken. All observations will be recorded on the Visual Inspection Form (provided in Appendix A) and submitted in accordance with Appendix D.

8.1.3 Monthly Inspections

Monthly inspections will be performed by a qualified environmental consultant of the VMS as described in the following sections. Inspections will be recorded on appropriate monitoring forms and submitted in accordance with Appendix D.

8.1.3.1 PID Inspections

The PID inspections of the VMS will include obtaining monthly PID readings in the activated carbon treatment train (as described in Section 5.1.3) to verify the soil vapor flows through the activated carbon and out the exhaust in compliance with allowable CVOC levels. A qualified environmental consultant will perform these PID inspections and record PID readings on the VMS PID Inspections Reporting Form in Appendix A. These VMS PID Reporting Inspection forms will be submitted in accordance with the Reporting Schedule, provided as Appendix D. If the PID readings on the port between the canisters indicate the CVOCs are breaking through, the procedures in Section 5.1.5.1 Carbon Canister Change-Out Procedure will be followed. The functioning of the heater will be verified. The possibility that carbon has been saturated with condensation will be investigated. Repairs or modifications will be made until the VMS is operating properly.

The PID inspections of the sub-slab vapor system will include monthly PID readings of the sub-slab sample vapor ports identified in Section 6.2 to obtain an estimated measurement of CVOC concentrations within each sub-slab sample vapor port. A qualified environmental consultant will perform these PID inspections and record PID readings on the Sub-Slab Pressure Monitoring & PID Inspection Reporting Form in Appendix A. These Sub-Slab Pressure Monitoring & PID Inspection Reporting forms will be submitted in accordance with Appendix D. These PID measurements will identify any trends of CVOC concentrations under the sub-slab and the movement of the contaminated vapors isopleths.

8.1.3.2 Differential Pressure Monitoring

Differential pressure measurements will be performed monthly by a qualified environmental consultant at the extraction locations and sub-slab sample vapor ports (as described in Section 4.1.2) to determine the pressure exerted by the VMS and verify the sub-slab vapor has negative pressure relative to the indoor air. The negative pressure determination will verify no vapors from below the concrete slab are entering into the Facility where those pressures exist. The differential pressure monitoring will be performed concurrently with the PID inspections in Section 8.1.3.1 and recorded on the Sub-Slab Pressure Monitoring & PID Inspection Reporting Form provided in Appendix A. These Sub-Slab Pressure Monitoring & PID Inspection Reporting forms will be submitted in accordance with Appendix D. If the pressure readings indicate a prior negative pressure difference between the sub-slab and indoor is not being maintained equal to or greater than 0.004 inWC, the operations will be reviewed to determine the cause. Repairs or modifications will be made until the pressure difference levels are reading a satisfactorily negative value.

8.1.4 Quarterly Monitoring

Treatment Train Chemical Sampling and Monitoring will be performed quarterly by a qualified environmental consultant on the activated carbon treatment train to determine the concentrations of individual CVOCs in the system exhaust. Treatment Train Chemical Sampling and Monitoring will ensure that CVOCs in the exhaust emission are maintained at acceptable levels. An analysis of the emission (see Appendix F) demonstrates that the concentration of CVOCs in the exhaust and the untreated soil vapor conforms to Air Guide 1. If the concentration measurements from the port between the canisters indicate the CVOCs are breaking through, carbon change-out will be performed as outlined in Section 5.1.5.1. If the chemical monitoring indicates the emissions are not being maintained at acceptable levels, the operations will be reviewed to determine the cause. The functioning of the heater will be verified. The possibility that carbon has been saturated with condensation will be investigated. Repairs or modifications will be made until the VMS is operating properly.

8.1.5 Heating Season Chemical Sampling and Monitoring

Heating Season Chemical Sampling and Monitoring will be performed quarterly during the heating season by a qualified environmental consultant and will include the collection of sub-slab soil vapor and indoor air samples during the first and fourth quarters of every year at the approved locations identified in Section 6.0 and on Figure 2. The Heating Season Chemical Sampling and Monitoring will be conducted in accordance with the sampling process outlined in Section 6.0.

8.1.6 Notifications

Any deficiencies identified in any of the aforementioned inspections will be classified as minor or major. A major deficiency is defined as affecting the integrity of the VMS system. Major deficiencies include but are not necessarily limited to system shut-downs, malfunctioning or non-functioning components and clogged vapor ports. Major deficiencies will be documented and reported within 24 hours to the NYSDEC and NYSDOH, including necessary repairs and/or actions required. Once repairs and/or necessary actions have been completed, a follow-up report will be submitted to the NYSDEC and NYSDOH and kept onsite for review. A minor deficiency, which is defined as a deficiency that is not major, and any necessary repairs will be documented on the appropriate form, along with the date of the inspection, the responding individual, the action/repair taken and the date completed.

All inspection and monitoring forms including associated reports and submittals will be retained onsite and available for review by the NYSDEC and NYSDOH.

8.2 Reporting Plan

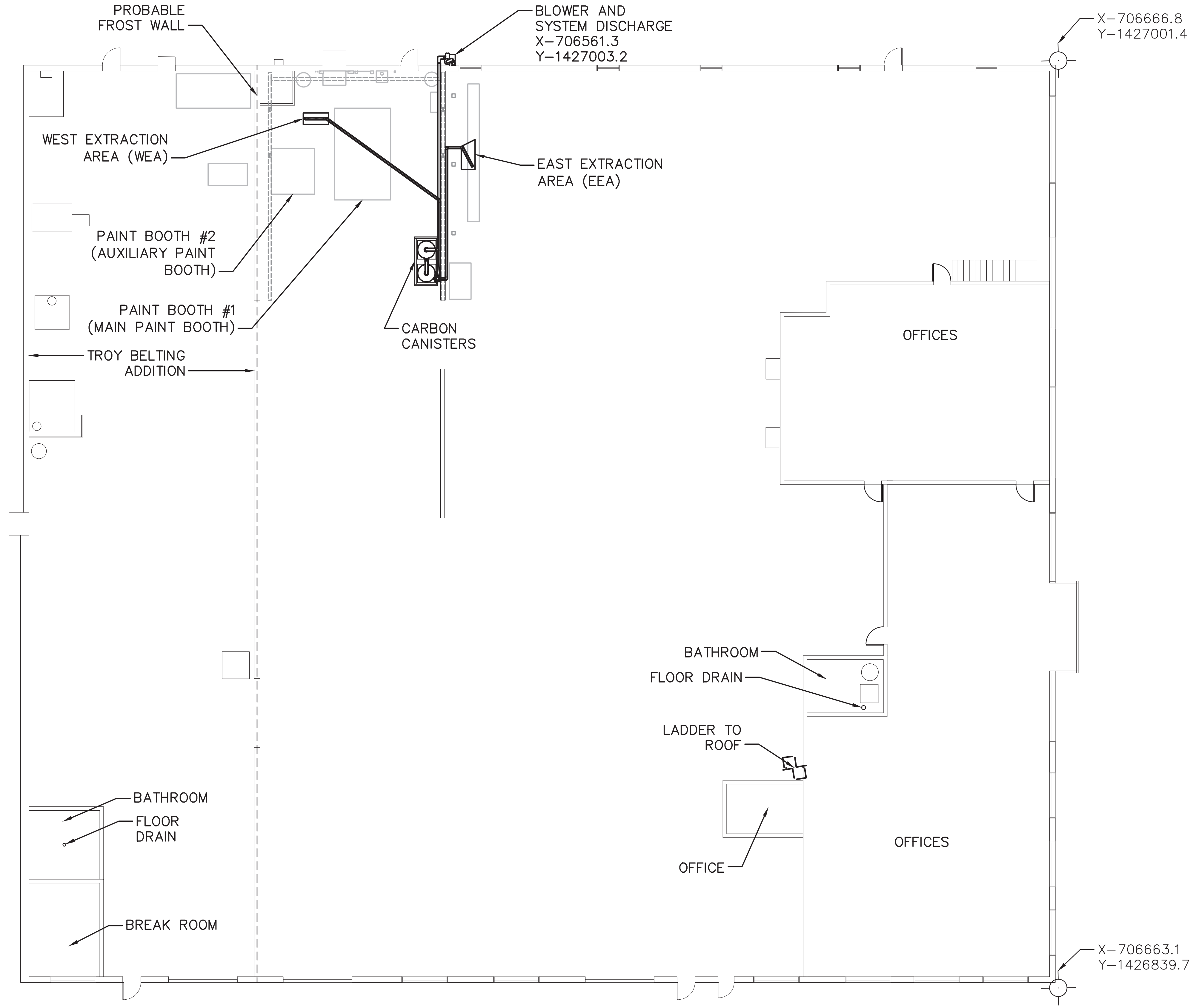
When a report is required by the Reporting Schedule to be submitted to the Departments, copies of more frequently collected forms and logs since the prior submittal will be included as attachments to the required report. For instance, if a monthly report submittal is required, copies of all daily inspection logs and weekly inspection forms for that month will be included with the monthly report.

The frequencies of the inspections outlined in Section 8.1 and provided in the Reporting Schedule in Appendix D can be modified whenever conditions warrant and approval is given by the NYSDEC and NYSDOH.

FIGURES

SURVEY NOTES:
1. SURVEY POINTS IN NY STATE PLANE NAD83, ZONE NY EAST, US SURVEY FEET.
2. EAST BUILDING CORNERS SURVEYED USING TRIMBLE GEOEXPLORER XH 2005 SERIES GPS DATA LOGGER.
3. POST-PROCESSED HORIZONTAL ACCURACY 1.5-FEET.

BUILDING NOTES:
1. OFFICES AREA INTERNAL WALLS AND DOORWAYS ARE NO LONGER LOCATED AS DEPICTED. EXTERIOR WALLS AND WALLS SEPARATING THE OFFICE FROM THE SHOP ARE LOCATED AS DEPICTED.



0 10' 20' 40'
(IN FEET)
1 inch = 20 ft.

STATE OF NEW YORK
RODNEY L. ALDRICH
No. 059778
LICENSED PROFESSIONAL ENGINEER

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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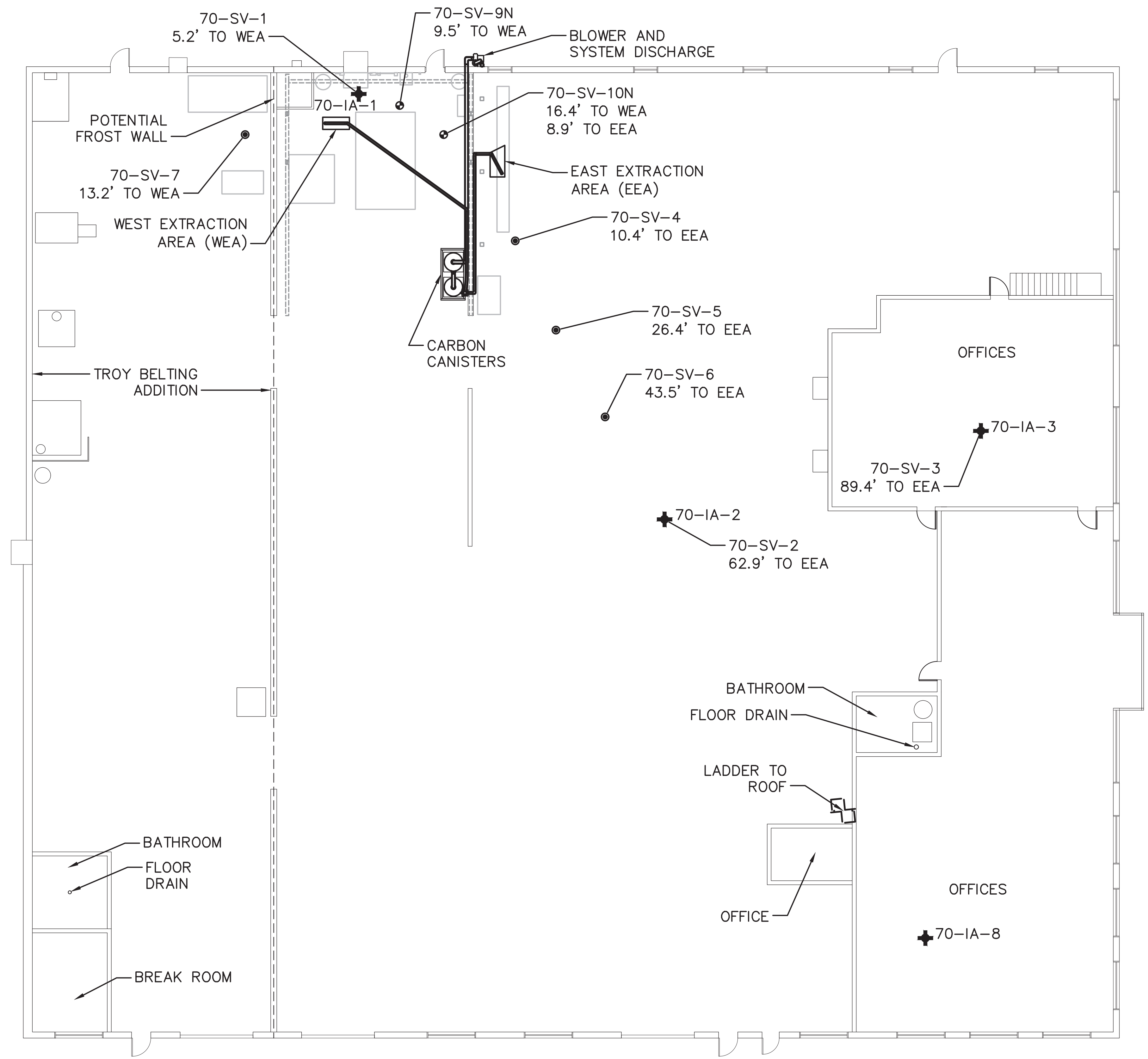
BUILDING FOOTPRINT
AS-BUILT PLAN
TROY BELTING & SUPPLY CO.
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., N.Y.

PROJ. No.: 2011-31	DATE: 07/07/2016	SCALE: 1" = 20'	DWG. NO. 2011-31150	FIGURE 1

S:\Drawings\2011-31- Troy Belting and Supply Co\2011-31150_VMS O&M.dwg SWEETT 7/25/2016 3:34 PM



LEGEND:

70–IA–8 INDOOR AIR SAMPLING POINT

SUB–SLAB SOIL VAPOR SAMPLING PORTS INSTALLED ON:

70–SV–3 MAY 1, 2014

70–SV–6 DECEMBER 8, 2014

70–SV–10N DECEMBER 16, 2014

0 10' 20' 40'

(IN FEET)
1 inch = 20 ft.

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INDOOR AIR & SUB–SLAB SOIL VAPOR
SAMPLING PORT LOCATIONS
TROY BELTING & SUPPLY CO.
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., N.Y.

PROJ. No.: 2011–31	DATE: 03/28/16	SCALE: 1" = 20'	DWG. NO. 2011–31152	FIGURE 2

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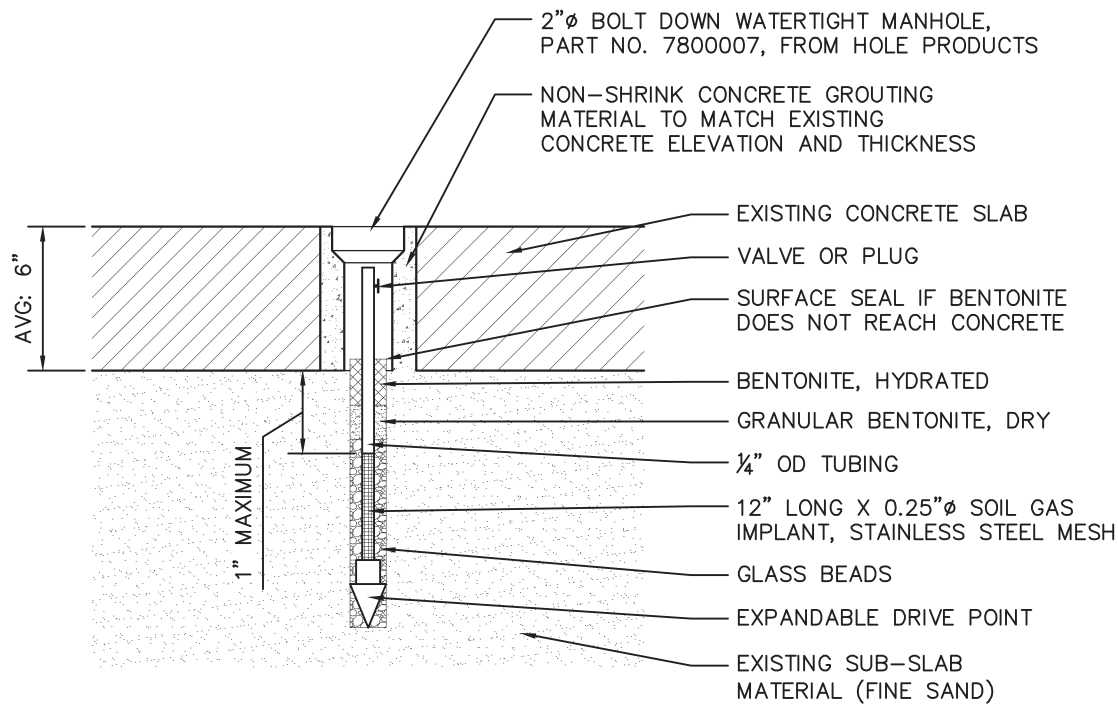

SOIL VAPOR PORT DETAIL
PLAN VIEW (N.T.S.)

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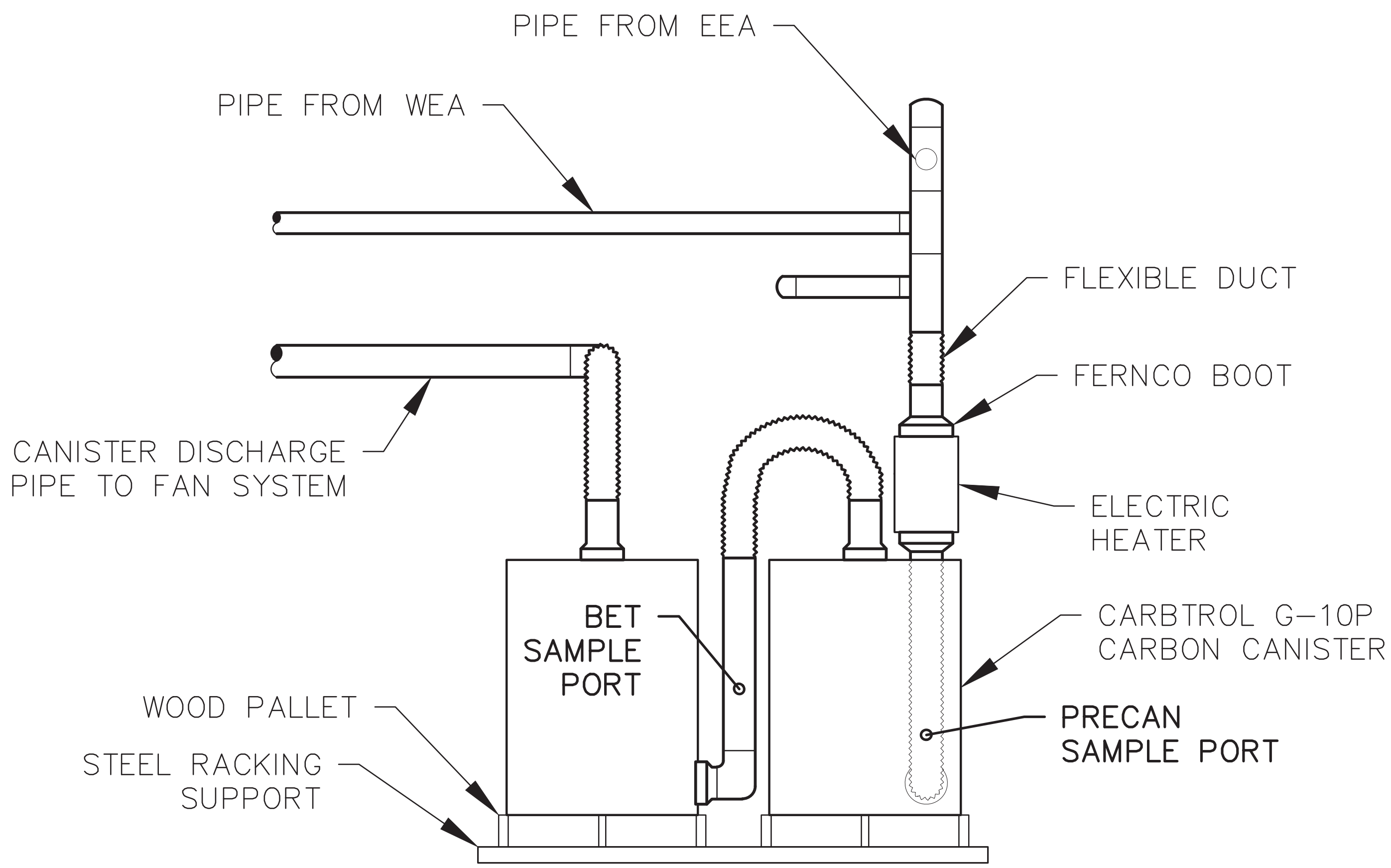
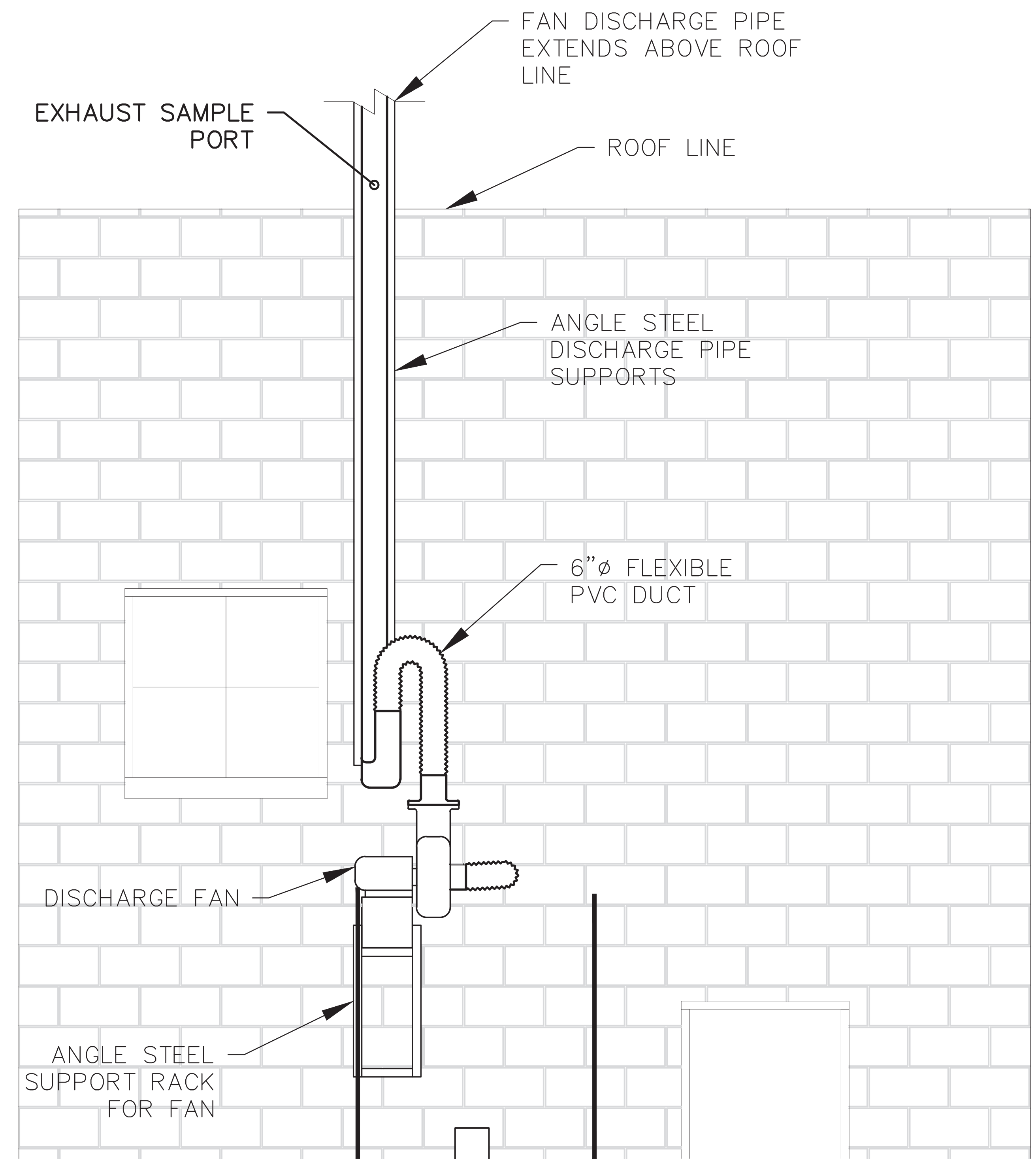
SUB-SLAB SOIL VAPOR
SAMPLING PORT DETAIL
TROY BELTING & SUPPLY CO.
70 COHOES ROAD

TOWN OF COLONIE | ALBANY CO., N.Y.

PROJ. No.: 2011-31	DATE: 03/28/16	SCALE: N.T.S.	DWG. NO. 2011-31151	FIGURE 3



1 PRECAN AND BET SAMPLE LOCATIONS
SCALE: 1" = 3'



2 EXHAUST PORT SAMPLE LOCATION
SCALE: 1" = 3'

0 18" 3'
1" = 3'

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VAPOR MITIGATION SYSTEM
SAMPLE PORT LOCATIONS
TROY BELTING & SUPPLY CO.
70 COHOES ROAD
TOWN OF COLONIE ALBANY CO., N.Y.

PROJ. No.: 2011-31	DATE: 07/21/2016	SCALE: 1" = 3'	DWG. NO. 2011-31106	FIGURE 4

APPENDIX A

INSPECTION FORMS

Workday Discrepency Form

Troy Belting and Supply Company, 70 Cohoes Road, Colonie, New York

This form is a companion to the "Workday Inspection Log" and is to be completed when a discrepancy is noted during the daily inspection of the vapor mitigation system. Discrepancies from the normal system operating parameters indicated on the Workday Inspection Log are to be identified as major or minor as described in Section 8.1.6, and corrective actions are to be documented on this form.

Date	Time	Personnel	Discrepency	Corrective Actions Taken	Date of Corrective Actions

Sterling Environmental Engineering, P.C.

Workday Inspection Log

Troy Belting and Supply Company, 70 Cohoes Road, Colonie, New York

This form is to be completed as part of the inspection required each business day during the operation of the Vapor Mitigation System (VMS) to verify the system is operating as designed. Temperature of the sub-slab vapor, the fan frequency, and the differential pressure from the aqueous manometers is to be documented on this form. **Any discrepancies noted during each inspection are to be recorded on the Workday Discrepancy Form and Sterling Environmental Engineering must also be contacted at (518) 456-4900.** Major discrepancies must be reported within 24 hours to the NYSDEC and NYSDOH including necessary repairs and/or actions required. Major deficiencies include but are not necessarily limited to system shut-downs, malfunctioning or non-functioning components, and clogged vapor ports. Once repairs and/or necessary actions have been completed, a follow-up report will be submitted to the NYSDEC and NYSDOH and kept onsite for review.

inW = inches of Water   EEA = Eastern Extraction Area   WEA = Western Extraction Area

Date	Time	Personnel	Temperature Reading, °F *	Fan Flow Frequency (60 Hz) **	Manometer Reading, inW ***	
					EEA, inW	WEA, inW

* Temperature reading must be between 90 and 100 °F.
** Fan frequency must be recorded at 60 Hz.
***Manometer readings must be equal to or greater than -4.4 inW at each extraction area.

Weekly Inspection of Vapor Mitigation System (VMS)

Facility: Troy Belting & Supply Company Date/Inspection Number: ____________
Location: 70 Cohoes Road, Colonie, NY

Name of Inspector: ____________ Signature: ____________

INSTRUCTIONS:
Complete the following checklist for each item weekly.
Mark Y for YES. Items marked with an "Y" require immediate action.
Mark NA for DOES NOT APPLY
Mark N for NO

Item	Description	Condition		Deficiences Noted and Marked "Y" in Condition Column		
VMS Piping System				Responding Person	Action Taken	Date of Resolution
1	Are there any cracks or openings in the ducts, including the elbows?					
2	Are there any visual cracks or sagging of ducting?					
3	Are there any cracks or openings in connections to canisters/heater/fan?					
4	Are any cracks or openings in canisters present?					
Manometers		Western Manometer	Eastern Manometer			
5	Are there any cracks, gaps, bulging present in tubing?					
6	Are the brackets sagging or pulling out?					
7	Is any blockage, pinches, or kinks present in tubing?					
8	Are the meniscuses not present on both sides of the "U"?					
9	What is the elevation of the bottom of the meniscus on the left, right, and difference in inches?					
10	Is the pressure reading not negative relative to indoor air?					
Temperature Probe						
11	Is there any indication the temperature probe is not in good condition?					
12	Is the temperature not reading between 90 and 100 degrees fahrenheit?					
13	Are there any cracks or gaps in the connection to the PVC duct?					
Heater						
14	Are there any indications the heater is not functioning correctly?					
15	Are there any cracks or gaps in the connection to the PVC duct?					
Fan & Outside Piping						
16	Is the fan not turning, vibrating abnormally,shaking, or smoking?					
17	Are the brackets sagging or pulling out?					
18	Is there any sagging of the fan or ducting visible?					
19	Is there indication of any obstacle present in the exhaust opening?					
20	Is there any cracking on the building or ducting visible or any openings in the duct?					
21	Are there any cracks or gaps in connections of any ducting present?					
Concrete Floor						
22	Are there any cracks or openings in concrete slab at or surrounding the ducting in the extraction areas?					
23	Are there any signs of collision or impact to the ducts?					

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VMS PID Inspections Reporting Form

Troy Belting Supply Company, 70 Cohoes Road, Colonie, New York

Date	WEA, ppm (Western Extraction Area)	EEA, ppm (Eastern Extraction Area)	SV-PRECAN, ppm (after heater, entering TT*)	SV-BET, ppm (between carbon canisters)	SV-EXHAUST, ppm (exhaust to outdoor air)

* TT = Treatment Train comprised of the carbon canisters and exhaust system.

Sub-Slab Pressure Monitoring and PID Inspection Reporting Form
Troy Belting & Supply Company

Location	Date/Time	PID Readings (ppm)		Sub-Slab Vapor Pressure (inch of water column) [1][2]					
		9.8 eV	11.7 eV	Reading #1	Reading #2	Reading #3	Reading #4[3]	Reading #5[3]	Minimum
WEA									
EEA									
70-SV-1									
70-SV-2									
70-SV-3									
70-SV-4									
70-SV-*5 - East									
70-SV-*5 - North									
70-SV-*5 - West									
70-SV-*5 - South									
								70-SV-5 Minimum	
70-SV-*6 - East									
70-SV-*6 - North									
70-SV-*6 - West									
70-SV-*6 - South									
								70-SV-6 Minimum	
70-SV-7									
70-SV-9N									
70-SV-10									

Note: [1] Negative value indicates sub-slab pressure is less than indoor air pressure.
[2] Positive value indicates sub-slab pressure is greater than indoor air pressure.
[3] Additional pressure readings will be collected if areas where the influence of surrounding air flow (movement of equipment or workers) is observed.
* Digital manometer was oriented in 4 directions due to interference observed at 70-SV-5 and 70-SV-6 during October 30, 2015 monitoring event.
NT = Not taken.

APPENDIX B

SUB-SLAB VAPOR SAMPLE COLLECTION FORM

SUB-SLAB VAPOR SAMPLE COLLECTION FORM

Troy Belting & Supply Company
70 Cohes Road
Colonie, NY 12189

PROJECT NAME ____________________ **SAMPLE ID** ____________________
PROJECT NUMBER ____________________ **SOIL GAS WELL ID** ____________________
SITE LOCATION ____________________ **DATE** ____________________

GENERAL

Weather Conditions ____________________
Site Access/Conditions ____________________
Physical Condition of Probe ____________________
Ambient PID Measurement ____________________

PURGING INFORMATION

Volume of Tubing and Sampling Train ____________________
Tubing and Train Volume x 4 ____________________
Purging Method ____________________
Actual Volume Purged __________ Purging Time Start __________ Time Stop __________
Remarks ____________________

HELIUM LEAK DETECTION TEST

Test Location	Time	Helium Concentration	Units (%or ppm)	Notes
Shroud Atmosphere				
Sample Port Train				

Repeat if helium is detected in Sample Port Train

Test Location	Time	Helium Concentration	Units (%or ppm)	Notes
Shroud Atmosphere				
Sample Port Train				

SAMPLING INFORMATION

Field Personnel ____________________
Sampling Method ____________________
Sample Date ____________________
Sample Time Start __________ Finish __________
Sample Description ____________________
Summa Canister ID ____________________
Summa Canister Vacuum Pressure Start __________ Finish __________
Sample Canister Volume ____________________
Analysis ____________________
Remarks

APPENDIX C

VAPOR MITIGATION SYSTEM PILOT TEST RESULTS AND DESIGN REPORT DATED FEBRUARY 27, 2015 AND REVISED JUNE 1, 2015 (PROVIDED ON CD)

APPENDIX D

REPORTING SCHEDULE

Reporting Schedule

Activity	Monitoring Schedule					Reporting to NYSDEC/NYSDOH	
	Workday	Weekly	Monthly	Quarterly	Annual - Heating Season	Monthly Report(1)	Quarterly Report(2)
Temperature Readings of Sub-Slab Vapor After Heater	X					X	*
Aqueous Manometers - Pressure Readings	X					X	*
Fan Flow Frequency Meter Readings	X					X	*
VMS Piping Condition		X				X	*
Aqueous Manometers Condition		X				X	*
Temperature Probe Condition		X				X	*
Heater Condition		X				X	*
Fan and Outside Piping Condition		X				X	*
Concrete Floor/Sub-Slab Condition		X				X	*
PID Inspections of the Sub-slab Vapor Sampling Ports			X			X	*
PID Inspections of the VMS			X			X	*
Sub-slab Pressure Monitoring - Extraction Areas and Sub-Slab Sample Vapor Ports			X			X	*
Treatment Train Chemical Sampling and Monitoring				X			X
Heating Season Chemical Sampling and Monitoring(3)					X		X
Fan Air Flow Rate (Discharge Air Flow Rate)					X		X

(1) Monthly reporting includes the associated Workday Logs and Weekly Inspection Forms for that month as described in Section 8.1.

(2) Quarterly reporting includes the associated Workday Logs, Weekly Inspection Forms, and Monthly Documentation for that month as described in Section 8.1.

(3) "Heating Season" sampling event, with VMS shutdown (approximately early October of each year) for several weeks, then sub-slab and indoor air sampling event (approximately mid-November of each year), then VMS re-start with discharge air flow rate measurement and discharge air chemical sampling/analyses.

* Quarterly Reports include copies of more frequently collected forms and logs since the most recent previous Quarterly Report.

APPENDIX E

ACTIVATED CARBON CHANGE-OUTS CHECKLIST

Troy Belting
Vapor Mitigation System
Checklist Regarding Activated Carbon Change-Outs

The procedures below will be used to change-out activated carbon when breakthrough** (i.e., carbon saturation with CVOCs) occurs in the first carbon canister in the vapor treatment train. This form is to be completed and filed anytime carbon change-out is performed.

Task Description	Completed by: (initials)	Date	Time
1. Turn off fan. Remove inlet to 1st Canister and connect to 2nd canister inlet. Turn on Fan.			
2. Remove carbon from former 1st Canister into steel drums using a shop vac. Close all drums. Label drums with: "F001, F002 – Tetrachloroethene", and "F001 – Trichloroethene"; the words Hazardous Waste"; and the date of accumulation start on any partially full drum, or the date of generation on the full drums.			
3. Place new carbon in empty carbon canister (former 1st canister to become 2nd canister)			
4. Turn off fan. Connect flexible duct outlet from new 1st canister to the canister with the new carbon. Connect outlet of 2nd canister to exhaust line to fan. Turn on fan and verify no leaks into duct. Frequency returned to 60 Hz.			
5. Move full drums to 180 day or 90 day storage area depending on generator category or remove immediately from site for proper transport and disposal. A properly completed and signed Uniform Hazardous Waste Manifest must accompany each shipment and the annual LDR notice must be forwarded, as required.			
6. Measure the vacuum in the treatment train and at least one sub-slab port with a vacuum meter to ensure the values are approximately the same as prior to the carbon change-out.			

** Breakthrough is when either of the following occurs for the soil vapor sample collected between the 1st and 2nd carbon canisters (BETWEEN):

- PID reading is 75 percent or greater than PID reading measured at the BEFORE sample locations; or
- Any COC concentration in the BETWEEN laboratory sample is 25 percent of concentration of the same compound in the BEFORE sample.

APPENDIX F

ANALYSIS OF EMISSIONS FROM VAPOR MITIGATION SYSTEM UNDER AIR GUIDE 1

TROY BELTING & SUPPLY COMPANY

ANALYSIS OF EMISSION FROM VAPOR MITIGATION SYSTEM UNDER AIR GUIDE 1

The New York State Department of Environmental Conservation (NYSDEC) requested that the emissions from the Troy Belting & Supply Company Vapor Mitigation System (VMS) be evaluated using the Air Guide 1 Review Process.

Although the VMS emission is not subject to the requirement to obtain a permit given that the facility is enrolled in the Brownfield Cleanup Program (BCP), the emission is subject to Applicable or Relevant and Appropriate Requirements (ARARs) including:

- Chemical Specific: Health or risk-based numerical values or methodologies that establish concentration or discharge limits, or a basis for calculating such limits for particular contaminants. These are detailed below.

- Location Specific: Restrictions based on the concentration of hazardous substances or the conduct of activities in specific locations such as wetlands, floodplains and habitats of endangered species. There do not appear to be any Location Specific restrictions of these types relevant to the subject emission.

- Action Specific: These requirements set controls or restrictions on particular kinds of activities related to the management of hazardous substances, pollutants, or contaminants, and are primarily used to assess the feasibility of remedial technologies and alternatives. Air Guide 1 is a type of Action Specific ARAR and the following demonstrates the conformance of the subject emission with Air Guide 1 including the Chemical Specific ARARs.

The following headings from Air Guide 1 are used to demonstrate the conformance.

II. Permit Application Submittal Requirements

A description of the VMS was submitted in the VMS Sub-Slab Depressurization System (SSDS) Pilot Test Results and Design Report dated February 27, 2015, revised June 1, 2015 which was approved by the NYSDEC on June 16, 2015. This submission completely described the system to the degree required in an air permit application.

III. Federal and State Source Specific Control Requirements

The source meets all regulatory requirements other than Part 212.

IV. A. Ambient Air Quality Impact Analysis

The source has been evaluated under Appendix B of the Air Guide 1 – 1997 Version.

IV. A. Assign Initial Environmental Rating (Appendix A)

The NYSDEC published a document entitled: AGC/SGC Reference Assignments.

The relevant AGCs and SGCs are as follows:

	AGC (ug/m^3)	SGC (ug/m^3)
1, 1, 1 TCA	5,000	9,000
cis-1,2-Dichloroethylene	63	--
TCE	0.2	20
PCE	4	300
VC	0.11	180,000

IV. A. Figure 2 Box 2, Calculate Annual and Short-Term Impacts (Appendix B)

The Annual and Short-Term Impacts have been calculated for both after carbon treatment and prior to carbon treatment. The calculations appear in Attachment 1 and the summary of results are in Tables 10A and 10B of the Construction Completion Report (CCR).

IV. A. Figure 2 Box 3, Meets NYS and Federal Air Quality Standards?

Under 6 NYCRR 201-3.3(c)(29)(ii), which applies to soil vents that are operated under an agreement with and under the supervision of the NYSDEC, the VMS is a trivial activity. As such, the VMS is considered to be in conformance with New York State and Federal air quality standards.

IV. A. Figure 2 Box 4, Meets AGC and SGC? (Appendix B)

As shown in Tables 10A and 10B of the CCR, the results are all less than the applicable AGCs and SGCs in the NYSDEC document entitled AGC/SGC Reference Assignments indicating all are met.

IV. B. Figure 2 Box 9, High Toxic

The "T" column on the document entitled "AGC/SGC Reference Assignments" indicates that vinyl chloride is a high toxicity contaminant.

IV. B. Figure 2 Box 10, Less than 1 1b/hr

Tables 10A and 10B of the CCR demonstrate that the emission of vinyl chloride (the high toxicity contaminant) is less than 1 lb/hr, thereby meeting that limit.

IV. B. Figure 2 Box 12, Should BACT Be Waived?

DAR-1 IV.B.1.a High Toxicity less than 1 lb/hr - states at the end of the third paragraph, "If the hourly emission rate is less than 0.1 pound per hour and the ambient impact is less than both the AGC and SGC, the no control option may be considered by the RAPCE (Regional Air Pollution Control Engineer).

As shown in Tables 10A and 10B of the CCR, the emission rate is on the order of 10^{-7} pound per hour with or without carbon treatment.

V. Assigning Final Environmental Ratings

The question posed in the Figure 1 Air- Guide 1 Review Process, Simplified Figure is, "Source Meets Part 212 (Appendix A) Control Requirements." Appendix A to DAR-1 is entitled, "Assigning Environmental Ratings Under 6 NYCRR Part 212." The process described in this Appendix A is similar to the above process. However, in Section V, Evaluate Prior Environmental Ratings and BACT Availability, the guidance is to obtain the environmental rating and the existing control technology from the EPA Technology Transfer Network, Clean Air Technology Center-RACT/BACT/LAER Clearinghouse. A search for facilities addressing soil vapor containing vinyl chloride produced only one case – RBLC ID IN-0247, Honeywell International, Inc., Soil Vapor Extraction System, Tank and Loading Operation. The specified control method is Resin Adsorption System held to emission limits of 0.8700 lbs/hr and 30,000 ppmv. This is a draft determination issued on April 21, 2016. The method is expected to have a 98 percent estimated efficiency.

The situation involving Troy Belting is for a discharge approximately seven (7) orders of magnitude smaller.

ATTACHMENT 1

Example Calculation of Air Flow Through Exhaust into the Atmosphere for TCE

Given:

Extraction Pipe diameter:	4	inches
CFM for November 2015 - as measured in the field using a VelociCalc 9565.		
Flow (Q1) - WEA:	57	cfm
Flow (Q2) - EEA:	34	cfm
Total Flow, Qt = Q1+Q2 =	91	ft^3/min

Calculation of Chemical of Concern in Pounds per Year - AFTER CARBON TREATMENT

Given:

Concentration of TCE: X $\mu g/m^3$

Exhaust flow rate: 91.00 ft^3/min - measured from air flow in WEA and EEA locations November 2015 event - equation above.

EQUATION:

$$\frac{\text{Concentration } \mu g/L}{m^3} \times \frac{1g}{1000000\mu g} \times \frac{1lb}{453.593g} \times \frac{1m^3}{35.3147ft^3} \times \frac{91ft^3}{min} \times \frac{525600\ min}{year}$$

Result of COC	µg/g conversion	g/lb conversion	m^3/ft^3 conversion	exhaust flow measured	min/yr conversion

Example Calculation for TCE Annual Emission

Concentration of TCE: 1.07 $\mu g/m^3$

Exhaust flow rate: 91.00 ft^3/min

EQUATION:

$$\frac{1.07\mu g}{m^3} \times \frac{1g}{1000000\mu g} \times \frac{1lb}{453.593g} \times \frac{1m^3}{35.3147ft^3} \times \frac{91ft^3}{min} \times \frac{525600\ min}{year}$$

Result of TCE - 11/17 --> non-detect value	µg/g conversion	g/lb conversion	m^3/ft^3 conversion	exhaust flow measured	min/yr conversion

$$\frac{1.07}{1} \times \frac{1}{1000000} \times \frac{1}{453.593} \times \frac{1}{35.3147} \times \frac{91}{1} \times \frac{525600}{1}$$

Total Annual Emission (Qa) = 0.003195 lb/yr of TCE

CALCULATION RESULTS FOR ALL FIVE COCs:

COC List	Concentrations in November 2015, $\mu g/m^3$	Calculated Total Annual Emissions, lbs/yr
1,1,1-TCA	1.09 U	3.3E-03
cis-1,2-DCE	0.793 U	2.4E-03
TCE	1.07 U	3.2E-03
PCE	1.36 U	4.1E-03
VC	2.86	8.5E-03

Calculations of Annual and Short-Term Impacts for the COC-TCE Using DAR-1, Air Guide 1 - Guidelines for the Control of Toxic Ambient Air Contaminants

II.A.1 and 2 Basic Cavity Impact

*no annual or short-term cavity impacts from this source, hs > 1.5hc

hs = physical stack height
hc = building cavity

hs = 29.4 ft
hc = 18 ft (18*1.5) = 27 ft

II.B.5 Plume Height with Momentum Flux, Fm

*emission piping is 8" diameter, 4" radius

Fm (ft^4/sec^2) = Ta/T * V^2 * r^2

Ta = Ambient Temperature, °R
T = Exit Temperature, °R
V = Velocity, ft/sec
r = Exit Radius of Pipe, ft

V = Q/A

A = cross-sectional area, πr^2, $(.33)^2 * \pi$

Q = 91 ft^3/min

Ta = assuming 68°F °R = 68°F + 460°R = 528 °R
T = assuming 80°F °R = 80°F + 460°R = 540°R
r = (4/12) = 0.33 ft (for 8" diameter emission pipe)
V = must use Q from Flow Calculations

V = 266.1239 ft/min convert to ft/sec
V = ft/min * 1/60
V = 4.4354 ft/sec

Fm (ft^4/sec^2) = Ta/T * V^2 * r^2

$$Fm = \frac{528}{540} \times (4.4354)^2 \times (0.33)^2$$

Fm = 0.9777778 x 19.67277 x 0.1089

Fm = 2.095 ft^4/sec^2

III.A.1.b Effective Stack Height, he

he = hs + 1.1 $(Fm)^{1/3}$

he = 29.4 + (1.1 * $2.095^{/3}$)

hs = 29.4 ft
Fm = 2.095 ft^4/sec^2

he = 30.81 ft

III.A.2 Actual Annual Impact, Ca --> Dependent on the Chemical of Interest, equations from here on will be different based on chemical

Qa = lbs/yr of chemical from prior calculations
Qa = 0.003195 lbs/yr TCE
6.0 = constant provided in DAR-1 - 1997 Version, Appendix B

$$Ca\ (\mu g/m^3) = \frac{6.0 * Qa}{he^{2.25}}$$

$$Ca = \frac{6 * 0.003195}{30.81^{2.25}}$$

Ca = 8.5717E-06 $\mu g/m^3$ TCE

NOTE:
Qa = 0.003195 lbs/yr TCE
Qa = 8.753E-06 lbs/day TCE
Qa = 3.647E-07 lbs/hr TCE

III.A.3 Potential Annual Impact, Cp

Qa = lbs/hr of chemical from prior calculations
Qa = 3.647E-07 lbs/hr TCE
52500 = constant provided in DAR-1 - 1997 Version, Appendix B

$$Cp\ (\mu g/m^3) = \frac{52500 * Qa}{he^{2.25}}$$

$$Cp = \frac{52500 * 3.647E\text{-}07}{30.81^{2.25}}$$

Cp = 8.5613E-06 $\mu g/m^3$ TCE

III.A.4 Correction Factors for Reduction of Impacts from Calculated Ca and Cp above

- Reduce Ca and Cp values by factor of 0.75

Ca' = Ca * 0.75

Ca' = 6.4288E-06 $\mu g/m^3$ TCE

Cp' = Cp * 0.75

Cp' = 6.421E-06 $\mu g/m^3$ TCE

III.A.5 Maximum Short-Term Impact, Cst

- Multiply Cp value by factor of 65 (provided from DAR-1-1997 Version, Appendix B)

Cst ($\mu g/m^3$) = Cp' * 65

Cst = 0.00041736 $\mu g/m^3$ TCE

Conclusion - Compare with Annual and Short-Term Guideline Concentrations from DAR-1/AGC and SGC

AGC = Comparison with Ca'

AGC = 2.00E-01 $\mu g/m^3$ TCE **Ca' = 6.4E-06 $\mu g/m^3$ TCE**

SGC = Comparison with Cst

SGC = 20 $\mu g/m^3$ TCE **Cst = 4.2E-04 $\mu g/m^3$ TCE**