

Schmukler's Cleaners
Westchester County
New Rochelle, NEW YORK

INTERIM SITE MANAGEMENT PLAN

NYSDEC Site Number: C360088

Prepared for:

**HNJ Realty, LLC.
358-364 North Avenue
New Rochelle, New York**

Prepared by:

**BEI Consulting LLC
132 King Road
Rocky Point, New York 11778**

Reviewed and certified by:

**Nicholas A. Andrianas, P.E.
1 Sound Breeze Drive
Miller Place, New York 11764**

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date
1	Sept 2018	DEC comments	-----
2	August 2021	DEC comments	-----
3	October 2025	DEC Comments/updated P.E cert	-----

Rev 3

OCTOBER 2025

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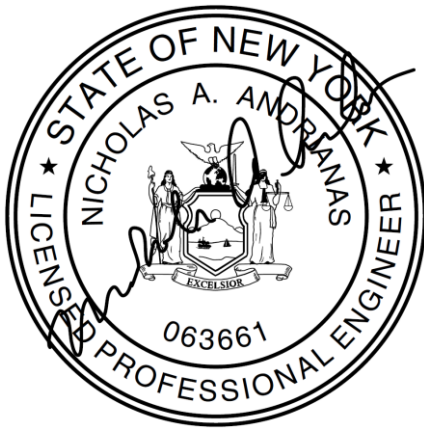
CERTIFICATION

I, Nicholas A. Andrianas, P.E. am currently a registered professional engineer licensed by the State of New York. Based on information provided by others, I have reviewed this Site Management Plan, the attached "Record Drawings and Reports" and/or "As-Built" drawings stamped and sealed by others, and the information provided in this Site Management Plan, reports and drawings. This Site Management Plan includes signed and sealed documents that are a product of, and a compilation of information and /or documentation provided by others, including Berninger Environmental, BEI Consulting LLC. it's subcontractors, and/or any other third parties that were not under my direct control at the time the work described in the reports was performed. Based on the above documents prepared by others, I certify that this Site Management Plan was prepared in accordance with the applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that the activities were performed in accordance with the DER-approved work plan and any DER-approved modifications.

NYS Professional Engineer # 063661

Date

October 10, 2025



List of Acronyms

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines

SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan:

Site Identification: Site #:C360088; Schmukler's Dry Cleaners; 358-364 North Avenue, New Rochelle, NY

Institutional Controls:	1. The property may be used for restricted residential use:
	<ul style="list-style-type: none">2. The use of groundwater underlying the property is prohibited.3. All ECs must be operated and maintained as specified in this SMP.4. Groundwater and other environmental monitoring must be performed to include annual monitoring and sampling of the subject site monitoring wells.5. Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP.6. All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP.7. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP.8. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP.9. Access to the site must be provided to agents, employees or other representatives of the State of NY with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.10. The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted in Figure 4, and any potential impacts that are identified must be monitored or mitigated11. Vegetable gardens and farming on the site are prohibited.

	12. All ECs must be inspected at a frequency and in a manner defined in the SMP.	
Engineering Controls:	1. Cover system 2. Sub-slab Depressurization (SSD)/ Soil Vapor Extraction (SVE) System 3. Enhanced Bioremediation	
Inspections:		Frequency
1. Site -wide inspections		Annually
Monitoring:		
1. SVE/SSDS		Quarterly
2. Groundwater Monitoring Wells		Semiannual (twice a year)
Maintenance:		
1. SVE/SSDS		Quarterly
Reporting:		
1. Operation, Monitoring and Maintenance		Quarterly
2. Progress Reports		Semi-annual (twice a year)
3. Sampling Reports		Semi-annual (twice a year)

1.0 INTRODUCTION

1.1 General

This Interim Site Management Plan (ISMP) is a required element of the remedial program for the Schmukler's Cleaners site located in New Rochelle, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C360088, which is administered by New York State Department of Environmental Conservation (NYSDEC).

HNJ Realty, LLC, entered into a Brownfield Cleanup Agreement (BCA), on February 27, 2006 with the NYSDEC, and the Division of Environmental Remediation (DER), to remediate the site. A figure showing the site location and boundaries of this site is provided in Figures 1 and 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix B.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Westchester County Clerk, requires compliance with this ISMP and all ECs and ICs placed on the site.

This ISMP was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This ISMP may only be revised with the approval of the NYSDEC.

It is important to note that:

- This ISMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the ISMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this ISMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA, (Index #A3-0542-0306; Site #C360088) for the site, and thereby subject to applicable penalties.

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This ISMP was originally prepared by John V. Soderberg P.E. (JVS), on behalf of HNJ Realty, LLC, in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated August 2017, and the guidelines provided by the NYSDEC. The revised ISMP has currently been prepared in accordance with the above-mentioned requirements by BEI Consulting LLC and reviewed and certified by Nicholas A. Andrianas P.E. This ISMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the site. All reports associated with the site can be reviewed at the repository established for the site: New Rochelle Library at 1 Library Plaza, New Rochelle, New York 10801.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the ISMP and append these notices to the ISMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this ISMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this ISMP.

- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table [1] includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information.

Table [1]: Notifications*

Name	Contact Information
Caroline Jalanti P.E. NYSDEC	Caroline.Jalanti@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located at 358-364 North Avenue, in the city of New Rochelle, Westchester County, New York and is identified as Section 4 Block 1206 and Lot 19 on the County Clerk of Westchester Tax Map see Figure 2. The Site is located at an elevation of approximately 80 feet above mean sea level according to a review of USGS Topographic Map, Mount Vernon Quadrangle Figure 1. The site is an approximately 0.21-acre area and is bounded by a retail store and Lockwood Avenue to the north, Love Music Inc. to the south, North Avenue to the east, and residential property to the west (see Figure 2 – Site Layout Map). The boundaries of the site are more fully described in Appendix B – Environmental Easement. The owner of the site parcel at the time of issuance of this ISMP is HNJ Realty, LLC. The former dry-cleaning operation portion of the main building is a two-story brick-faced structure with a basement accessible only from the sidewalk via a sub-grade stairway covered with a steel plate. The actual entranceway to the extension is via an interior doorway which leads into a corridor separating the former cleaners and the additional first floor commercial units. The interior of the former facility is finished with brick walls with a partial concrete lath/covering that is in poor condition. The flooring was noted to be wood/plywood that overlies the basement. The only remaining evidence of former dry-cleaning operations is a portion of a vent pipe that extends through the ceiling in the rear of the structure.

2.1.1 Site History

The former Schmukler's Dry Cleaner Site is located at 358-364 North Avenue, in the city of New Rochelle, New York. According to review of the City of New Rochelle records, as well as review of historical Sanborn Fire Insurance Maps, the Site was developed as early as 1891 with two residential-use buildings. The property was subsequently redeveloped with a multi-tenant two-story commercial building. The first floor and basement of the building had been utilized by

Schmukler's Dry Cleaners since around 1914. An addition was made to the western portion of the building circa 1937. An addition was also made to the southwestern portion of the building sometime prior to 1987. A final addition was made to the northwestern portion of the building (which includes the steam boiler) in 1987.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a multi-tenant two-story building with a full basement, and an enclosed backyard area to the immediate west of the building. The Site consists of a partial two-story/part one-story commercial building constructed in 1914. The Site is zoned commercial, and is currently utilized for commercial uses, with some maintaining residential apartments above. Site occupants include United Community Center, which is a neighborhood charitable services office, a real estate company, a spa/salon, a music studio, a taxi cab service office, and the Volunteer/property owner's office.

The properties adjoining the Site and, in the neighborhood, surrounding the Site include both commercial and residential properties. The properties immediately south of the Site include commercial properties, such as Love Music Inc.; the properties immediately north of the Site include commercial properties, such as Swan Beauty Spa, Tyrone and Bros. clothing store, 366 Real Estate Company and 368 Family Dentistry; the properties immediately east of the Site include commercial properties across the street; and the properties to the west of the Site include residential properties on May Street.

2.2.2 Geology

According to the Surficial Geology Map of New York Lower Hudson Sheet produced by the University of the State of New York; State Education Department, 1989, the Site is located within an area of New York where the surficial geology is defined as

glacial till. The till is described as variable texture (e.g., clay, silt-clay, boulder clay), usually poorly sorted, which was deposited beneath glacial ice. The till is generally characterized by mixtures of relatively impermeable loamy matrix-to-sandy in areas underlain by gneiss or sandstone. The thickness of the till varies between one and 50 meters. Unconsolidated bedrock consisting of heavily weathered mica schist begins at approximately four (4) meters below grade surface. From four (4) meters to approximately six and a half (6.5) meters below grade weathered rock transitions to more competent dense quartzite with natural, weathered fractures present.

2.2.3 Hydrogeology

Groundwater monitoring well construction logs are provided in Appendix K. Public water is provided to the Site by United Water New Rochelle. No on-site potable or dry cleaning or washing make-up supply wells, active or inactive, were observed during the inspection. According to information provided by United Water, the supply source is surface water purchased from the New York City Department of Environmental Protection (NYCDEP). The three sources of the New York City supply that are utilized include the Croton, Catskill, and Delaware Aqueducts. The Central Avenue and little Catskill pump stations supply the day to day demands to the system.

The Site is located in the eastern portion of the City of New Rochelle and groundwater flow direction could not be determined from published information. As groundwater is not used as a potable water source in the Site vicinity, current groundwater quality data are very limited. No water table elevation maps are available for the City of New Rochelle. However, given both the surface and bedrock topography in the area (which generally slopes down toward the Long Island Sound), groundwater flow in unconsolidated deposits and/or upper weathered bedrock is likely easterly-southeasterly, toward the Long Island Sound. A groundwater flow survey was conducted at the site as part of the supplemental remedial investigation activities utilizing all available overburden wells and bedrock wells. The results of the survey concluded that groundwater appears to be moving in a south-easterly direction.

Due to the heavily developed nature of the immediate surrounding area, groundwater quality is expected to be regionally degraded. No surface water bodies are located on, adjoining or proximate to the Site. Ferris Creek and The Long Island Sound are located approximately 3,250 feet to the east/southeast of the Site. According to Freshwater Wetland, National Wetland Inventory, Westchester Wetlands and Tidal Wetlands data available on the Westchester County GIS System, there are no regulated wetlands on or adjoining the Site.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

Historic data collected over the past several years has indicated the presence of chlorinated VOCs and petroleum related SVOCs at the subject site in soil and groundwater. The former dry-cleaning equipment room has been the main source area for chlorinated contamination and continues to be the main focus of our remedial efforts. An SVE/SSDS combination remediation system has been in operation since approximately the winter of 2009 and has been removing volatile organic compounds from the sub surface. The SVE/SSDS system is geared heavily towards the dry-cleaning equipment room and the basement. The system also extends to the rear of the building focusing on the former dry-well where substantial PCE was found in GW-9 at 25,000 ppb. Concentrations of PCE have been discovered in GW-4 as high as 830,000 ppb and TCE as high as 58,000 ppb in groundwater beneath the dry-cleaning equipment room. (note: These concentrations are from the August 2007 RI). The active SVE/SSDS system has likely reduced these numbers since the system's inception during the winter of 2009. Please see Figure-3 for historical data discussed above. In December of 2008 MW-3 (located in the equipment room) was sampled and lab data indicated that PCE had a concentration of 26,000 ppb, TCE at 6,000 ppb, DCE at 2,400 ppb and Vinyl Chloride (VC) at 430 ppb. Samples were also collected during November

of 2009 from MW-3, just prior to the start-up of the SSDS/SVE system, and PCE was recorded at 75,000 ppb, TCE at 4,000, DCE at 4,100 ppb and VC at 250. Nearly four years later, during August of 2012, PCE concentrations in MW-3 have been reduced to 18,000 ppb, TCE was significantly reduced to 810 ppb, DCE was recorded at 1,400 ppb and VC at just 61 ppb. This is most likely attributed to the active and ongoing SVE/SSDS system volatilizing VOCs from the shallow water table. The basement area had some levels of PCE detected in groundwater but nothing close to the levels found in the equipment room. A total of three (3) groundwater samples (GW-1, GW-5 and GW-6) were collected from the basement. GW-1 collected in the northeast corner did not detect PCE, GW-6 to the west of this location detected PCE at 310 ppb and GW-5 collected at the center of the southern basement wall detected PCE at 150 ppb. The concentrations in the former dry-cleaning equipment room are far more severe as levels have been discovered at nearly one million parts per billion. Chlorinated VOC levels totaled approximately 10,000 ppb in the basement with the majority of the contamination consisting of DCE (8,700 ppb) in GW-6. Petroleum related contamination has been found throughout the site in groundwater, mainly in the basement and the former dry-cleaning equipment room. Petroleum constituent levels have been detected as high as 890 ppb (1, 3, 5 trimethylbenzene) in the equipment room and 670 ppb (naphthalene). The source of these impacts is unknown. Regardless of the source origin, the active SVE/SSDS, is continually remediating petroleum related impacts within the basement soils and groundwater.

BEI performed the sampling of one sub-slab sample (SS-1), three soil gas locations (SG-1 to SG-3) and one ambient outdoor air sample (OA-1) on August 6, 2007. Halogenated VOCs detected in soil gas, sub-slab vapor and outdoor ambient air samples are depicted on Figure-11. These samples were collected within the former Schmuklers Cleaners. As summarized on the data table and the aforementioned figures, tetrachloroethene (PCE) was identified at significantly high concentrations (787,000 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) in the SS-1 sample. This prompted the need for the installation of the SVE/SSD system. Associated breakdown or associated products of PCE such as the following - trichloroethene (TCE at 15,200 $\mu\text{g}/\text{m}^3$), cis-1,2-dichloroethene (cis 1,2-DCE at 46,000 $\mu\text{g}/\text{m}^3$), trans-1,2-dichloroethene (trans-1,2-DCE at 76.1 $\mu\text{g}/\text{m}^3$), 1,1,1-

trichloroethene (1,1,1-TCE at 157 µg/m³), 1,1-dichloroethene (1,1-DCE at 25.8 µg/m³) and vinyl chloride (34.0 µg/m³) were also detected in the sub-slab sample.

Indoor air collected at 17 May Street was significantly below the NYSDOH air guidance value of 30 ug/m³ with just minor traces of some volatile organics present. The sub-slab sample, indoor air and outdoor air samples did not yield any volatile organic concentrations that required action to address exposure.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated July 11, 2018 are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.5 Remaining Contamination

2.5.1 Soil

Soil samples were collected on September 26th, 2017, from the exposed surface soils (rear yard grassy area) and raised garden beds in order to ensure that the exposed area in the backyard contained two (2') feet of soils meeting Restricted Residential SCOs (Part 375 6.7 (b)). Soil was placed over a demarcation layer with the upper 6 inches of sufficient quality to maintain a vegetative layer. Please refer to Figure-8 for the locations of the site cover soil samples. None of the soil samples collected contained any Volatile Organic Compounds (VOCs), Pesticides, or Herbicides in exceedance of SCOs. However, there were Semi-Volatile Organic Compounds (SVOCs) detected in exceedance of SCOs in three (3) of the soil samples collected, all from the same locations but at different depths. The contaminants detected above SCOs were *Benzo(a)anthracene*, *Benzo(a)pyrene*, *Benzo(b)fluoranthene*, *Dibenzo(a,h)anthracene*, and *Ideno(1,2,3-c,d)pyrene*.

The table below and Figure 8 summarize the results of all soil samples collected that exceed the Unrestricted Use SCOs and the restricted residential Use SCOs at the site after completion of remedial action.

SVOC CasNo	Analyte	Client SampleID: Laboratory ID: Sampling Date:	CS-1-5 @ 0-2" 1709132-011 9/26/2017	CS-1-5 @ 2-12" 1709132-012 9/26/2017	CS-1-5 @ 12-24" 1709132-013 9/26/2017	Part 375 Restricted- Residential Limits
		Units	q	q	q	
95-48-7	2-Methylphenol	PPB	30 U	30 U	31 U	100,000
108-39-4/106-44	3+4-Methylphenol	PPB	30 U	30 U	31 U	100,000
83-32-9	Acenaphthene	PPB	130 J	490	410	100,000
208-96-8	Acenaphthylene	PPB	97 J	160 J	190 J	100,000
120-12-7	Anthracene	PPB	340	1,100	980	100,000
56-55-3	Benzo(a)anthracene	PPB	1,300	3,300	3,000	1,000
50-32-8	Benzo(a)pyrene	PPB	1,100	2,600	2,500	1,000
205-99-2	Benzo(b)fluoranthene	PPB	1,100	2,600	2,700	1,000
191-24-2	Benzo(g,h,i)perylene	PPB	740	1,600	1,700	100,000
207-08-9	Benzo(k)fluoranthene	PPB	1,000	2,300	2,100	3,900
218-01-9	Chrysene	PPB	1,400	3,400	3,100	3,900
53-70-3	Dibenzo(a,h)anthracene	PPB	210	500	510	330
132-64-9	Dibenzofuran	PPB	92 J	260 J	290 J	59,000
206-44-0	Fluoranthene	PPB	2,700	6,300 D	5,900	100,000
86-73-7	Fluorene	PPB	130 J	460	450	100,000
118-74-1	Hexachlorobenzene	PPB	30 U	30 U	31 U	1,200
193-39-5	Indeno(1,2,3-c,d)pyrene	PPB	800	1,800	1,800	500
91-20-3	Naphthalene	PPB	110 J	190 J	260 J	100,000
87-86-5	Pentachlorophenol	PPB	59 U	60 U	61 U	6,700
85-01-8	Phenanthrene	PPB	1,800	5,400	4,700	100,000
108-95-2	Phenol	PPB	30 U	30 U	31 U	100,000
129-00-0	Pyrene	PPB	2,300	5,900 D	5,300	100,000

Based upon these findings, a site cover system (EC) was installed at the site's exposed/grass and soil areas. The cover system was installed to prevent potential exposure to the remaining contamination in the soil. The remaining areas of the site are already covered by the building footprint and/or asphalt paving.

2.5.2 Groundwater

Quarterly sampling activities were conducted on July 30, 2018 and included: well gauging, well sampling and testing. VOCs were present above the TOGS standards for groundwater in monitoring wells: MW-3 and MW-9. MW-3 had PCE concentrations of 16,000 ppb, TCE at 3,300 ppb, 1,2-DCE at 1,414 and VC at 46 ppb. MW-9 had a PCE concentration of 72 ppb. Exceedances of SVOCs were detected in monitoring wells MW-11 and MW-12. LNAPL also exists in BW-2 and BW-4 for which absorbent socks were installed in the wells to prevent migration in conjunction with multiple VEFR events planned to take place. Please refer to the attached Figures-9 and 10, which depicts the extent of both DNAPL and LNAPL contamination.

2.5.3 Soil Vapor

When the SVE/SSDS started in 2009 influent PID readings were as high as 160 ppm and influent lab concentrations of PCE were as high as 35,000 ppbv or 250,000 µg/m³. As of May 8th, 2018, the VES Influent air sample had a concentration of Tetrachloroethene (PCE) at 500 ppbv or 3,391 µg/m³. As of July 30th, 2018, the SVE effluent air samples had a concentration of PCE at 350 ppb, and a concentration of Trichloroethene (TCE) at 43 ppb. Currently, the influent concentrations range 350 ppbv or 2,373 µg/m³ to 750 ppbv or 5,086 µg/m³ and the effluent is 0.8 ppbv or 5.0 µg/m³ to no-detect (reporting limit 1.0 µg/m³). A table of the historic PID influent and effluent results are included as Appendix-P.

During a biological application event in September 2017, the SVE/SSDS was temporarily shut-down for a period of 6.5 hours. During this period an indoor air sample was collected for the entire duration to monitor and evaluate impacts from system shutdown for remedial work. Based on the results of the laboratory data, PCE was detected at a concentration of 3.66 µg/m³. Other site related compounds were detected at concentrations typically found in indoor air or were not detected. The lab results are included as Appendix-O.

The potential exists for soil vapor contamination to migrate off-site. Soil vapor intrusion sampling at one off-site building did not identify any soil vapor intrusion concerns for that building. However, the potential exists for inhalation of site contaminants due to soil vapor intrusion for other off-site buildings.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site. The IC/EC Plan is one component of the ISMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the Excavation Work Plan (EWP) (as provided in Appendix A for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining

contamination; and, (3) limit the use and development of the site to restricted-residential uses only. Adherence to these ICs on the site is required by the Environmental Easement and will be implemented under this ISMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. The IC boundaries are shown on Figure 4. These ICs are:

- Controlled property may be used for: Restricted Residential use as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial use as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial use as described in NYCRR Part 375-1.8(g)(2)(iv);
- All ECs must be operated and maintained as specified in this ISMP;
- All ECs must be inspected at a frequency and in a manner defined in the ISMP.
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Westchester Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Groundwater and other environmental or public health monitoring must be performed to include: annual monitoring and sampling of subject site monitoring wells
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this ISMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this ISMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this ISMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this ISMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement (EE).

- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 4, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the site are prohibited;

Further information regarding property use and restrictions is discussed within the EE as Appendix-B. The Decision Document (DD) is included as Appendix-Q.

3.3 Engineering Controls

Engineering Controls (ECs) include any physical barriers or methods employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies. The following ECs established for the subject site are discussed below and include: the site cover, and the 5.0 Hp EN 6 ROTRON explosion proof blower (SVE/SSDS).

3.3.1 Cover (or Cap)

Exposure to remaining contamination at the site is prevented by a cover system placed over the site. Site cover consists of a six-inch (6") crushed stone aggregate sub-base with at least 6" (height) concrete paving blocks throughout the site cover areas. Figure 5 presents the location of the cover system and applicable demarcation layers. The Excavation Work Plan (EWP) provided in Appendix [A] outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection of this cover are provided in the Monitoring and Sampling Plan included in Section 4.0 of this ISMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and

associated Community Air Monitoring Plan (CAMP) prepared for the site and provided in Appendix -C and D, respectively.

3.3.2 Sub-slab Depressurization Systems (SSDS)/ Soil Vapor Extraction Systems

The active SVE/SSDS operates to ensure the protection of the building's occupants. The SVE/SSDS system official start date was June 16, 2010. The EC associated with the system is a 5.0 HP EN-6 ROTRON explosion-proof blower. The EC is responsible for removing harmful vapors emanating from the sub-surface soil/groundwater and depressurizing the buildings sub-grade basement floor. The SVE/SSDS has been designed with two (2) horizontal h-pattern units (SSDS) constructed of 2" PVC slotted well screen, installed below the basement floor within two separate rooms. H-pattern piping is manifolded together before it routes to the main manifold located on the opposite wall of the recovery room. The SVE portion of the system consists of four (4) sub-grade vapor extraction wells located in the area of the former dry-cleaners and one (1) in the area of the sub-grade drywell. All piping is connected to the main manifold where it enters the recovery room and is connected to the EC, which discharges through a series of carbon vent scrubs before exhausting to the atmosphere. Discharge to the atmosphere and operation of the system is regulated by the Westchester County Department of Health (WCDOH). The WCDOH "Permit to Operate an Air Emission Source" is included as Appendix-E. The engineer's as-built drawing of the system is included as Appendix-F.

Procedures for operating and maintaining the SVE/SSD systems are documented in the Operation and Maintenance Plan (Section 5.0 of this ISMP). As built drawings, signed and sealed by a professional engineer, are included in Appendix L – Operations and Maintenance Manual.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision

document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

3.3.3.1 - Cover (or Cap)

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this ISMP in perpetuity.

3.3.3.2 – Soil Vapor Extraction (SVE)/Sub-Slab Depressurization (SSD) System

The active SVE/SSD system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH. In the event that monitoring data indicates that the SSD system may no longer be required, a proposal to discontinue the SSD system will be submitted by the remedial party to the NYSDEC and NYSDOH. Conditions that may warrant discontinuing the system include contaminant concentrations in groundwater and/or soil that: (1) reach levels that are consistently below ambient water quality standards or the site SCGs, as appropriate; (2) have become asymptotic to a low level over an extended period of time, as accepted by the NYSDEC; or (3) the NYSDEC has determined that the system has reached the limit of its effectiveness. This assessment will be partially based on post-remediation contaminant levels in soil vapor from the effluent exhaust stack of the system. The system will remain in place and operational until permission to discontinue their use is granted in writing by the NYSDEC.

3.3.3.3 - Monitoring Wells associated with the RAWP

Groundwater monitoring activities to assess the remedial effectiveness of the RAWP will continue on a semiannual (twice a year) basis, as determined by the NYSDEC with consultation with NYSDOH, until residual groundwater concentrations are found to be consistently below ambient water quality standards,

the site SCGs, or have become asymptotic at an acceptable level over an extended period. In an event that monitoring data indicates that monitoring the remedy effectiveness may no longer be required, a proposal to discontinue the system will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

3.3.3.4 – Enhanced Bioremediation

Injection of bacteria and nutrients was performed, and additional injections may be conducted if remedy effectiveness is not satisfactory. In addition to contaminant monitoring, anaerobic degradation parameters in the groundwater will be monitored in on and off-site wells throughout the treatment to ensure remedy effectiveness.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management (same QA/QC used during RI) for the site are included in the Quality Assurance Project Plan provided in Appendix G.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);

- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil; and
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment;

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency;
- Information on all designed monitoring systems;
- Analytical sampling program requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this ISMP.

4.2 Site – wide Inspection

Site-wide inspections will be performed at a minimum of once per year. Modification to the frequency or duration of the inspections will require approval from the NYSDEC. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix H – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;

- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that site records are up to date.

Inspections of all remedial components installed at the site will be conducted. A comprehensive site-wide inspection will be conducted and documented according to the ISMP schedule, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this ISMP and the Environmental Easement;

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC must be given by noon of the following day. In addition, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the site by a qualified environmental professional, as determined by the NYSDEC. Written confirmation must be provided to the NYSDEC within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

4.3 Treatment System Monitoring and Sampling

The following discusses the monitoring and sampling associated with the following ECs: SVE/SSDS.

4.3.1 Remedial System Monitoring

Monitoring of the SVE/SSDS is performed on a quarterly basis, as identified in Table 2 Remedial System Monitoring Requirements and Schedule (see below). Modification to the frequency or sampling requirements will require approval from the NYSDEC. A visual inspection of the complete system will be conducted during each monitoring/sampling event. Unscheduled inspections and/or sampling may take place when a suspected failure of the SVE/SSD system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. The monitoring of indoor air will be necessary when the SVE/SSDS is shut down. In addition, indoor air sampling will be conducted upon start-up of the system to confirm effectiveness of the system in preventing soil vapor intrusion. The SVE/SSD system components to be monitored include, but are not limited to, the components included in Table [2] below.

Table [2] – Remedial System Monitoring Requirements and Schedule

Remedial System Component	Monitoring Parameter	Operating Range	Monitoring Schedule
SVE/SSDS (EN-6 ROTRON blower)	Flow rate and emission testing	~250 cfm (max)	Quarterly

A complete list of components to be inspected is provided in the Field Maintenance Log/Inspection Checklist, provided in Appendix I - Site Management Forms. If any equipment readings are not within their specified operation range, any equipment is observed to be malfunctioning or the system is not performing within specifications;

maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

4.3.2 Remedial System Sampling

Samples shall be collected from the SVE/SSDS on a quarterly basis. Sampling locations, required analytical parameters and schedule are provided in Table 3– Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table [3] – Remedial System Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
SVE/SSDS Effluent	EPA TO-15 (VOCs)	Quarterly

Detailed sample collection and analytical procedures and protocols are provided in Appendix [G] Quality Assurance Project Plan.

4.4 Post-Remediation Media Monitoring and Sampling

Samples have been collected from the exposed site cover areas (one-time) and on a semi-annual basis from the monitoring well network. Sampling locations, required analytical parameters and schedule are provided in Table 4 – Remedial System Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 4 – Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
Composite site cover (exposed surface soils)	Restricted Residential SCOs (Part 375 6.8(b))	One time (completed)
Monitoring Well Network (MW-1-12 and BW-1-4)	8260C (VOCs) and 8270BN (MW-11 and 12)	Semi-annual (twice a year)

Detailed sample collection and analytical procedures and protocols are provided in Appendix J.

4.4.1 Soil Sampling (Site cover)

Based on the findings discussed in section 2.5.1, a site cap/cover system was installed at the site in order to cover exposed areas that exhibit remaining contamination. Please refer to Figure-6 for the locations of the site cover soil samples and Figure-8 for the site cap/cover EC installed at the site.

4.4.2 Groundwater Sampling (well network)

Groundwater monitoring will be performed on a semiannual (twice a year) basis to assess the performance of the selected site remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The network of monitoring wells has been installed to monitor upgradient, on-site and downgradient groundwater conditions at the site. The network of on-site and off-site wells has been designed based on the following criteria: groundwater monitoring/sampling and monitoring remediation effectiveness.

Table 5 summarizes the wells identification number, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the

groundwater monitoring, 2 upgradient wells, 11 on-site wells and 3 downgradient wells are sampled to evaluate the effectiveness of the remedial system. Currently, select wells have been covered or cannot be located. An effort will be made to locate and decommission these wells. Wells no longer viable for sampling are noted in the table below. All other wells are being monitored and sampled under the ISMP.

Table 5 – Monitoring Well Construction Details

- New Rochelle = 80 ft above MSL

Monitoring Well ID	Well Location	Coordinates (longitude/latitude)	Well Diameter (inches)	Elevation (above mean sea level) in ft			
				Casing	Surface	Screen Top	Screen Bottom
BW-1	Upgradient	40°54'52.09"N 73°47'6.17"W	2	80	80	68	63
BW-2	Downgradient	40°54'51.32"N 73°47'4.20"W	2	80	80	68.50	63.50
BW-3	Covered/Gone	40°54'51.01"N 73°47'7.18"W	2	80	80	66	61
BW-4	Downgradient	40°54'50.62"N 73°47'3.76"W	2	80	80	70	60
MW-1	On-Site	40°54'51.32"N 73°47'5.62"W	2	80	80	70.70	65.70
MW-2	Gone	40°54'51.48"N 40°54'51.48"N	2	80	80	77.80	72.80
MW-3	On-Site	40°54'50.96"N 73°47'5.09"W	2	80	80	72	67
MW-4	On-Site	40°54'51.52"N 73°47'4.70"W	2	NA	80	72	70
MW-5	On-Site	40°54'51.07"N 73°47'4.37"W	2	NA	80	72	70.584
MW-6	Downgradient	40°54'50.53"N 73°47'3.70"W	2	80	80	76	71
MW-7	On-Site	40°54'50.81"N 73°47'5.27"W	1	80	80	78	68
MW-8	On-Site	40°54'50.64"N 73°47'5.36"W	1	80	80	78	68
MW-9	Gone	40°54'51.01"N 73°47'5.31"W	1	80	80	70	65

MW-10	On-Site	40°54'50.91"N 73°47'5.19"W	1	80	80	70	65
MW-11	On-Site	40°54'51.03"N 73°47'4.89"W	2	80	80	78	74.5
MW-12	On-Site	40°54'50.83"N 73°47'4.71"W	2	80	80	78	74.5

*Highlighted wells will be used for long term monitoring during Site Management

Monitoring well construction logs are included in Appendix K of this document.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report. Well decommissioning without replacement will be done only with the prior approval of the NYSDEC. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC.

The sampling frequency may only be modified with the approval of the NYSDEC. This ISMP will be modified to reflect changes in sampling plans approved by the NYSDEC.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.4.3 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix H - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the site-specific Field Activities Plan provided as Appendix I of this document.

During any type of remedial event for which the SVE/SSDS system will have to be shut-down, indoor air will be monitored during the shutdown period of the system. Vacuum reading will be obtained with a magnehelic gauge and/or micromanometer at selected PV points within the slab upon re-starting the system.

5.0 OPERATION AND MAINTENANCE PLAN (OM&M)

5.1 General

This Operation and Maintenance Plan includes a brief description of the measures necessary to operate, monitor and maintain the mechanical components of the soil remedy (SVE/SSDS) selected for the site. The SVE/SSDS is not a necessary component of only the soil remedy; it is also a potential remedy for remediating soil vapor and groundwater as well. This Operation and Maintenance Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the site to operate and maintain the SSD/SVE systems;
- Will be updated periodically to reflect changes in site conditions or the manner in which the SSD/SVE systems are operated and maintained.

Further detail regarding the Operation and Maintenance of the SVE/SSDS is provided in Appendix L - Operation and Maintenance Manual. A copy of this Operation and Maintenance Manual, along with the complete ISMP, is to be maintained at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of this ISMP.

5.2 Remedial System Performance

The following table below outlines specific SVE/SSDS operating requirements with regard to air flow rates (CFM), vacuum and psi readings. A permit to operate an air emission source has been obtained from the WCDOH for which the permit is attached as Appendix-E.

SVE/SSDS Well	Vacuum (in/H ₂ O)	PSI	Flow Rate (CFM)
SVE Influent (pre-carbon)	~18-20	n/a	~250
SVE Effluent (post-carbon)	n/a	3-5	~150
V-1	~5	n/a	~25
V-2	~5	n/a	~25
V-3	~5	n/a	~25

V-4	~5	n/a	~25
V-5 (downstairs SSDS H-pattern)	~5	n/a	~18-20

5.3 Operation, Monitoring and Maintenance (OM&M) of Sub-slab Depressurization System/Soil Vapor Extraction System

The following sections provide a description of the operations and maintenance of SVE/SSDS. Upon completion of the SVE/SSDS, a Construction Completion Report (CCR) was drafted and approved by the Department which discusses the following: routine and non-routine operation and maintenance, system monitoring requirements and devices and alarms associated with the system. Please refer to the approved CCR as Appendix-L which details the SVE/SSDS construction, design and complete OM&M procedures as well as engineer as-built drawings/layout and local reporting requirements.

5.3.1 System Start-Up and Testing

A one-day pilot-test of the sub-slab beneath the basement floor has been conducted and the data results are positive. The objective of the pilot testing was to establish the radius of influence (ROI) for the SVE system. The pilot test has been conducted via six small diameter shallow soil sub-slab permanent vapor wells (PV). Four have been installed within the basement (PV-3-6) and two within the former steam-press and dry-cleaning equipment rooms (PV-1-2) (see Figure 12). Specifically, the PVs in the basement are at an approximate distance of fifteen feet away from the legs of the “H”, installed approximately one foot deep within the poured concrete floor. Two PVs have been set inside the footprint of the “H” and two PVs to the east of the “H”, toward North Avenue. Two additional PVs have been installed 15-20 feet (north-south) radial distances from the three SVE wells in the former dry-cleaning equipment room. The PV monitoring points have been used to record pressure responses during the pilot test as per the Guidance for Evaluating Soil Vapor Intrusion in the State of New York. (NYSDOH, 2006) and the Radon Mitigation Standards (USEPA 402-R-03-078). These PVs can also be used if necessary, during other key phases of the project to check both on pressure as well as VOCs in soil gas. PVs are also referred to as SSVWs (Sub-Slab Vapor Wells).

A rotary coring tool was used to penetrate the concrete floor slab (in the basement and the first floor) to install ½ inch diameter PV monitoring points to an approximate depth of one foot below the concrete. These wells were installed as permanent points as per the NYSDOH guidance. A 3/8-inch diameter polyethylene tubing was affixed to the permanent soil vapor screen point which was installed to within one inch of the bottom of the hole at these monitoring locations. A permanent seal between the tubing and the concrete sub-floor was used to ensure that no air leaks are possible at the vacuum measuring point.

Air pressure (vacuum) measurements have been recorded at each of the six PV or SSVW monitoring points just before the start of each test to ensure that baseline sub-slab air pressures were within normal ranges. Air pressure measurements continued approximately once every 10 minutes while applying a continuous vacuum to the SVE/SSDS system. Air pressure has been measured with a Dwyer Magnehelic® vacuum meter, calibrated to atmospheric pressure prior to the test. The test has been run utilizing the Rotron blower, with the equivalent vacuum reading of 6 in/h₂O and a vacuum flow rate of approximately 80 cubic feet per minute (CFM).

The first test period was conducted until equilibrium conditions were established and completed. BEI conducted vacuum readings on each of the permanent vapor points (PV-1-6) to establish the system radius of influence or ROI. CFM and PID readings were measured from the vertical SVE wells (V-1-5) to ensure proper airflow and VOC concentrations.

The following table below displays all data recorded during the pilot test:

Wells	Vacuum	CFM	PID (ppm)
PV-1	0.1 in/H ₂ O	n/a	0.0
PV-2	0.2 in/H ₂ O	n/a	0.0
PV-3	.16 in/H ₂ O	n/a	2.8

PV-4	.76 in/H ₂ O	n/a	3.9
PV-5	0.1 in/H ₂ O	n/a	0.0
PV-6	.48 in/H ₂ O	n/a	0.0
V-1	4.1 in/H ₂ O	44.9 ft ³ /min	538
V-2	4.3 in/H ₂ O	48.42 ft ³ /min	170
V-3	4.5 in/H ₂ O	44.35 ft ³ /min	28.7
V-4	4.0 in/H ₂ O	50.88 ft ³ /min	0.1
V-5	3.5 in/H ₂ O	43.52 ft ³ /min	26.5

The radius of influence appears to be approximately 15 feet from the center of each SVE well installed at the site. In the basement area impacted soils can be affected as far away as 15' from any point on the screened piping being that it is installed horizontally.

Routine airflow and concentration sampling of the SVE system has occurred on a monthly basis and BEI staff has collected airflow and bulk air concentration data over the last few years. Airflow calculations for the SVE are generated using inline airflow rates and concentration data collected near the SVE well. In order to collect air concentration measurements, total VOC measurements have been measured with a Photoionization detector (PID) via a sample port installed in the solid PVC piping.

The system testing described above will be conducted if, in the course of the SSD/SSV system lifetime, the system goes down or significant changes are made to the system and the system must be restarted.

5.3.2 Routine System Operation and Maintenance

Based upon the mitigation system implemented at the site, the operation, maintenance and monitoring (OM&M) protocols for the system have been set forth in a site-specific OM&M plan. Subsequent to the initial installation and start-up of the system, weekly monitoring was conducted to evaluate the effectiveness of the system, as well as to ensure that the emission control system was operating effectively. Monthly vapor sampling (of the in-line sample ports) has been conducted to ensure that the system is adequately remediating VOC-impacted soils. Routine maintenance has been conducted on a monthly basis with quarterly reporting being issued to the NYSDEC and WCDOH.

During routine maintenance, the following activities are conducted:

- a. A visual inspection of the complete system (e.g., vent fan, piping, warning device, labeling on systems, etc.);
- b. Identification and repair of leaks; and
- c. Inspection of the exhaust or discharge point to verify no air intakes have been located nearby.

As necessary, preventive maintenance (e.g., replacing vent fans), repairs and/or adjustments are made to the system to ensure its continued effectiveness at mitigating exposures related to soil vapor intrusion. The need for preventive maintenance depends upon the life expectancy and warranty for the specific part, as well as visual observations over time. The need for repairs and/or adjustments depends upon the results of a specific activity compared to that obtained when system operations were initiated. If significant changes are made to the system or when the system's performance is unacceptable, the system may need to be redesigned and restarted.

Operation and maintenance of the SVE has also been performed by BEI, which consists of observation and documentation of system component operations and conditions. BEI has established a point of contact with the property manager in the event that the system becomes inoperable ("system fault condition"). If a major repair requires the system to be offline for longer than a 24-hour period, the representative of the owner will contact the NYSDEC to discuss the problem and offer a schedule for repair.

5.3.3 Non-Routine Operation and Maintenance

In addition to the routine OM&M activities described herein, the building's owner and tenants have been given information packages that explain the systems operation, maintenance and monitoring. Therefore, at any time during the systems operation, the building's owner or tenants may check that the system is operating properly.

5.3.4 System Monitoring Devices and Alarms

The SVE/SSD system is equipped with one (1) shutdown warning device, which is a system shutdown warning light. If the light is observed to be "off", then this is an indication the system is not currently in operation. In the event that warning device is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan, and the SVE/SSD system will be restarted. Operational problems will be noted in the Periodic Review Report to be prepared for that reporting period. If the light is observed to be off BEI will be notified by the tenant/owner/employee etc. The DOH and DEC will be notified within 48-hours of known system malfunction.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

Potential vulnerabilities to the sites remediation system include:

- damage to the EC blower due to storm activity and/or high wind
- damage to the exhaust stack due to storm activity and/or high wind

In the event the exhaust stack is found collapsed, BEI should be immediately notified of this issue. BEI will then assess the issue with the collapse, determine the cause and repair the stack with added reinforcement. This will involve inspecting the old stack for damage, resetting the stack or a new length of pipe in position and assuring that the proper reinforcement is applied to the stack. Reinforcements may include but not be limited to: added guide wires to add stabilization and durability to the stack positioning. Photo documentation of this vulnerable area is depicted in Appendix-M.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the ISMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

Waste generation at the site includes: spent carbon from SVE/SSDS, and purge water from semi-annual monitoring and sampling of the well network. Energy usage pertaining to the operation of the site EC (5.0 Hp EN 6 ROTRON) and fuel usage associated with transportation to and from the site have been evaluated in order to maintain the sustainability of the clean-up while keeping energy and fuel consumption to a minimum. In an effort to reduce electric consumption during system operation, a three (3) phase regenerative blower was installed, which compared to a single-phase motor, consumes approximately 45% less electricity (i.e. single-phase max-23 amps vs three (3) phase max-15.8 amps). As contaminant mass removal decreases, the option of moving to a smaller regenerative blower (2-3 Hp motor), which would in turn draw much less power, therefore reducing energy consumption. Fuel costs associated with transportation to and from the site for routine inspections (SVE/SSDS OM&M) and (monitoring well sampling activities) have been reduced due to a NYSDEC approved monitoring frequency reduction from monthly OM&M to quarterly OM&M and quarterly to semiannual (twice a year) monitoring/sampling. These frequency reductions can account for an average fuel cost and decrease in consumption of approximately 65%.

6.2.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System

Optimization (RSO), or at any time that the Project Manager feels appropriate, e.g. during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

6.2.2. Remedial Systems

Remedial systems will be operated properly considering the current site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables. Spent materials will be sent for recycling, as appropriate.

6.2.3 Building Operations

Structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

6.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to conduct system checks and or collect samples and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.2.5 Metrics and Reporting

As discussed in Section 7.0 and as shown in Appendix H – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits; a set of metrics has been developed.

6.3 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and

information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study focuses on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix H. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of the table below and summarized in the Periodic Review Report.

Task/Report	Reporting Frequency*
Inspection Report	Annually with PRR
Periodic Review Report (PRR)	Annually, or as otherwise determined by the Department

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC.

All interim monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);

- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- Figure 7 illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and

- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQulS™ database in accordance with the requirements found at this link
<http://www.dec.ny.gov/chemical/62440.html>.

7.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (16) months after the Certificate of Completion is issued. After submittal of the initial Periodic Review Report, the next PRR shall be submitted annually to the Department. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix B -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.
- Results of the required annual site inspections and severe condition inspections, if applicable.
- All applicable site management forms and other records generated for the site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances

highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: <http://www.dec.ny.gov/chemical/62440.html>.
- A site evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the site-specific Decision Document (DD);
 - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
 - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
 - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan; and
 - Trends in contaminant levels in the affected media will be evaluated to determine if the remedy continues to be effective in achieving remedial goals as specified by the Decision Document.
 - The overall performance and effectiveness of the remedy.
- A performance summary for all treatment systems at the site during the calendar year, including information such as:
 - The number of days the system operated for the reporting period;
 - The average, high, and low flows per day;
 - The contaminant mass removed;
 - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
 - A description of the resolution of performance problems;
 - Alarm conditions;

- Trends in equipment failure;
- A summary of the performance, effluent and/or effectiveness monitoring;
and
- Comments, conclusions, and recommendations based on data evaluation.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a Professional Engineer (P.E.) licensed to practice in New York State will prepare, and include in the Periodic Review Report, the following certification as per the requirements of NYSDEC DER-10:

“For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- *The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;*
- *Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;*
- *Use of the site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*

- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*
- *No new information has come to my attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and*
- *The assumptions made in the qualitative exposure assessment remain valid.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Nicholas A. Andrianas, P.E. 1 Sound Breeze Drive Miller Place, New York 11764, am certifying as Owner's/Remedial Party's Designated Site Representative.

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Work Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC.

7.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the Department for approval. A general outline for the RSO report is provided in Appendix N. The RSO report will document the research/ investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the ISMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

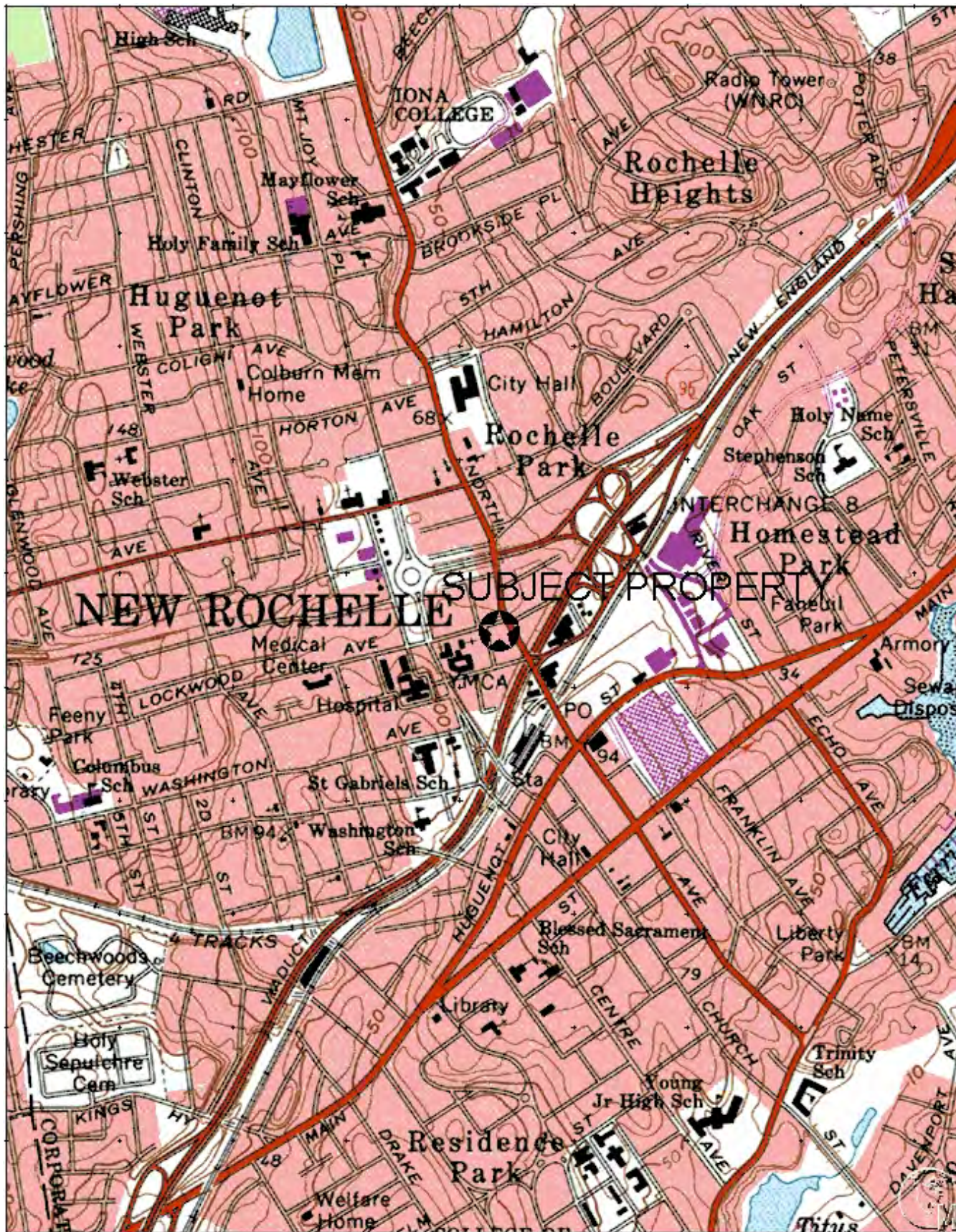
8.0 REFERENCES

6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

FIGURES



Copyright © 1997, Maptech, Inc.

Remedial Investigation Report November 2007

Figure 1- Site Location

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

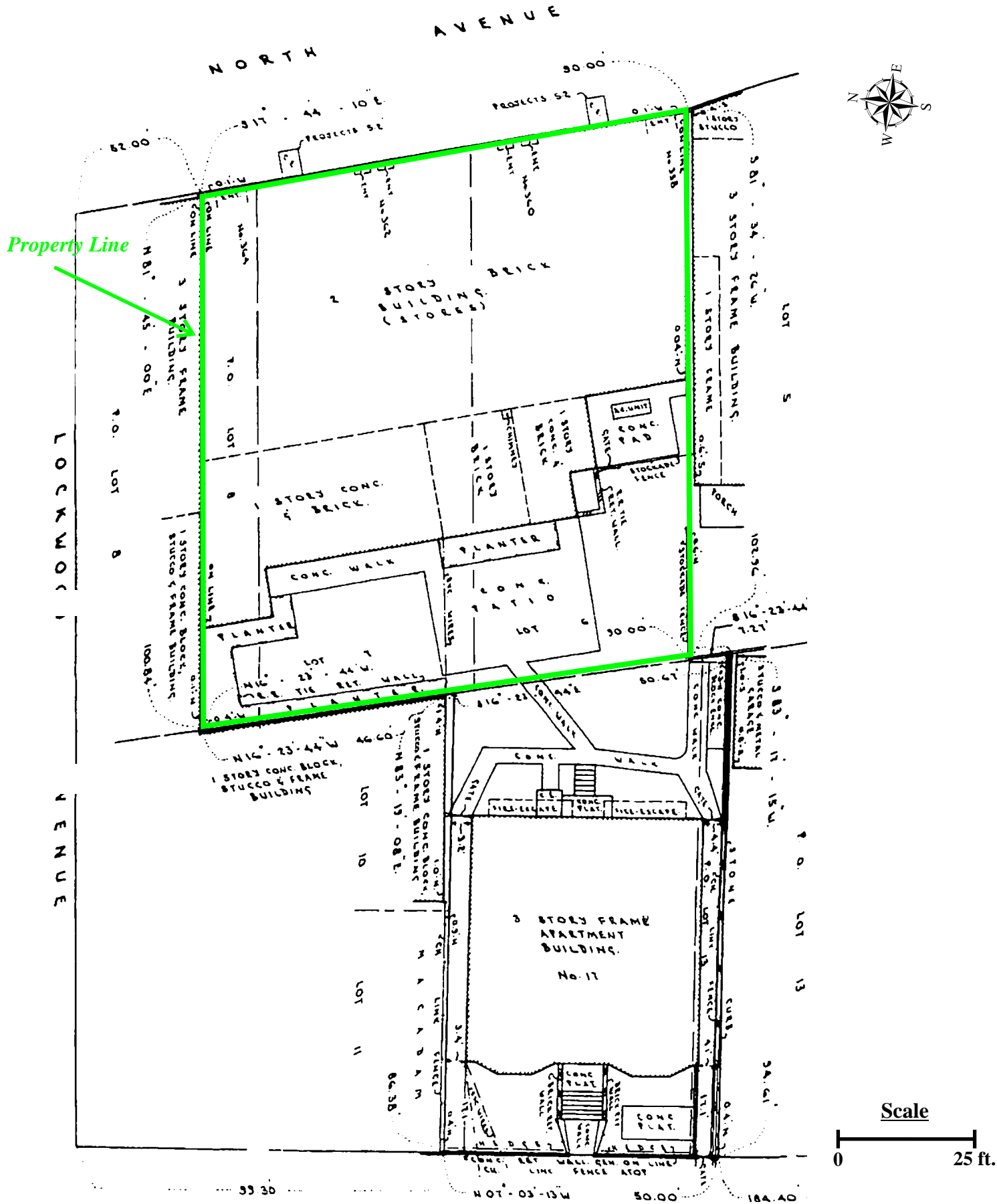


BERNINGER
ENVIRONMENTAL INC.

groundwater consultants and geologists

90 B Knickerbocker Avenue
 Bohemia, New York 11716

Phone # (631) 589-6521
 Fax # (631) 589-6528



Remedial Investigation Report November 2007

Figure 2 - Site Survey

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306



BERNINGER ENVIRONMENTAL, INC.
groundwater consultants and geologists
 90 B Knickerbocker Avenue
 Bohemia, New York 11716
 Phone # (631) 589-6521
 Fax # (631) 589-6528

Scale:

0 25 ft.

NORTH

NORTH AVENUE



	GW-1
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	ND
Hexachlor	ND
PCE	ND
trans-1,2-DCE	1
TCE	ND
VC	ND

	GW-3
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	16
Hexachlor	ND
PCE	ND
trans-1,2-DCE	ND
TCE	26,000
VC	ND

	GW-2
1,1,2,2-PCA	2
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	1
1,2-Dichl	1
Chlor	ND
cis-1,2-DCE	2,100
Hexachlor	ND
PCE	4,500
trans-1,2-DCE	56
TCE	11,000
VC	ND

	GW-11
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	ND
Hexachlor	ND
PCE	34
trans-1,2-DCE	ND
TCE	2
VC	ND

	GW-6
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	18
1,2-Dichl	1
Chlor	ND
cis-1,2-DCE	8,700
Hexachlor	ND
PCE	310
trans-1,2-DCE	44
TCE	170
VC	2

	GW-4
1,1,2,2-PCA	700
1,1,2-TCE	170
1,1-DCA	7
1,1-DCE	27
1,2-Dichl	58
Chlor	ND
cis-1,2-DCE	1,000
Hexachlor	2
PCE	830,000
trans-1,2-DCE	14
TCE	58,000
VC	28

	GW-5
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	3
Hexachlor	ND
PCE	150
trans-1,2-DCE	ND
TCE	29
VC	ND

	GW-7
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	11
cis-1,2-DCE	44
Hexachlor	ND
PCE	25
trans-1,2-DCE	ND
TCE	ND
VC	3

	GW-8
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	2
cis-1,2-DCE	2
Hexachlor	ND
PCE	31
trans-1,2-DCE	ND
TCE	4
VC	ND

	GW-9
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	2
Chlor	ND
cis-1,2-DCE	690
Hexachlor	ND
PCE	25,000
trans-1,2-DCE	3
TCE	250
VC	ND

	GW-10
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	ND
Hexachlor	ND
PCE	140
trans-1,2-DCE	ND
TCE	3
VC	ND

1,1,2,2-PCA - 1,1,2,2-Tetrachloroethane; 1,1,2-TCE - 1,1,2-Trichloroethene; 1,1-DCA - 1,1-Dichloroethane; 1,1-DCE - 1,1-Dichloroethene; 1,2-Dichl - 1,2-Dichlorobenzene; Chlor - Chloroethene; cis-1,2-DCE - cis-1,2-Dichloroethene; Hexachlor - Hexachlorobutadiene; PCE - Tetrachloroethene; TCE - Trichloroethene; VC - Vinyl chloride

Bolded and highlighted concentrations are indicative of VOC detected at concentration exceeding applicable NYSDEC Class GA Groundwater Standards and/or Guidance Values

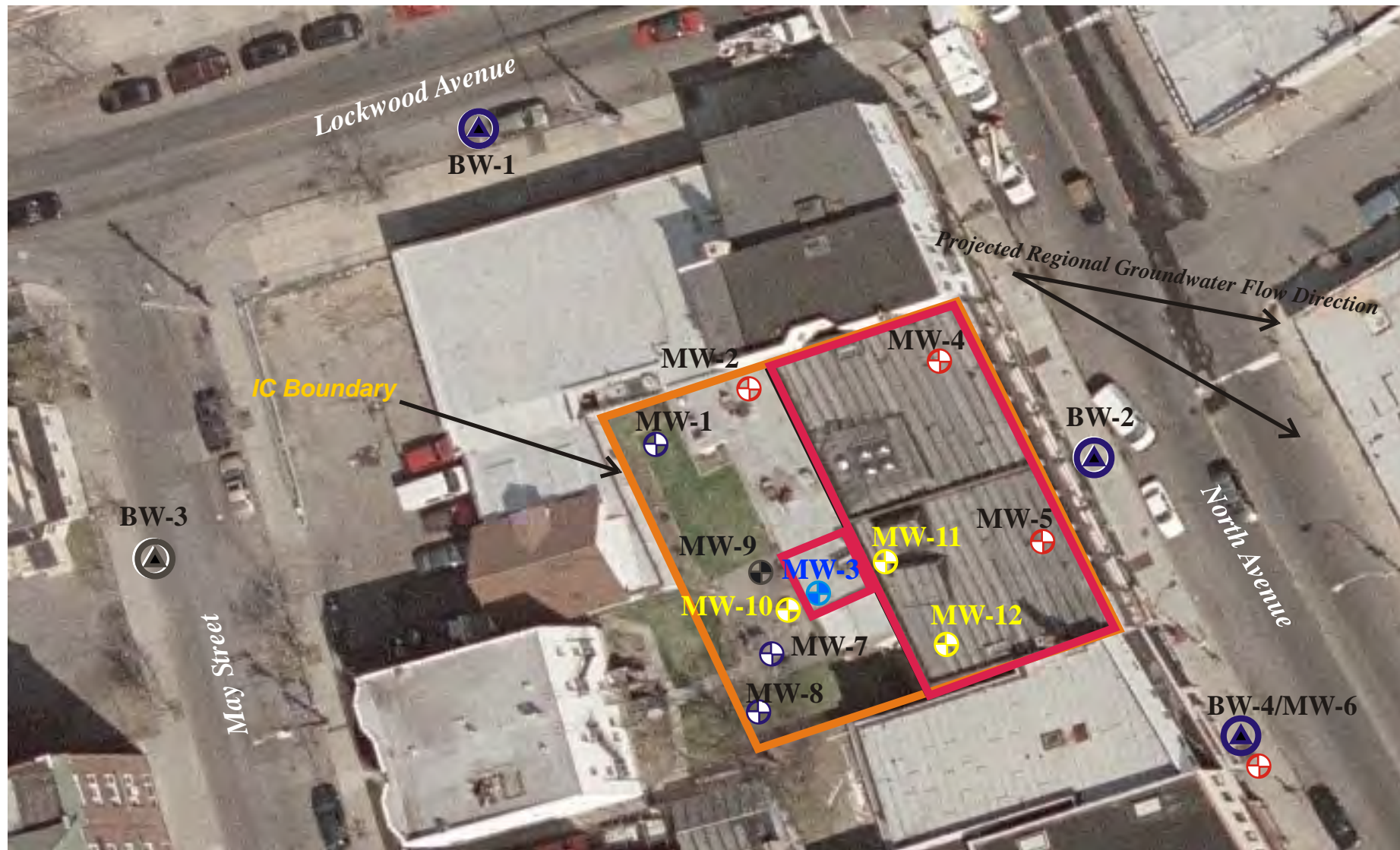
--- Basement Portion of the Building ○ - Soil Only Sampling Location ● - Soil and groundwater sampling locations + - Groundwater Only Sample Location

Figure 3 - Halogenated VOCs detected in Groundwater Samples in micrograms per liter (ug/L)

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg P.E.
P.O. Box 263
Stony Brook, NY

Remedial Investigation Report November 2007



⊕ -Application Well Location MW-3

⊕ -New Pilot Study Monitoring Well Locations

⊕ -Viable Existing Monitoring Well

⊕ -Non-Viable Existing Monitoring Well

⊕ -Bedrock Monitoring Well/LNAPL Locations

⊕ -Study Area ⊕ -Gone/Covered

⊕ -SVE/SSDS Coverage Area

**Institutional Control
Boundaries
Figure-4**

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg P.E
P.O Box 263
Stony Brook, NY



**Site Cover
Demarcation Boundaries
Figure-5**

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

**John V. Soderberg P.E.
P.O. Box 263
Stony Brook, NY**



● - Surface soil (0-12") sample locations

**Site Cover
Exposed Sampling Area
Locations
Figure-6**

Drawn: JGH

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

**John V. Soderberg P.E
P.O Box 263
Stony Brook, NY**



● -Application Well Location MW-3

⊕ -New Pilot Study Monitoring Well Locations

⊕ -Viable Existing Monitoring Well

⊕ -Non-Viable Existing Monitoring Well

⊕ -Bedrock Monitoring Well

□ -Study Area

Monitoring Well Locations Figure-7

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
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⊕ -Application Well Location MW-3

⊕ -New Pilot Study Monitoring Well Locations

⊕ -Viable Existing Monitoring Well

⊕ -Non-Viable Existing Monitoring Well

⊕ -Bedrock Monitoring Well

□ -StudyArea ⊕ -Gone/Covered

Monitoring Well Locations Figure-7

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg P.E
P.O Box 263
Stony Brook, NY



● - Surface soil (0-24") sample locations

1"=37'



**Site Cover
Exposed Sampling Area
Locations
Figure-8**

Drawn: JGH

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

**John V. Soderberg P.E.
P.O Box 263
Stony Brook, NY**



NORTH AVENUE

MW-6/BW-4

BW-2

GW-1

GW-5

GW-6

MW-11

MW-12

GW-2

GW-3

GW-4

GW-7

MW-1

MW-9

GW-9

MW-10

GW-8

GW-10

GW-11

MW-7

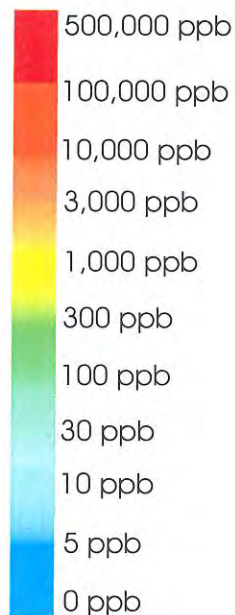
MW-8

BW-1

GRASS AREA

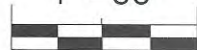
17 May Street

Private Parking



MAY STREET

1"=38'



BW-3



Notes:

Model includes total Halogenated VOCs in groundwater including:
1,1,2,2-Tetrachloroethane; 1,1,2-Trichloroethane; 1,1-Dichloroethane;
1,1-Dichloroethene; 1,2-Dichlorobenzene; Chloroethene;
cis-1,2-Dichloroethene; Hexachlorobutadiene; Tetrachloroethene;
Trichloroethene and Vinyl chloride

*Data derived from 2007 Remedial Investigation

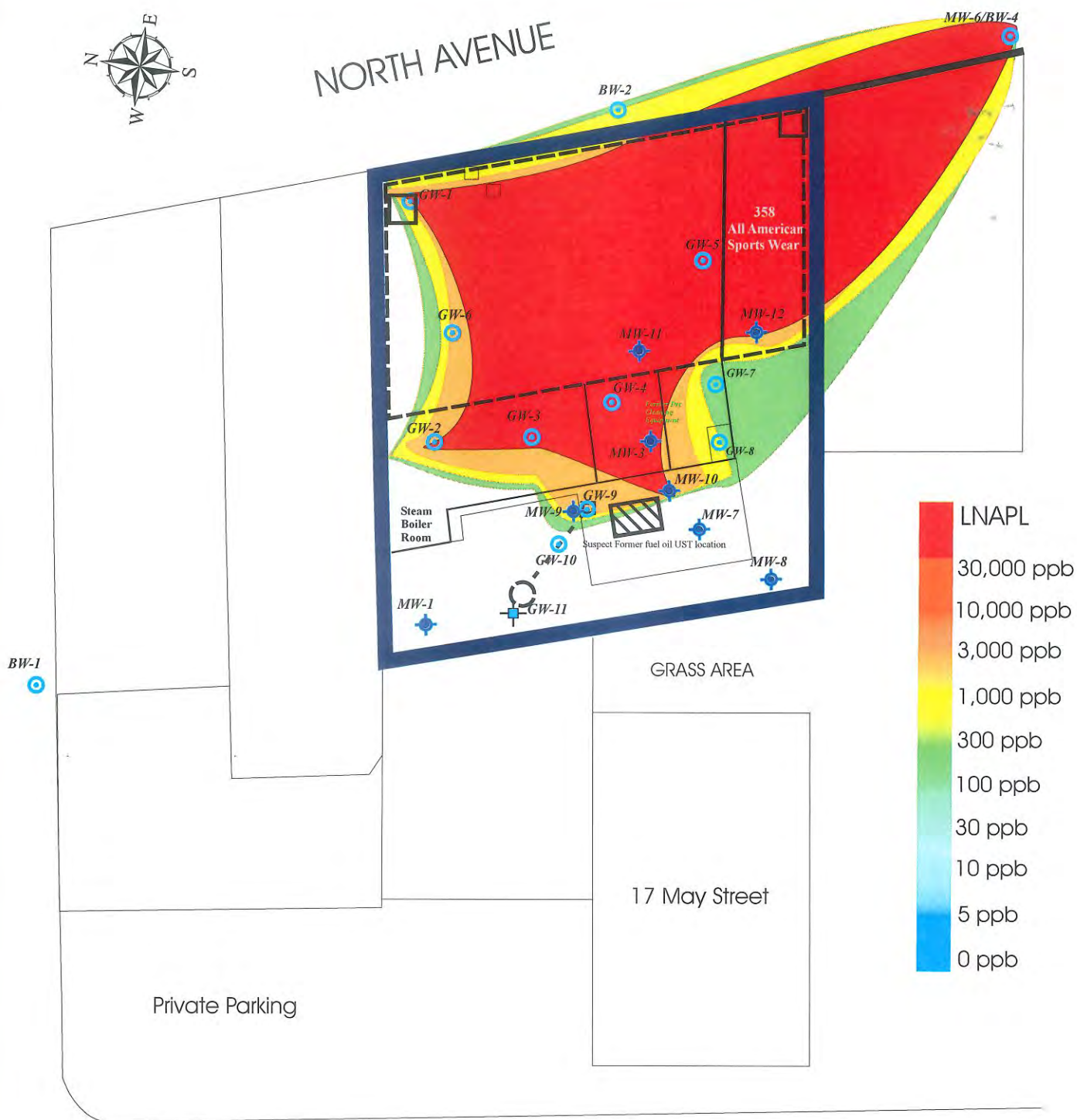
**Total Halogenated VOCs
in Groundwater
FIGURE-9**

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

**John V. Soderberg P.E
PO BOX 263
Stony Brook, NY**



NORTH AVENUE



*Data derived from 2007 Remedial Investigation

MAY STREET

1"=38'



BW-3

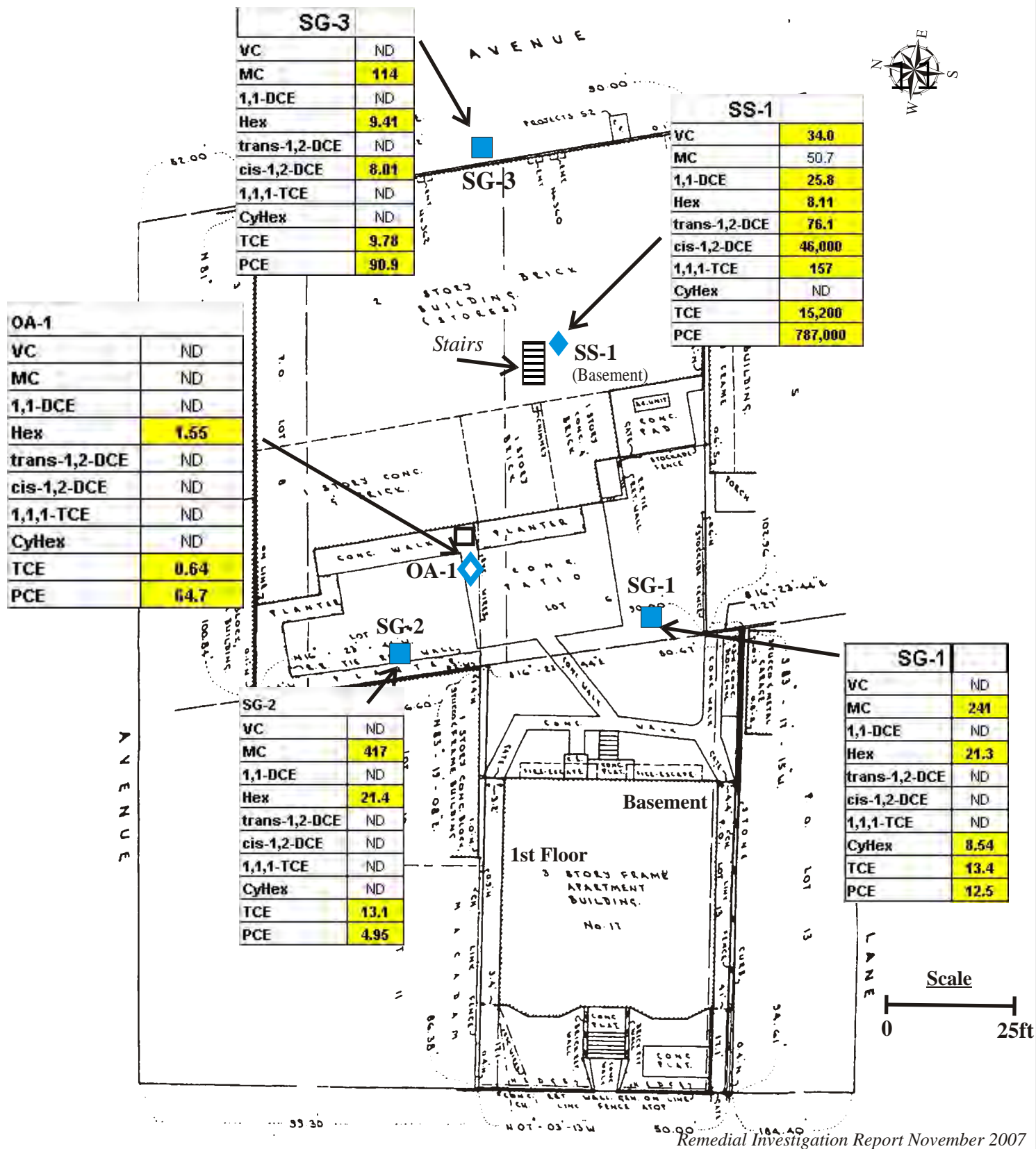
Notes:

LNAPL/Floating Product/Sheen was discovered in GW-2, GW-3, GW-4, GW-5, GW-9, MW-3, MW-10, MW-11, MW-12. Concentrations detected in all other samples include Total Petroleum Hydrocarbons (VOCs and SVOCs)

**Total Petroleum Related
(VOCs and SVOCs)
in Groundwater
FIGURE-10**

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

**John V. Soderberg P.E
PO BOX 263
Stony Brook, NY**



VC - Vinyl Chloride; MC - Methylene Chloride; 1,1-DCE - 1,2-Dichloroethene; Hex - Hexane; trans-1,2-DCE - trans 1,2-Dichloroethene; cis-1,2-DCE - cis-1,2-Dichloroethene; 1,1,1-TCE - 1,1,1-Trichloroethene; CyHex - Cyclohexane; TCE - Trichloroethene; PCE - Tetrachloroethene

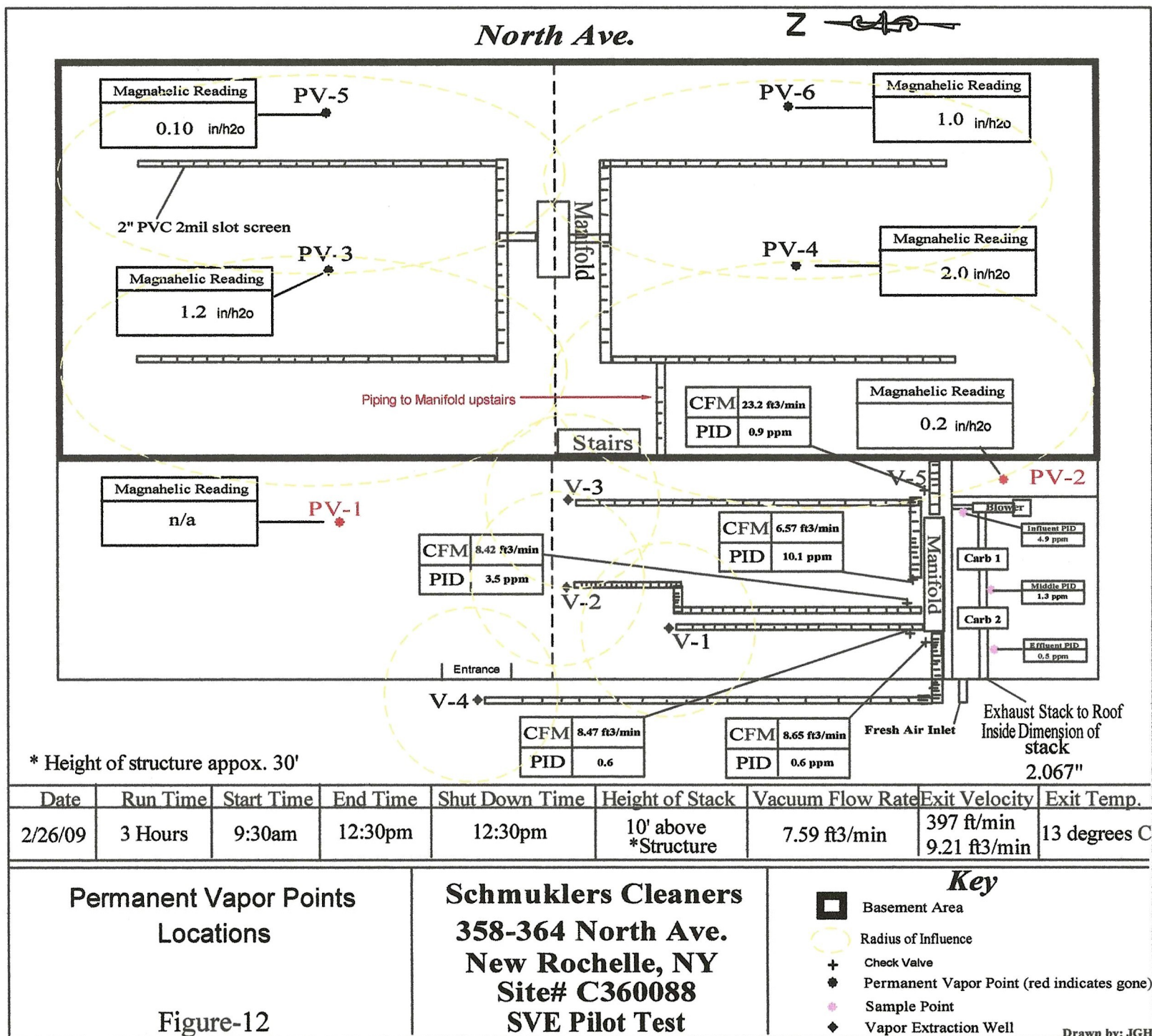
Concentrations are in micrograms per cubic meter. Highlighted and bolded values exceed applicable background concentration ranges and/or Air Guidance Values

◆ - Indoor/Outdoor Air Sampling Location ◆ - Subslab Soil Gas Sampling Location ■ - Soil Gas Sampling Location

Figure 31- Halogenated VOCs Detected in Soil Gas/Subslab Vapor and Ambient Air Sampling Locations, in micro grams per cubic meter (ug/m3)

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
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John V. Soderberg P.E.
PO BOX 263
Stony Brook, NY



APPENDICES

Appendix-A

Excavation Work Plan

APPENDIX-A- EXCAVATION WORK PLAN (EWP)

1- NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the NYSDEC. The table below includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in the SMP..

Table [1]: Notifications*

[Central Office NYSDEC Representative]	[phone] [email address]
Kiera Thompson DER, P.M.	518-402-9662; <kiera.thompson@dec.ny.gov>
Daniel Bendell, P.E	R3admin@dec.ny.gov
Kelly Lewandowski	Kell.lewandowski@dec.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix-C of this SMP;

- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2- SOIL SCREENING METHODS

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in this Appendix.

3- SOIL STAGING METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

4- MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

5- MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes will be provided as needed. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site. Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

6- MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the preexcavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

7- MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

8- FLUIDS MANAGEMENT

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

9- COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Decision Document (DD). The existing cover system is comprised of a minimum of 12 inches of clean soil, asphalt pavement, concrete covered sidewalks and concrete building, etc. The demarcation layer will be replaced to provide a visual reference to the top of the remaining contamination zone, the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the remaining contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in an updated SMP.

10- BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at <http://www.dec.ny.gov/regulations/67386.html>, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed as Attachment-A to this EWP. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

11- STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

12- EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager.

Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

13- COMMUNITY AIR MONITORING PLAN

Please refer to Appendix-D of the SMP.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

14- ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors offsite and on-site, if there are residents or tenants on the property. Specific odor control methods to be used on a routine basis will include If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils.. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

15- DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

16- OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

Appendix-B

Environmental Easement

**ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW**

THIS INDENTURE made this _____ day of _____, 20__, between Owner(s) HNJ Realty, LLC, having an office at 358 North Avenue, New Rochelle, New York 10801, County of Westchester, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 358-364 North Avenue in the City of New Rochelle, County of Westchester and State of New York, known and designated on the tax map of the County Clerk of Westchester as tax map parcel numbers: Section 4 Block 1206 Lot 19, being the same as that property conveyed to Grantor by deed dated August 23, 2005 and recorded in the Westchester County Clerk's Office in Instrument No. 452720334. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.208 +/- acres, and is hereinafter more fully described in the Land Title Survey dated May 11, 2017 prepared by William J. Simons, L.S. of Aristotle Bournazos, P.C., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is

extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: A3-0542-0306, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

**Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii),
Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial
as described in 6 NYCRR Part 375-1.8(g)(2)(iv)**

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Westchester County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining

contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation

Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:
(i) are in-place;
(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against

the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: C360088
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the

recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

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IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

HNJ Realty LLC:

By: [Signature]

Print Name: Hal Shapro

Title: President Date: 7/27/17

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF NEW YORK)

On the 27th day of July, in the year 20 17, before me, the undersigned, personally appeared HAL SHAPRO, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

[Signature]
Notary Public - State of New York



THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By:

Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the _____ day of _____, in the year 20__, before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public - State of New York

SCHEDULE "A" PROPERTY DESCRIPTION

All that certain lot, piece or parcel of land, situate, lying and being in the City of New Rochelle, Westchester County, State of New York, known and designated as Lots 6, 7 and a portion of Lot 8 on a certain map filed in the Office of Register of Westchester County and entitled "Survey of Building Lots Owned by Henry B. Downey" filed 08/15/1891 as Map in Volume 9 Page 41 being more particularly bounded and described as follows:

Beginning at a point on the westerly side of North Avenue. Said point of beginning being measure 52 feet southeast along the westerly side of North Avenue from the corner formed by the intersection of the west side of North Avenue and the south side of Lockwood Avenue;

Thence along the westerly side of North Avenue South 17 degrees 44' 10" East 90.00' feet to the division line between Lot 6 and Lot 5 on said map;

Thence along said division line South 81 degrees 34'26" West 102.96 feet (102.92 feet sur.) to the division line between Lot 6 and Lot 12 on said map;

Thence along said division line and continuing along the division line between Lots 7 and 8 with Lot 10 North 16 degrees 23'44" west 90.00 feet to a point;

Thence through Lot 8 North 81 degrees 45'00" East 100.84' to the point or place of beginning.

Contains 9,062 sq. ft or 0.208 acres.

Said property being known as 358-364 North Avenue, New Rochelle, New York

Appendix-C

Health and Safety Plan

**HEALTH AND SAFETY PLAN
(HASP)**

Prepared for
HNJ Realty LLC.
Schmukler's Cleaners
358-364 North Avenue
New Rochelle, New York 10801

Prepared by
John V. Soderberg, P.E.
PO Box 263
Stony Brook, New York 11790

August 2017

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Figure 2 Site Plan

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STATEMENT OF COMMITMENT

This Health and Safety Plan (HASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during the planned Soil Vapor Intrusion Work Plan (SVIWP) at the Schmukler's Cleaners site located at 358 - 364 North Avenue, New Rochelle, New York.

This HASP, which applies to persons present at the site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This HASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees.

1.0 Introduction and Site Entry Requirements

This document describes the health and safety guidelines developed by John V. Soderberg, P.E. for the Site Management Plan (SMP) at the Schmukler's Cleaners site located at 358 - 364 North Avenue, New Rochelle, New York in order to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during subsurface investigation activities. In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule, this HASP, including the attachments, addresses safety and health hazards related to subsurface sample collection activities and is based on the best information available. The HASP may be revised by John V. Soderberg, P.E. at the request of the Schmukler's Cleaners and/or a regulatory agency upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by John V. Soderberg, P.E.'s, the project manager, and/or the site safety officer.

1.1 Training Requirements

Personnel entering the exclusion zone or decontamination zone are required to be certified in health and safety practices for hazardous waste site operations as specified in the Federal OSHA Regulations CFR 1910.120e (revised 3/6/90).

Paragraph (e - 3) of the above referenced regulations requires that all on-site management personnel directly responsible for or who supervise employees engaged in hazardous waste operations, must initially receive 8 hours of supervisor training related to managing hazardous waste work.

Paragraph (e - 8) of the above referenced regulations requires that workers and supervisors receive 8 hours of refresher training annually on the items specified in Paragraph (e-1) and/or (e-3).

Additionally all on-site personnel must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and/or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.
- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

Health and Safety meetings will be conducted on a daily basis and will cover protective clothing and other equipment to be used that day, potential and chemical and physical hazards, emergency procedures, and conditions and activities from the previous day.

1.2 Medical Monitoring Requirements

Field personnel and visitors entering the exclusion zone or decontamination zone must have completed appropriate medical monitoring required under OSHA 29 CFR 1910.120(f). Medical monitoring enables a physician to monitor each employee's health, physical condition, and his fitness to wear respiratory protective equipment and carry out on-site tasks.

1.3 Site Safety Plan Acceptance, Acknowledgments and Amendments

The project superintendent and the site safety officer are responsible for informing personnel (John V. Soderberg, P.E.) employees and/or owner or owner's representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgment Form is included in **Appendix - A**.

Site conditions may warrant an amendment to the HASP. Amendments to the HASP are acknowledged by completing forms included in **Appendix - B**.

1.4 Key Personnel, Roles and Responsibilities

Personnel responsible for implementing this Health and Safety Plan are:

Name	Title	Address	Contact No.
Mr. John V. Soderberg	Professional Engineer	PO Box 263 Stony Brook, NY	631-751-6458
Mr. Walter Berninger	Project Manager	17 Old Dock Road Yaphank, NY	631-589-6521 (office) 631-774-6682 (cell)
Mr. Justin Halpin	Site Safety Officer/ Supervisor	17 Old Dock Road Yaphank, NY	631-589-6521
Mr. Joel Meyers	Geo-Technician	17 Old Dock Road Yaphank, NY	631-589-6521
Mr. Matt Odietus	Geo-Technician	17 Old Dock Road Yaphank, NY	631-589-6521
Ms. Alicia Patti	Geologist/QAO	17 Old Dock Road Yaphank, NY	631-589-6521

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this HASP. The site safety officer will conduct daily (tail gate or tool box) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is also responsible for coordinating health and safety activities related to hazardous material exposure on-site. The site safety officer is responsible for the following:

1. Educating personnel about information in this HASP and other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.
2. Coordinating site safety decisions with the project manager.
3. Designating exclusion, decontamination and support zones on a daily basis.
4. Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this HASP.
5. Maintaining the work zone entry/exit log and site entry/exit log.
6. Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

2.0 Site Background and Scope of Work

The site name is Schmukler's Dry Cleaners and is located at 358- 364 North Avenue, New Rochelle, New York. The property is owned by HNJ Realty, LLC. The Brownfield Cleanup Agreement Site Number is C360088 and the Index Number is A3-0542-0306. The site is approximately 9,148 square feet in area and is currently developed with a two story commercial building consisting of dry-cleaning operations on the first floor and in the basement. According to the review of the USGS Topographic Map, Mount Vernon Quadrangle (Figure-1), the subject property is situated at an elevation of approximately 80 feet above mean sea level (msl). Currently, the first floor of the site is being rented by United Community Center. The southern portion of the building is currently being

rented by Comfort Homes. The second floor of the building provides professional space including a spa, a music studio, a tax cab company, the HNJ Realty office, and a financial company.

2.1 Site History

According to review of the City of New Rochelle records, as well as a review of historical Sanborn Fire Insurance Maps, the Site was developed as early as 1891 with two residential-use buildings. The property was subsequently redeveloped with a multi-tenant two-story commercial building. The site has operated as a dry-cleaning facility since at least 1914. This business has historically operated on the first floor and basement of the building. An addition was made to the western portion of the building circa 1937. An addition was also made to the southwestern portion of the building sometime prior to 1987. A final addition was made to the northwestern portion of the building (which includes the steam boiler) in 1987.

2.2 Scope of Soil Vapor Investigation

The soil vapor investigation will entail collecting soil gas samples around the property perimeter along with indoor air sampling, sub-slab sampling and outdoor ambient air sampling, all collected at the subject site.

3.0 Site Hazard Evaluation

This section identifies the hazards associated with the proposed scope of work, general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against using engineering controls and/or personal protective equipment.

This HASP has been developed for work performed at the site in association with a subsurface investigation. The primary hazards to the field crew will be physical hazards related to sample collection procedures and equipment, and chemical exposures to the sampling crew from exposure to potential contaminants, which may be present at the site.

3.1 Physical Hazards

3.1.1 *Tripping Hazards*

An area of risk associated with on-site activities are presented by uneven ground, concrete, curbstones or equipment which may be present at the site thereby creating a potential tripping hazard. During intrusive work, care should be taken to mark or remove any obstacles within the exclusion zone.

3.1.2 *Cuts and Lacerations*

Field activities that involve boring equipment may result in cuts or lacerations from machinery and tools used in collecting samples, cutting disposable tubing and opening acetate sleeves and liners. A first aid kit approved by the American Red Cross will be available during all subsurface investigative activities.

3.1.3 *Lifting Hazards*

Improper lifting by workers is one of the leading causes of industrial injuries. Field workers may be required to lift heavy objects such as boring tools, buckets of decontamination water, cement, etc. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.4 *Utility Hazards*

Before conducting any subsurface boring or sampling, the contractor will be responsible for locating and verifying all existing utilities at each boring location.

3.1.5 *Traffic Hazards*

All traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state and federal agency regulations regarding such traffic and in accordance with NYCDOT guidelines. The contractor shall carry on his operations without undue interference or delays to traffic. The contractor shall furnish all labor, materials, guards, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public, during operations.

3.2 **Work in Extreme Temperatures**

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress.

3.2.1 *Heat Stress*

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress.

The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention

- a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.

- b. Work in Pairs. Individuals should avoid undertaking any activity alone.
- c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
- d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment

a. Heat Rash (or prickly heat):

Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.

Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.

Treatment: Remove source of irritation and cool skin with water or wet cloths.

b. Heat Cramps (or heat prostration)

Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.

Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.

Treatment: Perform the following while making arrangement for transport to a medical facility. Remove the worker to a contamination reduction zone. Remove protective clothing. Lie worker down on back in a cool place and raise feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport to a medical facility.

c. Heat Stroke

Cause: Same as heat exhaustion. This is also an extremely serious condition.

Symptoms: Dry and hot skin, dry mouth, dizziness, nausea, headache and rapid pulse.

Treatment: Cool worker immediately by immersing or spraying with coolwater or sponge bare skin after removing protective clothing. Transport to hospital.

3.2.2 *Cold Exposure*

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive loss of body heat (hypothermia) and/or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of frost bite and hypothermia such as shivering, reduced blood pressure, reduced coordination, drowsiness, impaired judgment, fatigue, pupils dilated but reactive to light and numbing of the toes and fingers.

3.3 Chemical Hazards

Previously performed investigations near the site identified chlorinated volatile organic compounds in soil gas which may be encountered during the investigation. The primary routes of exposure to these contaminants are inhalation, ingestion and absorption. **Appendix - C** includes information sheets for suspected chemicals that may be encountered at the site.

3.3.1 *Respirable Dust and Direct Contact with Soil and Groundwater*

Dust may be generated from boring activities. If visible observation detects elevated levels of dust, a program of wetting will be employed by the site safety officer. If elevated dust levels persist, the site safety office will employ dust monitoring using a particulate monitor (MiniRae or equivalent). If monitoring detects concentrations greater than 150 $\mu\text{g}/\text{m}^3$ over daily background, the site safety officer will take corrective actions as defined herein, including the use of water for dust suppression and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

Absorption pathways for dust and direct contact with soil and groundwater will be mitigated with the implementation of latex gloves, hand washing and decontamination exercises when necessary.

3.3.2 *Organic Vapors*

Considering the past and present use of the properties, VOCs may be encountered at the site in soil and/or groundwater. Therefore, boring activities may cause the release of organic vapors to the atmosphere. The site safety officer will periodically monitor organic vapors with a Photoionization Detector (PID) during boring activities to determine whether organic vapor concentrations exceed action levels shown below.

PID Response	Action
Sustained readings of 5 ppm or greater	Shut down equipment and allow area to vent. Resume when readings return to background levels.
Sustained readings of 5 ppm or greater that do not subside after venting	Implement Vapor Release Plan (Section 6.8). Re-evaluate respiratory protection as upgrade may be required.

4.0 Personal Protective Equipment (PPE)

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120©, (g), and 1910.132. Protective equipment shall be NIOSH approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection.

It is anticipated that work will be performed in Level D PPE.

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work uniform, coveralls, or tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

Level C PPE shall be donned when the concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), but are less than 5 ppm. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls;
- steel-toe and steel-shank work boots;
- chemical resistant over boots or disposable boot covers;
- disposable inner gloves (surgical gloves);
- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 4.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection engineering controls (i.e. Facing equipment away from the wind and placing site personnel upwind of excavations, active venting, etc.) will be implemented before requiring the use of respiratory protection.

5.0 Site Control

5.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the site safety officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The site safety officer will outline these locations before work begins and when zones change. The site safety officer records this information in the site log book. **It is expected that for soil boring and sampling activities, identification of an exclusion zone, decontamination zone, and support zone will not be necessary.**

Tasks requiring OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training are carried out in the exclusion zone. The exclusion zone is defined by the site safety officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the site Health and Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is

decontaminated. All personnel and equipment exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

The support zone is used for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water are kept at a central location designated by the site safety officer.

6.0 Contingency Plan/Emergency Response Plan

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

6.1 Emergency Equipment On-site

Private telephones: Site personnel.

Two-way radios: Site personnel where necessary.

Emergency Alarms: On-site vehicle horns*.

First aid kits: On-site, in vehicles or office.

Fire extinguisher: On-site, in office or on equipment.

6.2 Emergency Telephone Numbers

General Emergencies: 911 or 311

New Rochelle Police (475 North Avenue, New Rochelle, NY 10801): 914-654-2300

NYU Langone Medical Associates - Bronxville Medical Center: 914-337-4986

NYSDEC Spills Hotline: 800-457-7362

NYSDEC Hazardous Waste Division: 718-482-4994

New Rochelle Fire Department Headquarters (90 Beaufort Pl) : 914-654-2212

National Response Center (for oil or chemical spill): 800-424-8802

Poison Control: 212-340-4494

Site Safety Officer: 631-589-6521

Project Manager: 631-589-6521 or cell 631-774-6682

6.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the

project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, evacuate and secure the site, or upgrade/downgrade the level of protective clothing and respiratory protection;
- Ensure that appropriate federal, state, and local agencies are informed and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;
- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;
- Determine the cause of incidents and make recommendations to prevent recurrence; and,
- Ensure that all required reports have been prepared.

The following key personnel are planned for this project:

- Project Manager: Mr. Walter Berninger 631-589-6521 (office)
- Site Safety Officer/Supervisor: Mr. Justin Halpin 631-589-6521 631-774-6682 (cell)
- Geologist Ms. Alicia Patti 631-589-6521
- Geo-Technician: Mr. Joel Meyers 631-589-6521
- Geo-Technician: Mr. Matt Odietis 631-589-6521

6.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix D**) must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (**Appendix D**) and information on the chemical(s) to which they may have been exposed (**Appendix C**).

6.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site.

If it is safe to do so, site personnel may:

- use fire fighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

6.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.
- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

6.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily

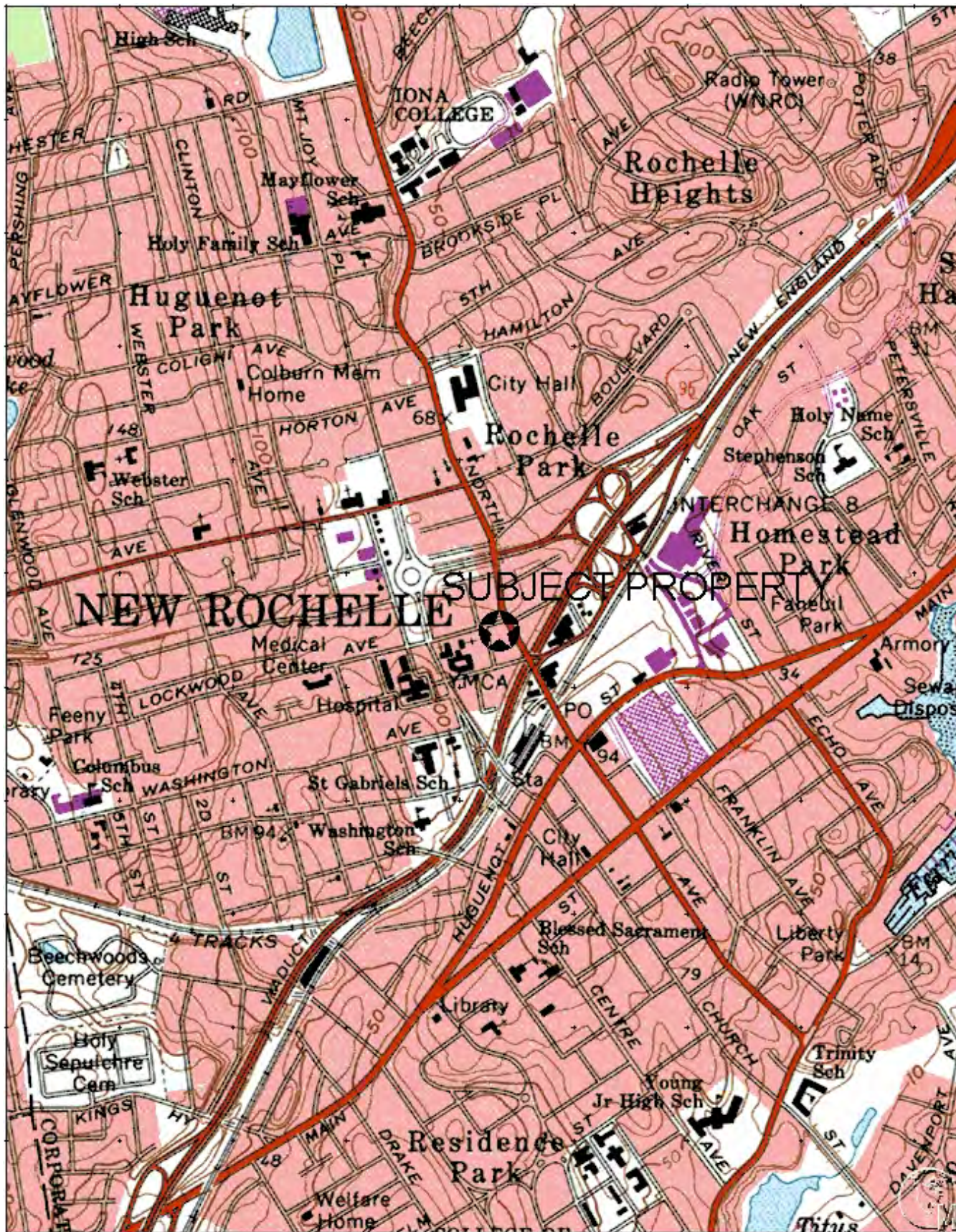
inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

6.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped. If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

- contact the local police;
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are below 5 ppm (non-methane), off-site air monitoring will be halted.
- All property line and off site air monitoring locations and results associated with vapor releases will be recorded in the site safety log book.

FIGURES



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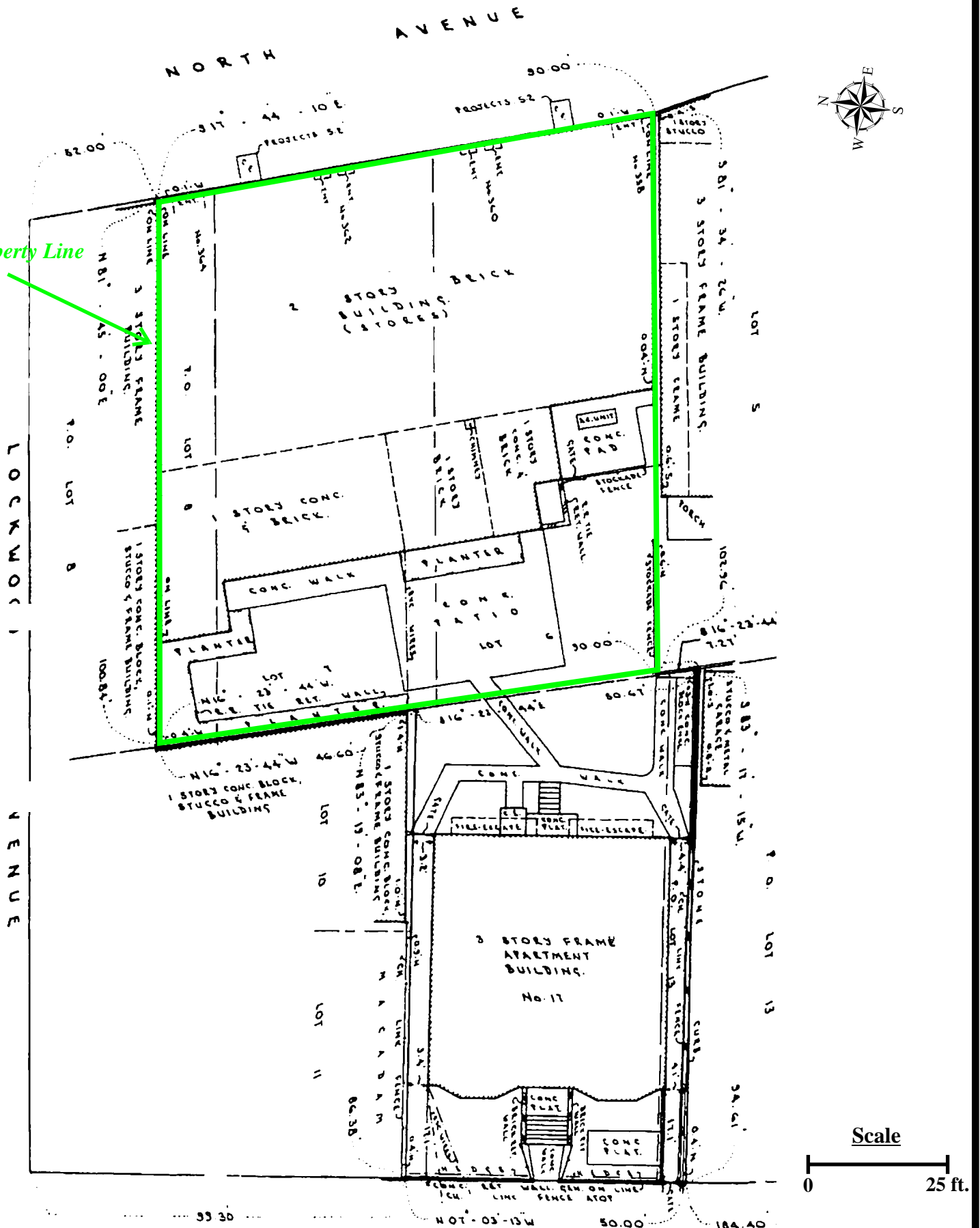
Figure 1- Site Location

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306



BERNINGER ENVIRONMENTAL INC.
groundwater consultants and geologists
 90 B Knickerbocker Avenue
 Bohemia, New York 11716
 Phone # (631) 589-6521
 Fax # (631) 589-6528

Property Line



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Figure 2 - Site Survey

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306



BERNINGER ENVIRONMENTAL, INC.
groundwater consultants and geologists
90 B Knickerbocker Avenue
Bohemia, New York 11716
Phone # (631) 589-6521
Fax # (631) 589-6528

APPENDIX A
SITE SAFETY ACKNOWLEDGEMENT FORM

Instructions: This form is to be completed by each person that works on the Cleaners' IHWDS Investigation Work Plan site and returned to the Site Safety and Health Officer.

I have read and agree to abide by the contents of the SITE-SPECIFIC HEALTH AND SAFETY PLAN for work activities at the site. I have completed the training requirements specified in the plan. I am currently participating in a medical surveillance program that satisfies the requirements of CFR 1910.120.

Signature:

Date:

Return to:
Site Safety and Health Officer or
Berninger Environmental
17 Old Dock Road Yaphank, NY

DAILY BRIEFING SIGN-IN SHEET

Date: _____ Person Conducting Briefing: _____

Project Name and Location: _____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc...):

2. OTHER ISSUES (HASP changes, attendee comments, etc...):

3. ATTENDEES (Print Name):

1.	11.
2.	12.
3.	13.
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9.	19.
10.	20.

APPENDIX B
SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #: _____

Site Name: _____

Reason for Amendment: _____

Alternative Procedures: _____

Required Changes in PPE: _____

Project Superintendent (signature)

Date

Health and Safety Consultant (signature)

Date

Site Safety Officer (signature)

Date

APPENDIX C

CHEMICAL HAZARDS

CHEMICAL HAZARDS

The attached International Chemical Safety Cards are provided for contaminants of concern that have been identified in soils and/or groundwater at the site.

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076



1,1,2,2-Tetrachloroethylene
 Perchloroethylene
 Tetrachloroethene
 C_2Cl_4 / $Cl_2C=CCl_2$
 Molecular mass: 165.8

ICSC # 0076
 CAS # 127-18-4
 RTECS # [KX3850000](#)
 UN # 1897
 EC # 602-028-00-4
 April 13, 2000 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		STRICT HYGIENE! PREVENT GENERATION OF MISTS!	
• INHALATION	Dizziness. Drowsiness. Headache. Nausea. Weakness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
• SKIN	Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
• EYES	Redness. Pain.	Safety goggles , face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Separated from metals ,(see Chemical Dangers), food and feedstuffs . Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 40-51/53 S: (2-)23-36/37-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK


ICSC: 0076

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

I M P O R T A N T D A T A	<p>PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.</p> <p>PHYSICAL DANGERS: The vapour is heavier than air.</p> <p>CHEMICAL DANGERS: On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride, phosgene, chlorine). The substance decomposes slowly on contact with moisture producing trichloroacetic acid and hydrochloric acid. Reacts with metals such as aluminium, lithium, barium, beryllium.</p> <p>OCCUPATIONAL EXPOSURE LIMITS: TLV: 25 ppm as TWA, 100 ppm as STEL; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued; (ACGIH 2004). MAK: skin absorption (H); Carcinogen category: 3B; (DFG 2004). OSHA PEL[†]: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours) NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A NIOSH IDLH: Ca 150 ppm See: 127184</p>	<p>ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation and by ingestion.</p> <p>INHALATION RISK: A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.</p> <p>EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes , the skin and the respiratory tract . If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels may result in unconsciousness.</p> <p>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.</p>
PHYSICAL PROPERTIES	<p>Boiling point: 121°C Melting point: -22°C Relative density (water = 1): 1.6 Solubility in water, g/100 ml at 20°C: 0.015</p>	<p>Vapour pressure, kPa at 20°C: 1.9 Relative vapour density (air = 1): 5.8 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.09 Octanol/water partition coefficient as log Pow: 2.9</p>
ENVIRONMENTAL DATA	<p>The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.</p>	
NOTES		
<p>Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.</p> <p style="text-align: right;">Transport Emergency Card: TEC (R)-61S1897</p> <p style="text-align: right;">NFPA Code: H2; F0; R0;</p>		
ADDITIONAL INFORMATION		
<div> <div>ICSC: 0076</div> <div>TETRACHLOROETHYLENE</div> <div>(C) IPCS, CEC, 1994</div> </div>		

**IMPORTANT
LEGAL
NOTICE:**

Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081



1,1,2-Trichloroethylene
Trichloroethene
Ethylene trichloride
Acetylene trichloride
 C_2HCl_3 / $ClCH=CCl_2$
Molecular mass: 131.4

ICSC # 0081
CAS # 79-01-6
RTECS # [KX4550000](#)
UN # 1710
EC # 602-027-00-9
April 10, 2000 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions. See Notes.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION		Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
• INHALATION	Dizziness. Drowsiness. Headache. Weakness. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
• SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
• EYES	Redness. Pain.	Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment.	Separated from metals (see Chemical Dangers), strong bases, food and feedstuffs . Dry. Keep in the dark. Ventilation along the floor. Store in an area without drain or sewer access.	Do not transport with food and feedstuffs. Marine pollutant. T symbol R: 45-36/38-52/53-67 S: 53-45-61 UN Hazard Class: 6.1 UN Packing Group: III


SEE IMPORTANT INFORMATION ON BACK

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

I M P O R T A N T D A T A	<p>PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.</p> <p>PHYSICAL DANGERS: The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated.</p> <p>CHEMICAL DANGERS: On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (phosgene , hydrogen chloride). The substance decomposes on contact with strong alkali producing dichloroacetylene , which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.</p> <p>OCCUPATIONAL EXPOSURE LIMITS: TLV: 50 ppm as TWA; 100 ppm as STEL; A5; BEI issued; (ACGIH 2004). MAK: Carcinogen category: 1; Germ cell mutagen group: 3B; (DFG 2007). OSHA PEL: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours) NIOSH REL: Ca See Appendix A See Appendix C NIOSH IDLH: Ca 1000 ppm See: 79016</p>	<p>ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation and by ingestion.</p> <p>INHALATION RISK: A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.</p> <p>EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes and the skin . Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in respiratory failure . Exposure could cause lowering of consciousness.</p> <p>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system , resulting in loss of memory. The substance may have effects on the liver and kidneys (see Notes). This substance is probably carcinogenic to humans.</p>
PHYSICAL PROPERTIES	<p>Boiling point: 87°C Melting point: -73°C Relative density (water = 1): 1.5 Solubility in water, g/100 ml at 20°C: 0.1 Vapour pressure, kPa at 20°C: 7.8 Relative vapour density (air = 1): 4.5</p>	<p>Relative density of the vapour/air-mixture at 20°C (air = 1): 1.3 Auto-ignition temperature: 410°C Explosive limits, vol% in air: 8-10.5 Octanol/water partition coefficient as log Pow: 2.42 Electrical conductivity: 800pS/m</p>
ENVIRONMENTAL DATA	<p>The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.</p>	
NOTES		
<p>Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.</p> <p style="text-align: right;">Transport Emergency Card: TEC (R)-61S1710</p> <p style="text-align: right;">NFPA Code: H2; F1; R0;</p> <p>Card has been partially updated in October 2004: see Occupational Exposure Limits, EU Classification, Emergency Response. Card has been partially updated in April 2010: see Occupational Exposure Limits, Ingestion First Aid, Storage.</p>		
ADDITIONAL INFORMATION		

Material Safety Data Sheet

cis-1,2-Dichloroethylene, 97%

ACC# 97773

Section 1 - Chemical Product and Company Identification

MSDS Name: cis-1,2-Dichloroethylene, 97%

Catalog Numbers: AC113380000, AC113380025, AC113380100

Synonyms: cis-Acetylene dichloride.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
156-59-2	cis-1,2-Dichloroethylene	97	205-859-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Clear liquid. Flash Point: 6 deg C.

Warning! Flammable liquid and vapor. Harmful if inhaled. Unstabilized substance may polymerize. Causes eye and skin irritation. May be harmful if swallowed. May cause respiratory tract irritation.

Target Organs: Central nervous system, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes moderate eye irritation.

Skin: Causes moderate skin irritation. May cause dermatitis.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. May cause central nervous system depression.

Inhalation: May cause respiratory tract irritation. May cause narcotic effects in high concentration. Eye irritation, vertigo, and nausea were reported in humans exposed at 2200 ppm.

Chronic: Not available. Some German investigators reported fatty degeneration of the liver upon repeated narcotic doses in rats and

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Fire or excessive heat may result in violent rupture of the container due to bulk polymerization. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Hazardous polymerization may occur under fire conditions.

Extinguishing Media: Use water fog, dry chemical, carbon dioxide, or regular foam.

Flash Point: 6 deg C (42.80 deg F)

Autoignition Temperature: 440 deg C (824.00 deg F)

Explosion Limits, Lower: 9.70 vol %

Upper: 12.80 vol %

NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 2

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Pure vapor will be uninhibited and may polymerize in vents or other confined spaces.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Flammables-area. Store protected from light and air.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
cis-1,2-Dichloroethylene	200 ppm TWA	none listed	none listed

OSHA Vacated PELs: cis-1,2-Dichloroethylene: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: Clear

Odor: Pleasant odor

pH: Not available.

Vapor Pressure: 201 mm Hg @ 25 deg C

Vapor Density: 3.34 (air=1)

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: 60 deg C @ 760 mm Hg

Freezing/Melting Point:-80 deg C

Decomposition Temperature:Not available.

Solubility: Insoluble.

Specific Gravity/Density:1.2800

Molecular Formula:C₂H₂Cl₂

Molecular Weight:96.94

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. This material is a monomer and may polymerize under certain conditions if the stabilizer is lost.

Conditions to Avoid: Light, ignition sources, exposure to air, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents, strong bases, copper.

Hazardous Decomposition Products: Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.

Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 156-59-2: KV9420000

LD50/LC50:

CAS# 156-59-2:

Inhalation, rat: LC50 = 13700 ppm;

Carcinogenicity:

CAS# 156-59-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DOT regulated - small quantity provisions apply (see 49CFR173.4)	1,2-DICHLOROETHYLENE
Hazard Class:		3
UN Number:		UN1150
Packing Group:		II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 156-59-2 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 156-59-2 can be found on the following state right to know lists: Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN F

Risk Phrases:

R 11 Highly flammable.
R 20 Harmful by inhalation.
R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 29 Do not empty into drains.
S 7 Keep container tightly closed.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 156-59-2: No information available.

Canada - DSL/NDSL

CAS# 156-59-2 is listed on Canada's NDSL List.

Canada - WHMIS

WHMIS: Not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 2/09/1998

Revision #5 Date: 3/16/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

International Chemical Safety Cards

VINYL CHLORIDE

ICSC: 0082



Chloroethene
Chloroethylene
VCM
 $C_2H_3Cl / H_2C=CHCl$
Molecular mass: 62.5
(cylinder)



ICSC # 0082
CAS # 75-01-4
RTECS # [KU9625000](#)
UN # 1086 (stabilized)
EC # 602-023-00-7
April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Extremely flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with powder, carbon dioxide.
EXPLOSION	Gas/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools.	In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.
EXPOSURE		AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
• INHALATION	Dizziness. Drowsiness. Headache. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	ON CONTACT WITH LIQUID: FROSTBITE.	Protective gloves. Cold-insulating gloves. Protective clothing.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.
• EYES	Redness. Pain.	Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION		Do not eat, drink, or smoke during work.	

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. Personal protection: complete protective clothing including self-contained breathing apparatus.	Fireproof. Separated from incompatible materials .(See Chemical Dangers.) Cool. Store only if stabilized.	Note: D F+ symbol T symbol R: 45-12 S: 53-45 UN Hazard Class: 2.1

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0082

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

VINYL CHLORIDE

ICSC: 0082

I M P O R T A N T D A T A	PHYSICAL STATE; APPEARANCE: COLOURLESS COMPRESSED LIQUEFIED GAS , WITH CHARACTERISTIC ODOUR.	ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation.
	PHYSICAL DANGERS: The gas is heavier than air, and may travel along the ground; distant ignition possible. Vinyl chloride monomer vapours are uninhibited and may form polymers in vents or flame arresters of storage tanks, resulting in blockage of vents.	INHALATION RISK: A harmful concentration of this gas in the air will be reached very quickly on loss of containment.
	CHEMICAL DANGERS: The substance can under specific circumstances form peroxides, initiating explosive polymerization. The substance will polymerize readily due to heating and under the influence of air, light and on contact with a catalyst, strong oxidizing agents and metals such as copper and aluminium, with fire or explosion hazard. The substance decomposes on burning producing toxic and corrosive fumes (hydrogen chloride , phosgene). Attacks iron and steel in the presence of moisture.	EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes . The liquid may cause frostbite. The substance may cause effects on the central nervous system . Exposure could cause lowering of consciousness. Medical observation is indicated.
	OCCUPATIONAL EXPOSURE LIMITS: TLV: 1 ppm as TWA; A1 (confirmed human carcinogen); (ACGIH 2004). MAK: Carcinogen category: 1; (DFG 2004). OSHA PEL: 1910.1017 TWA 1 ppm C 5 ppm 15-minute NIOSH REL: Ca See Appendix A NIOSH IDLH: Ca N.D. See: IDLH INDEX	EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The substance may have effects on the liver, spleen, blood and peripheral blood vessels, and tissue and bones of the fingers. This substance is carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: -13°C Melting point: -154°C Relative density (water = 1): 0.9 (liquid) Density: 8 (vapour) at 15°C g/l Solubility in water: none	Relative vapour density (air = 1): 2.2 Flash point: -78°C c.c. Auto-ignition temperature: 472°C Explosive limits, vol% in air: 3.6-33 Octanol/water partition coefficient as log Pow: 0.6
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to ground water contamination.	
NOTES		
Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.		
Transport Emergency Card: TEC (R)-20S1086		
NFPA Code: H 2; F 4; R 2;		
ADDITIONAL INFORMATION		
ICSC: 0082		
VINYL CHLORIDE		
(C) IPCS, CEC, 1994		

International Chemical Safety Cards

TOLUENE

ICSC: 0078



Methylbenzene
Toluol
Phenylmethane
 $C_6H_5CH_3$ / C_7H_8
Molecular mass: 92.1

ICSC # 0078
CAS # 108-88-3
RTECS # [XS5250000](#)
UN # 1294
EC # 601-021-00-3
October 10, 2002 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
• INHALATION	Cough. Sore throat. Dizziness. Drowsiness. Headache. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
• EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.
SPILLAGE DISPOSAL		STORAGE	PACKAGING & LABELLING
Evacuate danger area in large spill! Consult an expert in large spill! Remove all ignition sources. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: self-contained breathing apparatus		Fireproof. Separated from strong oxidants.	F symbol Xn symbol R: 11-38-48/20-63-65-67 S: 2-36/37-46-62 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0078

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.


International Chemical Safety Cards

TOLUENE

ICSC: 0078

I M P O R T A N T D A T A	PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. PHYSICAL DANGERS: The vapour mixes well with air, explosive mixtures are formed easily. As a result of flow, agitation, etc., electrostatic charges can be generated. CHEMICAL DANGERS: Reacts violently with strong oxidants causing fire and explosion hazard. OCCUPATIONAL EXPOSURE LIMITS: TLV: 50 ppm as TWA (skin) A4 BEI issued (ACGIH 2004). MAK: 50 ppm 190 mg/m ³ H Peak limitation category: II(4) Pregnancy risk group: C (DFG 2004). OSHA PEL [†] : TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak) NIOSH REL: TWA 100 ppm (375 mg/m ³) ST 150 ppm (560 mg/m ³) NIOSH IDLH: 500 ppm See: 108883	ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation, through the skin and by ingestion. INHALATION RISK: A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C. EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes and the respiratory tract The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. Exposure at high levels may result in cardiac dysrhythmia and unconsciousness. EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The liquid defats the skin. The substance may have effects on the central nervous system Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.
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PHYSICAL PROPERTIES	Boiling point: 111°C Melting point: -95°C Relative density (water = 1): 0.87 Solubility in water: none Vapour pressure, kPa at 25°C: 3.8 Relative vapour density (air = 1): 3.1	Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01 Flash point: 4°C c.c. Auto-ignition temperature: 480°C Explosive limits, vol% in air: 1.1-7.1 Octanol/water partition coefficient as log Pow: 2.69
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ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms.	
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NOTES

Depending on the degree of exposure, periodic medical examination is suggested. Use of alcoholic beverages enhances the harmful effect.

Transport Emergency Card: TEC (R)-30S1294

NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

ICSC: 0078

TOLUENE

(C) IPCS, CEC, 1994

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International Chemical Safety Cards

ETHYLBENZENE

ICSC: 0268



Ethylbenzol
Phenylethane
EB
 $C_8H_{10} / C_6H_5C_2H_5$
Molecular mass: 106.2

ICSC # 0268
CAS # 100-41-4
RTECS # [DA0700000](#)
UN # 1175
EC # 601-023-00-4
March 13, 1995 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
• INHALATION	Cough. Dizziness. Drowsiness. Headache.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
• EYES	Redness. Pain. Blurred vision.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	(Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Give a slurry of activated charcoal in water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking liquid in covered containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Personal protection: A filter respirator for organic gases and vapours.	Fireproof. Separated from strong oxidants.	F symbol Xn symbol R: 11-20 S: 2-16-24/25-29 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0268

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.


International Chemical Safety Cards

ETHYLBENZENE

ICSC: 0268

<p>I M P O R T A N T D A T A</p>	<p>PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH AROMATIC ODOUR.</p> <p>PHYSICAL DANGERS: The vapour mixes well with air, explosive mixtures are easily formed.</p> <p>CHEMICAL DANGERS: Reacts with strong oxidants. Attacks plastic and rubber.</p> <p>OCCUPATIONAL EXPOSURE LIMITS: TLV: 100 ppm as TWA 125 ppm as STEL A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued (ACGIH 2005). MAK: skin absorption (H); Carcinogen category: 3A; (DFG 2004). OSHA PEL: TWA 100 ppm (435 mg/m³) NIOSH REL: TWA 100 ppm (435 mg/m³) ST 125 ppm (545 mg/m³) NIOSH IDLH: 800 ppm 10%LEL See: 100414</p>	<p>ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation of its vapour, through the skin and by ingestion.</p> <p>INHALATION RISK: A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.</p> <p>EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes the skin and the respiratory tract Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system Exposure far above the OEL could cause lowering of consciousness.</p> <p>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: Repeated or prolonged contact with skin may cause dermatitis.</p>
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<p>PHYSICAL PROPERTIES</p>	<p>Boiling point: 136°C Melting point: -95°C Relative density (water = 1): 0.9 Solubility in water, g/100 ml at 20°C: 0.015 Vapour pressure, kPa at 20°C: 0.9 Relative vapour density (air = 1): 3.7</p>	<p>Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02 Flash point: 18°C c.c. Auto-ignition temperature: 432°C Explosive limits, vol% in air: 1.0-6.7 Octanol/water partition coefficient as log Pow: 3.2</p>
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<p>ENVIRONMENTAL DATA</p>	<p>The substance is harmful to aquatic organisms.</p>	
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<p>NOTES</p>		
<p>The odour warning when the exposure limit value is exceeded is insufficient.</p>		
<p>Transport Emergency Card: TEC (R)-30S1175 or 30GF1-I+II NFPA Code: H2; F3; R0</p>		

<p>ADDITIONAL INFORMATION</p>		
<p>ICSC: 0268</p>		<p>ETHYLBENZENE</p>
<p>(C) IPCS, CEC, 1994</p>		

<p>IMPORTANT LEGAL NOTICE:</p>	<p>Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.</p>
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International Chemical Safety Cards

TOLUENE

ICSC: 0078



Methylbenzene
Toluol
Phenylmethane
 $C_6H_5CH_3$ / C_7H_8
Molecular mass: 92.1

ICSC # 0078
CAS # 108-88-3
RTECS # [XS5250000](#)
UN # 1294
EC # 601-021-00-3
October 10, 2002 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
• INHALATION	Cough. Sore throat. Dizziness. Drowsiness. Headache. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
• EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.
SPILLAGE DISPOSAL		STORAGE	PACKAGING & LABELLING
Evacuate danger area in large spill! Consult an expert in large spill! Remove all ignition sources. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: self-contained breathing apparatus		Fireproof. Separated from strong oxidants.	F symbol Xn symbol R: 11-38-48/20-63-65-67 S: 2-36/37-46-62 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0078

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.


International Chemical Safety Cards

TOLUENE

ICSC: 0078

I M P O R T A N T I N F O R M A T I O N	PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.	ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation, through the skin and by ingestion.
	PHYSICAL DANGERS: The vapour mixes well with air, explosive mixtures are formed easily. As a result of flow, agitation, etc., electrostatic charges can be generated.	INHALATION RISK: A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.
	CHEMICAL DANGERS: Reacts violently with strong oxidants causing fire and explosion hazard.	EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes and the respiratory tract The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. Exposure at high levels may result in cardiac dysrhythmia and unconsciousness.
	OCCUPATIONAL EXPOSURE LIMITS: TLV: 50 ppm as TWA (skin) A4 BEI issued (ACGIH 2004). MAK: 50 ppm 190 mg/m ³ H Peak limitation category: II(4) Pregnancy risk group: C (DFG 2004). OSHA PEL: TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak) NIOSH REL: TWA 100 ppm (375 mg/m ³) ST 150 ppm (560 mg/m ³) NIOSH IDLH: 500 ppm See: 108883	EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The liquid defats the skin. The substance may have effects on the central nervous system Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES	Boiling point: 111°C Melting point: -95°C Relative density (water = 1): 0.87 Solubility in water: none Vapour pressure, kPa at 25°C: 3.8 Relative vapour density (air = 1): 3.1	Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01 Flash point: 4°C c.c. Auto-ignition temperature: 480°C Explosive limits, vol% in air: 1.1-7.1 Octanol/water partition coefficient as log Pow: 2.69
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ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms.	
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NOTES

Depending on the degree of exposure, periodic medical examination is suggested. Use of alcoholic beverages enhances the harmful effect.

Transport Emergency Card: TEC (R)-30S1294

NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

ICSC: 0078

TOLUENE

(C) IPCS, CEC, 1994

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International Chemical Safety Cards

o-XYLENE

ICSC: 0084



ortho-Xylene
1,2-Dimethylbenzene
o-Xylol
 $C_6H_4(CH_3)_2 / C_8H_{10}$
Molecular mass: 106.2

ICSC # 0084
CAS # 95-47-6
RTECS # [ZE2450000](#)
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 32°C explosive vapour/air mixtures may be formed.	Above 32°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0084

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.


International Chemical Safety Cards

o-XYLENE

ICSC: 0084

<p>I M P O R T A N T D A T A</p>	<p>PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.</p> <p>PHYSICAL DANGERS: As a result of flow, agitation, etc., electrostatic charges can be generated.</p> <p>CHEMICAL DANGERS: Reacts with strong acids strong oxidants</p> <p>OCCUPATIONAL EXPOSURE LIMITS: TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001). MAK: 100 ppm 440 mg/m³ Peak limitation category: II(2) skin absorption (H); Pregnancy risk group: D (DFG 2005). EU OEL: 50 ppm as TWA 100 ppm as STEL (skin) (EU 2000). OSHA PEL: TWA 100 ppm (435 mg/m³) NIOSH REL: TWA 100 ppm (435 mg/m³) ST 150 ppm (655 mg/m³) NIOSH IDLH: 900 ppm See: 95476</p>	<p>ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation, through the skin and by ingestion.</p> <p>INHALATION RISK: A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.</p> <p>EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.</p> <p>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.</p>
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<p>PHYSICAL PROPERTIES</p>	<p>Boiling point: 144°C Melting point: -25°C Relative density (water = 1): 0.88 Solubility in water: none Vapour pressure, kPa at 20°C: 0.7</p>	<p>Relative vapour density (air = 1): 3.7 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02 Flash point: 32°C c.c. Auto-ignition temperature: 463°C Explosive limits, vol% in air: 0.9-6.7 Octanol/water partition coefficient as log Pow: 3.12</p>
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<p>ENVIRONMENTAL DATA</p>	<p>The substance is toxic to aquatic organisms.</p> 
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<p>NOTES</p> <p>Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0086 p-Xylene and 0085 m-Xylene.</p> <p>Transport Emergency Card: TEC (R)-30S1307-III NFPA Code: H 2; F 3; R 0;</p>		
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<p>ADDITIONAL INFORMATION</p>		
<p>ICSC: 0084</p>		<p>o-XYLENE</p>
<p>(C) IPCS, CEC, 1994</p>		

<p>IMPORTANT LEGAL NOTICE:</p>	<p>Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.</p>
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International Chemical Safety Cards

1,2,4-TRIMETHYLBENZENE

ICSC: 1433



Pseudocumene
 C_9H_{12}
 Molecular mass: 120,2

ICSC # 1433
 CAS # 95-63-6
 RTECS # [DC3325000](#)
 UN # 1993
 EC # 601-043-00-3
 March 06, 2002 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Alcohol-resistant foam, dry powder, carbon dioxide.
EXPLOSION	Above 44°C explosive vapour/air mixtures may be formed.	Above 44°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
• INHALATION	Confusion. Cough. Dizziness. Drowsiness. Headache. Sore throat. Vomiting.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	Redness. Dry skin.	Protective gloves.	Rinse skin with plenty of water or shower.
• EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	(See Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Fireproof. Separated from strong oxidants. Well closed. Keep in a well-ventilated room.	Xn symbol N symbol R: 10-20-36/37/38-51/53 S: 2-26-61 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 1433

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.


International Chemical Safety Cards

1,2,4-TRIMETHYLBENZENE

ICSC: 1433

<p>I M P O R T A N T D A T A</p>	<p>PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.</p> <p>PHYSICAL DANGERS:</p> <p>CHEMICAL DANGERS: The substance decomposes on burning producing toxic and irritating fumes Reacts violently with strong oxidants causing fire and explosion hazard.</p> <p>OCCUPATIONAL EXPOSURE LIMITS: TLV: (as mixed isomers) 25 ppm as TWA (ACGIH 2004). MAK: (as mixed isomers) 20 ppm 100 mg/m³ Peak limitation category: II(2) Pregnancy risk group: C (DFG 2004). OSHA PEL[†]: none NIOSH REL: TWA 25 ppm (125 mg/m³) NIOSH IDLH: N.D. See: IDLH INDEX</p>	<p>ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation.</p> <p>INHALATION RISK: A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.</p> <p>EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes the skin and the respiratory tract If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system</p> <p>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The liquid defats the skin. Lungs may be affected by repeated or prolonged exposure , resulting in chronic bronchitis The substance may have effects on the central nervous system blood See Notes.</p>
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<p>PHYSICAL PROPERTIES</p>	<p>Boiling point: 169°C Melting point: -44°C Relative density (water = 1): 0.88 Solubility in water: very poor Relative vapour density (air = 1): 4.1</p>	<p>Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01 Flash point: 44°C c.c. Auto-ignition temperature: 500°C Explosive limits, vol% in air: 0.9-6.4 Octanol/water partition coefficient as log Pow: 3.8</p>
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<p>ENVIRONMENTAL DATA</p>	<p>The substance is toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish.</p>	
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NOTES

Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. See also ICSC 1155 1,3,5-Trimethylbenzene (Mesitylene), ICSC 1362 1,2,3-Trimethylbenzene (Hemimellitene), ICSC 1389 Trimethylbenzene (mixed isomers). 1,3,5-Trimethylbenzene (Mesitylene) is classified as a marine pollutant.

Transport Emergency Card: TEC (R)-30GF1-III
NFPA Code: H0; F2; R0;

ADDITIONAL INFORMATION

<p>ICSC: 1433</p>	<p>1,2,4-TRIMETHYLBENZENE</p>
<p>(C) IPCS, CEC, 1994</p>	

<p>IMPORTANT LEGAL NOTICE:</p>	<p>Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.</p>
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International Chemical Safety Cards

1,3,5-TRIMETHYLBENZENE

ICSC: 1155



Mesitylene
 C_9H_{12}
 Molecular mass: 120.2

ICSC # 1155
 CAS # 108-67-8
 RTECS # [OX6825000](#)
 UN # 2325
 EC # 601-025-00-5
 March 06, 2002 Peer reviewed



TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Alcohol-resistant foam, dry powder, carbon dioxide.
EXPLOSION	Above 50°C explosive vapour/air mixtures may be formed.	Above 50°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
• INHALATION	Confusion. Cough. Dizziness. Drowsiness. Headache. Sore throat. Vomiting.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
• SKIN	Redness. Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
• EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
• INGESTION	(See Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants. Well closed. Keep in a well-ventilated room.	Marine pollutant. Xi symbol N symbol R: 10-37-51/53 S: 2-61 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 1155

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.


International Chemical Safety Cards

1,3,5-TRIMETHYLBENZENE

ICSC: 1155

I M P O R T A N T D A T A	<p>PHYSICAL STATE; APPEARANCE: COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.</p> <p>PHYSICAL DANGERS:</p> <p>CHEMICAL DANGERS: The substance decomposes on burning producing toxic and irritating fumes. Reacts violently with strong oxidants causing fire and explosion hazard.</p> <p>OCCUPATIONAL EXPOSURE LIMITS: TLV (as mixed isomers): 25 ppm; (ACGIH 2001). MAK (all isomers): 20 ppm; 100 mg/m³; class II 1 © (2001) OSHA PEL†: none NIOSH REL: TWA 25 ppm (125 mg/m³) NIOSH IDLH: N.D. See: IDLH INDEX</p>	<p>ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation.</p> <p>INHALATION RISK: A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.</p> <p>EFFECTS OF SHORT-TERM EXPOSURE: The substance is irritating to the eyes the skin and the respiratory tract If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system.</p> <p>EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The liquid defats the skin. Lungs may be affected by repeated or prolonged exposure, resulting in chronic bronchitis. The substance may have effects on the central nervous system blood See Notes.</p>
--	--	---

PHYSICAL PROPERTIES	<p>Boiling point: 165°C Melting point: -45°C Relative density (water = 1): 0.86 Solubility in water: very poor Vapour pressure, kPa at 20°C: 0.25</p>	<p>Relative vapour density (air = 1): 4.1 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01 Flash point: 50°C (c.c.) Auto-ignition temperature: 550°C Octanol/water partition coefficient as log Pow: 3.42</p>
----------------------------	---	---

ENVIRONMENTAL DATA	<p>The substance is harmful to aquatic organisms. Bioaccumulation of this chemical may occur in fish.</p>	
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NOTES

Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. See ICSC 1433 1,2,4-Trimethylbenzene (Pseudocumene), ICSC 1362 1,2,3-Trimethylbenzene (Hemimellitene), ICSC 1389 Trimethylbenzene (mixed isomers).

Transport Emergency Card: TEC (R)-30S2325
NFPA Code: H0; F2; R0

ADDITIONAL INFORMATION

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ICSC: 1155

1,3,5-TRIMETHYLBENZENE

(C) IPCS, CEC, 1994

IMPORTANT LEGAL NOTICE:	<p>Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.</p>
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APPENDIX D
HOSPITAL INFORMATION AND MAP
FIELD ACCIDENT REPORT

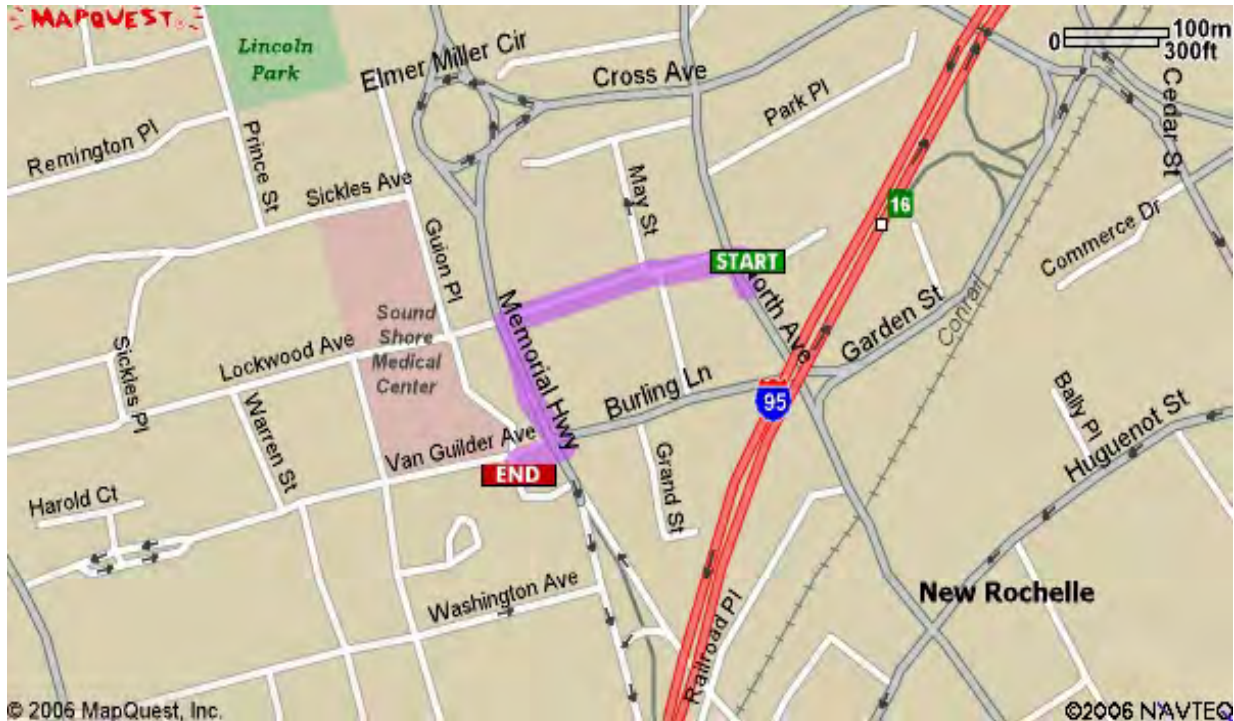


Figure 2 - EMERGENCY ROUTE TO SOUND SHORE MEDICAL CENTER

Sound Shore Medical Ctr
16 Guion Pl., New Rochelle, NY 10801

Total Est. Time: One minute **Total Est. Distance:** 0.26 miles

- 1: Start out going NORTHWEST on NORTH AVE toward LOCKWOOD AVE. <0.1 miles
- 2: Turn LEFT onto LOCKWOOD AVE. 0.1 miles
- 3: Turn LEFT onto MEMORIAL HWY / NORMAN ROCKWELL BLVD. <0.1 miles
- 4: Turn RIGHT onto VAN GUILDER AVE. <0.1 miles

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME _____ PROJECT. NO. _____

Date of Accident _____ Time _____ Report By _____

Type of Accident (Check One):

☐ () Vehicular

☐ () Personal

☐ () Property

Name of Injured _____ DOB or Age _____

How Long Employed _____

Names of Witnesses _____

Description of Accident _____

Action Taken _____

Did the Injured Lose Any Time? _____ How Much (Days/Hrs.)? _____

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? _____

(If not, it is the EMPLOYEE'S sole responsibility to process his/her claim through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

Appendix-D

Community Air Monitoring Plan

BROWNFIELD CLEANUP PROGRAM

COMMUNITY AIR MONITORING PLAN

FOR

HNJ REALTY LLC.

FOR

FORMER SCHMUKLERS CLEANERS

358 - 364 North Avenue, New Rochelle, New York

Site No.: C360088

Index No.: A3-0542-0306

PREPARED BY

John V. Soderberg

P.O BOX 263

Stony Brook, NY

August 2017

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2.0 AIR MONITORING.	Page 02
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3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS.	Page 02
3.1 Potential Corrective Measures and VOC Suppression Techniques.	Page 03
4.0 PARTICULATE MONITORING.	Page 04
4.1 Potential Particulate Suppression Techniques.	Page 05
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1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for work activities to be performed under the Site Management Plan (SMP) at the Former Schmuklers Cleaners site located at 358-364 North Avenue in New Rochelle, New York. The CAMP provides measures for protection for the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from investigative activities at the site.

Compliance with this CAMP is required during all ground intrusive activities that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs). These activities include, but are not limited to; boring, remedial, soil and groundwater sampling activities. This CAMP has been prepared to ensure that the work activities do not adversely affect passerby, residents, or workers in the area immediately surrounding the Site and to preclude or minimize airborne migration of work-related contaminants to off-site areas.

1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan as presented in DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC May 3, 2010). This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air;
- New York State Department of Environmental Conservation Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites: This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2.0 AIR MONITORING

Chlorinated and Petroleum related volatile organic compounds (VOCs) are the constituents of concern at the Site. The appropriate method to monitor air for these constituents during the investigation activities is through real-time VOC and air particulate (dust) monitoring. Since work areas will be within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. In order to rule out any potential exposures to nearby receptors, the immediate work area will be isolated and monitoring points will be established outside of the work area where the potential for exposure exists.

2.1 Meteorological Data

At a minimum, wind direction will be evaluated at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to position the monitoring equipment in appropriate upwind and downwind locations.

2.2 Community Air Monitoring Requirements

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before activities begin. These points will be monitored periodically in series during the site work. In this case, the work area is within 20 feet of potentially exposed populations and occupied structures, so perimeter monitoring points will be located to represent the nearest potentially exposed individuals within the building.

Fugitive respirable dust will be monitored using a MiniRae Model PDM-3 aerosol monitor (or equivalent). Air will be monitored for VOCs with a portable Mini Rae photoionization detector (PID), or equivalent. All air monitoring data will be documented in a site log book by the designated site safety officer. The site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan.

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to

establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present.

The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report will be completed.

3.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during remediation activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- collection of purge water in covered containers ;
- storage of excess samples and soils in drums or covering with plastic;

4.0 PARTICULATE MONITORING

Air monitoring for particulates (i.e., dust) will be performed continuously during boring activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM₁₀) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately four to five feet above land surface (i.e., the breathing zone). Monitoring equipment will be MIE Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter (1 g/m³). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 1 g/m³ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive work activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM-10 particulate level is 100 1 g/m³ greater than background (upwind perimeter) for the 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 1 g/m³ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 1 g/m³ above the upwind level, work must be stopped and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in Section 2.3.1 below) and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 1 g/m³ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report will be completed.

4.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 $\mu\text{g}/\text{m}^3$ at any time during boring activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- Placement of soils in drums or covering stockpiles with plastic;
- Misting of the boring area with a fine water spray from a hand-held spray bottle

Work may continue with dust suppression techniques provided that downwind PM_{10} levels are not more than 150 $\mu\text{g}/\text{m}^3$ greater than the upwind levels.

There may also be situations where the dust is generated by boring activities and migrates to downwind locations, but is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the working area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 $\mu\text{g}/\text{m}^3$, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review.

5.0 DATA QUALITY ASSURANCE

5.1 Calibration

Instrument calibration shall be documented on instrument calibration and maintenance sheets or in the designated field logbook. All instruments shall be calibrated as required by the manufacturer. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

5.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the SSO for reference.

5.3 Data Review

The SSO will interpret all monitoring data based upon the established criteria and his/her professional judgment. The SSO shall review the data with the PM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PM.

6.0 RECORDS AND REPORTING

All air readings must be recorded on daily air monitoring log sheets and made available for review by personnel from NYSDEC and NYSDOH.

Appendix-E

WCDOH Air Discharge Permit



Robert P. Astorino
County Executive

Cheryl Archbald, MD, MPH
Acting Commissioner of Health

June 16, 2010

Michael W. McKeown, P.E.
6 Oak Ridge Court
Manorville, NY 11949

Re: Certificate to Operate
Emission Point: 001
Schmuklers Cleaners
358-364 North Avenue
New Rochelle (C)

Dear Mr. McKeown:

Forwarded herewith, please find a Certificate to Operate a Source of Air Contamination issued for the above premise by the Westchester County Department of Health pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County under Permit Number 52-7261.

Your attention is directed to the installation description, expiration date and conditions of approval.

Please be advised that the applicant is responsible for the proper maintenance and operation of the above-referenced installation in such a manner that it will not exceed the emission limits or contravene the provisions of applicable State and County Air Pollution Control Regulations. Proper training of personnel in the operation of this equipment should be arranged for with the manufacturer or supplier of the equipment.

Respectfully,

Natasha Court, P.E.
Associate Engineer
Bureau of Environmental Quality

NC:US:kf

cc: Walter Berninger, Berninger Environmental, Inc., - Owner's Representative
Paul Vacca, Building Inspector - New Rochelle
Maria Antoniou, P.E., NYSDEC-WP
File



Robert P. Astorino
County Executive

Department of Health
Cheryl Archbald, MD, MPH, FAAP
Acting Commissioner of Health

Westchester County
Department of Health
Bureau of Environmental Quality
CERTIFICATE TO OPERATE SOURCES
OF AIR CONTAMINATION

Facility Information:

Emission Point Number: 001

Facility Name: Schmuklers Cleaners

Facility Telephone:

Street Address: 358-364 North Avenue New Rochelle, NY 10801

Municipality:

Facility Owner Information:

Owner's Name: HNJ Realty LLC c/o Berninger Environmental, Inc.

Owner Telephone:

Mailing Address: 90-B Knickerbocker Avenue Bohemia, NY 11716

Description Process:

Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County.

That the operation of this source is in accordance with the source description, approved plans, and emission limits for this source on file with the Department.

The source of air contamination shall be operated in compliance with the provisions of Chapter 873, Article XIII of the Laws of Westchester County and 6NYCRRR.

This certificate shall be suspended or revoked as provided by the laws of Westchester County, if this source of air contamination is maintained or operated other than in compliance with the above.

Air contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

FOR THE COMMISSIONER

BY:


Cheryl Archbald, MD, MPH, FAAP Acting Commissioner of Health

BY:


Paul Kutzy, P.E., Assistant Commissioner
Bureau of Environmental Quality

Certificate Issued: 06/16/2010

Certificate Expires: 12/31/2010

145 Huguenot Street • 8th Floor New Rochelle, N.Y. 10801

THIS PERMIT MUST BE POSTED CONSPICUOUSLY



George Latimer
County Executive

Sherlita Amler, MD
Commissioner of Health

December 1, 2022

Schmucklers Cleaners
c/o WRS Envir. Ser.
dba Berninger Environmental Inc.
17 Old Dock Road
Yaphank, NY 11980
Attn: Hal Shapiro, President

**RE: Renewal Certificate to Operate
Industrial Facility
Number of Emission Points: 1**

Dear Mr. Shapiro:

Receipt of your fees for the above-referenced facility is hereby acknowledged. Please be advised that our records reveal that your facility is being operated in compliance with applicable County Laws and Regulations.

Enclosed please find your renewal Certificate to Operate, which is valid until December 31, 2025.

Respectfully,

Delroy Taylor, P.E.
Assistant Commissioner
Bureau of Environmental Quality

DT:NC/plt
Enclosure

cc: File





George Latimer
County Executive

Department of Health
Sherita Amler, M.D.
Commissioner of Health

Westchester County Department of Health

Bureau of Environmental Quality CERTIFICATE TO OPERATE SOURCES OF AIR CONTAMINATION

Facility Information:

Emission Point Number: 001

Facility Name: Schmuklers Cleaners

Facility Telephone:

Street Address: 358-364 North Avenue New Rochelle, NY 10801

Municipality:

Facility Owner Information:

Owner's Name: WRS Envir. Serv. dba Berninger Environmental, Inc.

Owner Telephone: (631) 589-6521

Mailing Address: 17 Old Dock Road Yaphank, NY 11980

Description Process:

To operate a Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County.

That the operation of this source is in accordance with the source description, approved plans, and emission limits for this source on file with the Department.

The source of air contamination shall be operated in compliance with the provisions of Chapter 873, Article XIII of the Laws of Westchester County and 6NYCRR.

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Air contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

FOR THE COMMISSIONER

BY:

Sherita Amler, M.D.
Commissioner of Health

SHERLITA AMLER, M.D.

BY:

Delroy Taylor, P.E., Assistant Commissioner
Bureau of Environmental Quality

Certificate Issued: 12/01/2022

Certificate Expires: 12/31/2025

25 Moore Avenue • Mount Kisco, NY 10549

THIS PERMIT MUST BE POSTED CONSPICUOUSLY



George Latimer
County Executive

Sherlita Amler, MD
Commissioner of Health

November 7, 2019

Schmuklers Cleaners
358-364 North Avenue
New Rochelle, NY 10801
Attention: Hal Shapiro, President

**RE: Renewal Certificate to Operate
Industrial Facility-
Number of Emission Points: 1**

Dear Mr. Shapiro:

Receipt of your fees for the above-referenced facility is hereby acknowledged. Please be advised that our records reveal that your facility is being operated in compliance with applicable County Laws and Regulations.

Enclosed please find your renewal Certificate to Operate, which is valid until December 31, 2022.

Respectfully,

Natasha Court, P.E.
Associate Engineer
Bureau of Environmental Quality

NC:RB:mez
Enclosure

cc: File





George Latimer
County Executive
Department of Health
Sherita Amler, M.D.
Commissioner of Health

**Westchester County
Department of Health**
Bureau of Environmental Quality
**CERTIFICATE TO OPERATE SOURCES
OF AIR CONTAMINATION**

Facility Information:

Emission Point Number: 001

Facility Name: Schmuklers Cleaners

Facility Telephone:

Street Address: 358-364 North Avenue New Rochelle, NY 10801

Municipality:

Facility Owner Information:

Owner's Name: WRS Envir. Serv. dba Berninger Environmental, Inc.

Owner Telephone: (631) 589-6521

Mailing Address: 17 Old Dock Road Yaphank, NY 11980

Description Process:

To operate a Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County.

That the operation of this source is in accordance with the source description, approved plans, and emission limits for this source on file with the Department.

The source of air contamination shall be operated in compliance with the provisions of Chapter 873, Article XIII of the Laws of Westchester County and 6NYCRRR.

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Air contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

FOR THE COMMISSIONER

BY:


Sherita Amler, M.D.
Commissioner of Health

SHERLITA AMLER, M.D.

BY:


Delroy Taylor, P.E., Assistant Commissioner
Bureau of Environmental Quality

Certificate Issued: |11/07/2019|

Certificate Expires: |12/31/2022|

145 Huguenot Street • 7th Floor New Rochelle, N.Y. 10801

THIS PERMIT MUST BE POSTED CONSPICUOUSLY



Robert P. Astorino
County Executive

Sherlita Amler, MD
Commissioner of Health

January 1, 2017

WRS Envir. Serv. dba Berninger Environmental, Inc.
17 Old Dock Road
Yaphank, NY 11980

RE: Renewal Certificate to Operate
Industrial - Schmuklers Cleaners

Dear Sirs:

Receipt of your fee for the above-referenced facility is hereby acknowledged. Please be advised that our records reveal that your facility is being operated in compliance with applicable County Laws and Regulations.

Enclosed please find your renewed Certificate to Operate, which is valid until December 31, 2019.

Respectfully,

Natasha Court, P.E.
Associate Engineer
Bureau of Environmental Quality

Enclosure
File





Robert P. Astorino
County Executive
Department of Health
Sherita Amler, M.D.
Commissioner of Health

**Westchester County
Department of Health**
Bureau of Environmental Quality
**CERTIFICATE TO OPERATE SOURCES
OF AIR CONTAMINATION**

Facility Information:

Emission Point Number: 001

Facility Name: Schmuklers Cleaners

Facility Telephone:

Street Address: 358-364 North Avenue New Rochelle, NY 10801

Municipality:

Facility Owner Information:

Owner's Name: WRS Envir. Serv. dba Berninger Environmental, Inc.

Owner Telephone: (631) 589-6521

Mailing Address: 17 Old Dock Road Yaphank, NY 11980

Description Process:

To operate a Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873 1306.1 of the Laws of Westchester County.

That the operation of this source is in accordance with the source description, approved plans, and emission limits for this source on file with the Department.

The source of air contamination shall be operated in compliance with the provisions of Chapter 873, Article XIII of the Laws of Westchester County and 6NYCRR.

This certificate shall be suspended or revoked as provided by the laws of Westchester County, if this source of air contamination is maintained or operated other than in compliance with the above.

Air contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

FOR THE COMMISSIONER

BY:

Sherlita Amler, M.D.
Commissioner of Health

SHERLITA AMLER, M.D.

BY:

Paul Kutzy, P.E., Assistant Commissioner
Bureau of Environmental Quality

Certificate Issued: 01/01/2017

Certificate Expires: 12/31/2015

145 Huguenot Street • 8th Floor New Rochelle, N.Y. 10801

THIS PERMIT MUST BE POSTED CONSPICUOUSLY



Robert P. Astorino
County Executive

Sherlita Anler, MD
Commissioner of Health

January 15, 2014

HNJ Realty LLC
c/o Berninger Environmental Inc.
90-B Knickerbocker Avenue
Bohemia, NY 11716

**RE: Renewal Certificate to Operate
Industrial Facilities
Schmuklers Cleaner
New Rochelle**

Dear Sir:

Receipt of your fees for the above-referenced facility is hereby acknowledged. Please be advised that our records reveal that your facility is being operated in compliance with applicable County Laws and Regulations.

Enclosed please find your renewal Certificate to Operate, which is valid until December 31, 2016.

Very truly yours,

Natasha Court, P.E.
Associate Engineer
Bureau of Environmental Quality

NC:plt
Enclosure
cc: File



Robert P. Astorino
County Executive
Department of Health
Sherlita Amler, M.D.
Commissioner of Health

Westchester County
Department of Health
Bureau of Environmental Quality
CERTIFICATE TO OPERATE SOURCES
OF AIR CONTAMINATION

Facility Information:

Emission Point Number: 001
Facility Name: Schmuklers Cleaners
Facility Telephone:
Street Address: 358-364 North Avenue New Rochelle, NY 10801
Municipality:

Facility Owner Information:

Owner's Name: HNJ Realty LLC c/o Berninger Environmental, Inc. Owner Telephone: (631) 589-6521
Mailing Address: 90-B Knickerbocker Avenue Bohemia, NY 11716

Description Process:

To operate a Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County.

That the operation of this source is in accordance with the source description, approved plans, and emission limits for this source on file with the Department.

The source of air contamination shall be operated in compliance with the provisions of Chapter 873, Article XIII of the Laws of Westchester County and 6NYCRR.

This certificate shall be suspended or revoked as provided by the laws of Westchester County, if this source of air contamination is maintained or operated other than in compliance with the above.

Air contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

FOR THE COMMISSIONER

BY: Sherlita Amler, M.D.
Commissioner of Health

Sherlita Amler MD

SHERLITA AMLER, M.D.

BY:

Paul Kutzy
Paul Kutzy, P.E., Assistant Commissioner
Bureau of Environmental Quality

Certificate Issued: 01/01/2014

Certificate Expires: 12/31/2016

145 Huguenot Street • 8th Floor New Rochelle, N.Y. 10801

THIS PERMIT MUST BE POSTED CONSPICUOUSLY

Robert P. Astorino
County Executive

Department of Health

Cheryl Archbald, MD, MPH
Acting Commissioner

December 8, 2010

HNJ Realty LLC
c/o Berninger Environmental, Inc.
90-B Knickerbocker Avenue
Bohemia, NY 11716
Attn: Walter Berninger

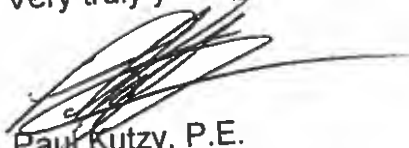
**RE: Renewal Certificate to Operate
Schmukler's Cleaners
New Rochelle, NY**

Dear Mr. Berninger:

Receipt of your fees for the above-referenced facility is hereby acknowledged. Please be advised that our records reveal that your facility is being operated in compliance with applicable County Laws and Regulations.

Enclosed please find your renewal Certificate to Operate, which is valid until December 31, 2013.

Very truly yours,



Paul Kutzy, P.E.
Assistant Commissioner
Bureau of Environmental Quality



Robert P. Astorino
County Executive
Department of Health
Cheryl Archbald, MD, MPH, FAAP
Acting Commissioner of Health

**Westchester County
Department of Health**
Bureau of Environmental Quality
**CERTIFICATE TO OPERATE SOURCES
OF AIR CONTAMINATION**

Facility Information:

Emission Point Number: 001

Facility Name: Schmuklers Cleaners

Facility Telephone:

Street Address: 358-364 North Avenue New Rochelle, NY 10801

Municipality:

Facility Owner Information:

Owner Telephone: (631) 589-6521

Owner's Name: HNJ Realty LLC c/o Berninger Environmental, Inc.

Mailing Address: 90-B Knickerbocker Avenue Bohemia, NY 11716

Description Process:

Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County.

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Contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

COMMISSIONER

Cheryl Archbald, MD, MPH, FAAP, Acting Commissioner of Health

Certificate Issued: 01/01/2011

Certificate Expires: 12/31/2013

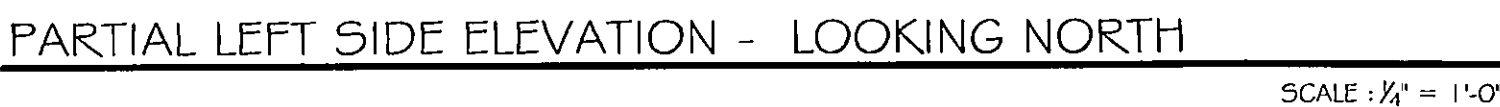
Assistant Commissioner
of Environmental Quality

145 Huguenot Street • 8th Floor New Rochelle, N.Y. 10801

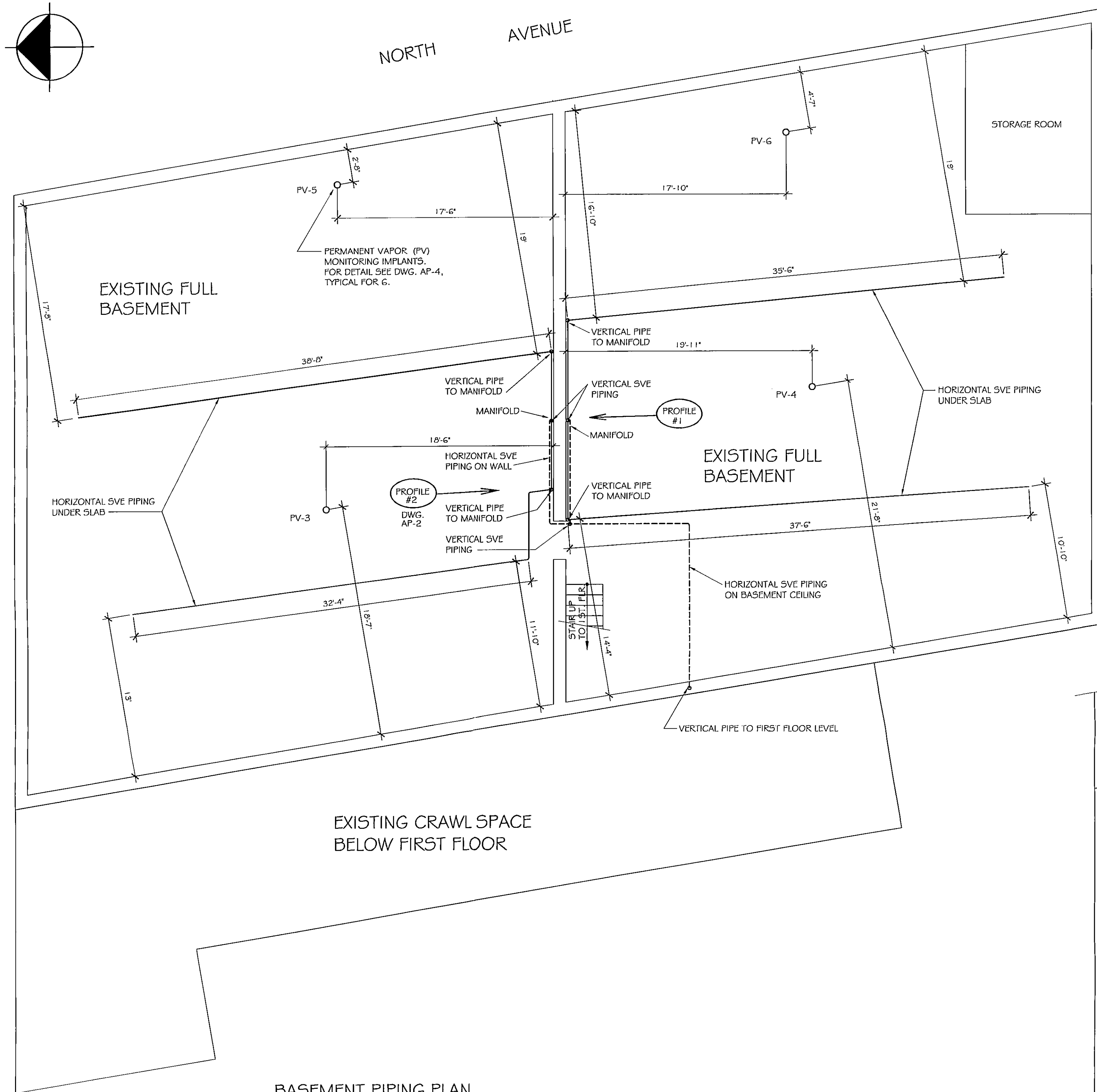
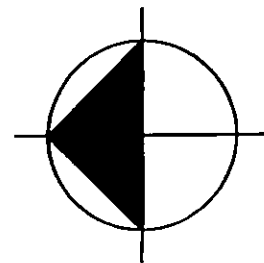
PERMIT MUST BE POSTED CONSPICUOUSLY

Appendix-F

P.E. As-builts (SVE/SSDS)

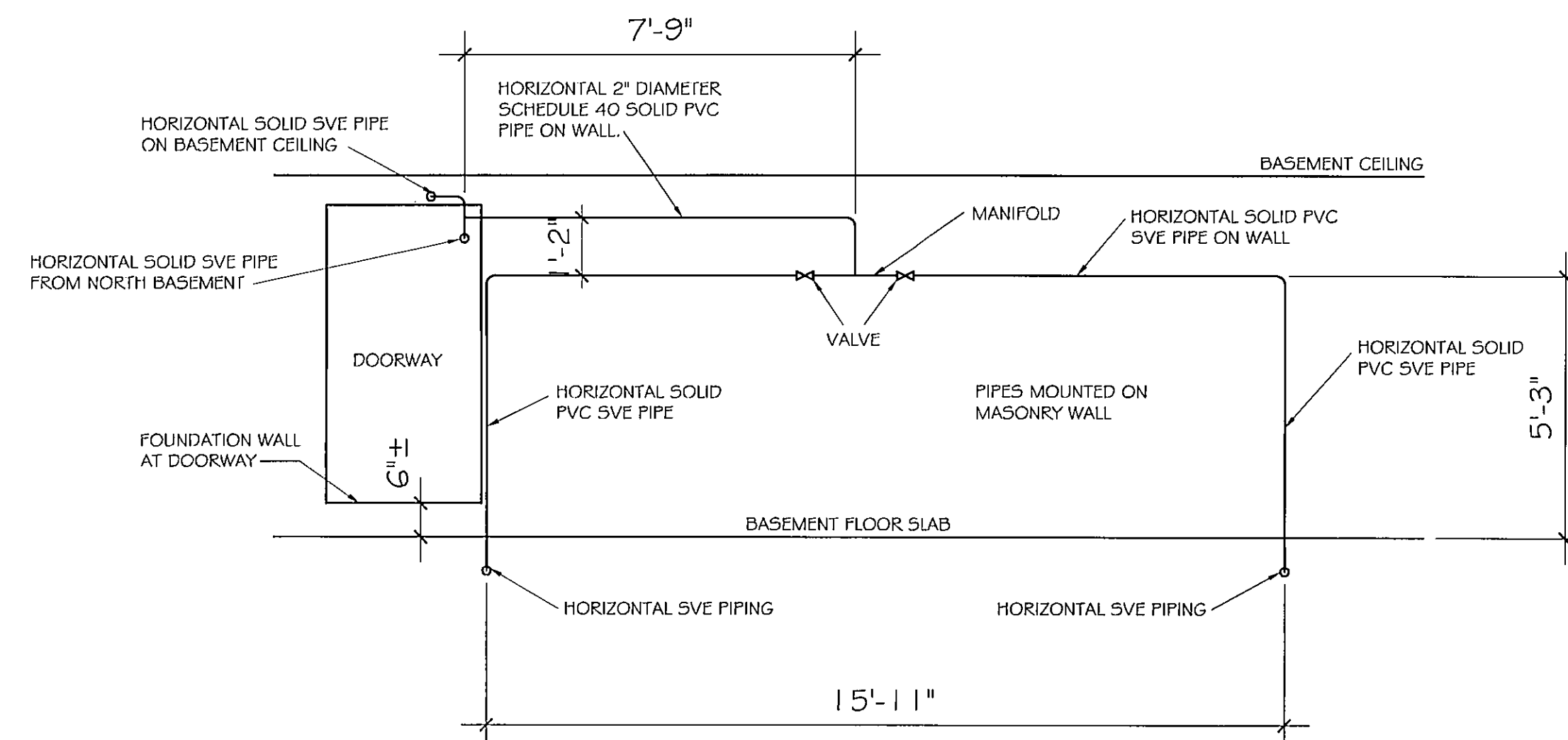


SH. 2 OF 4



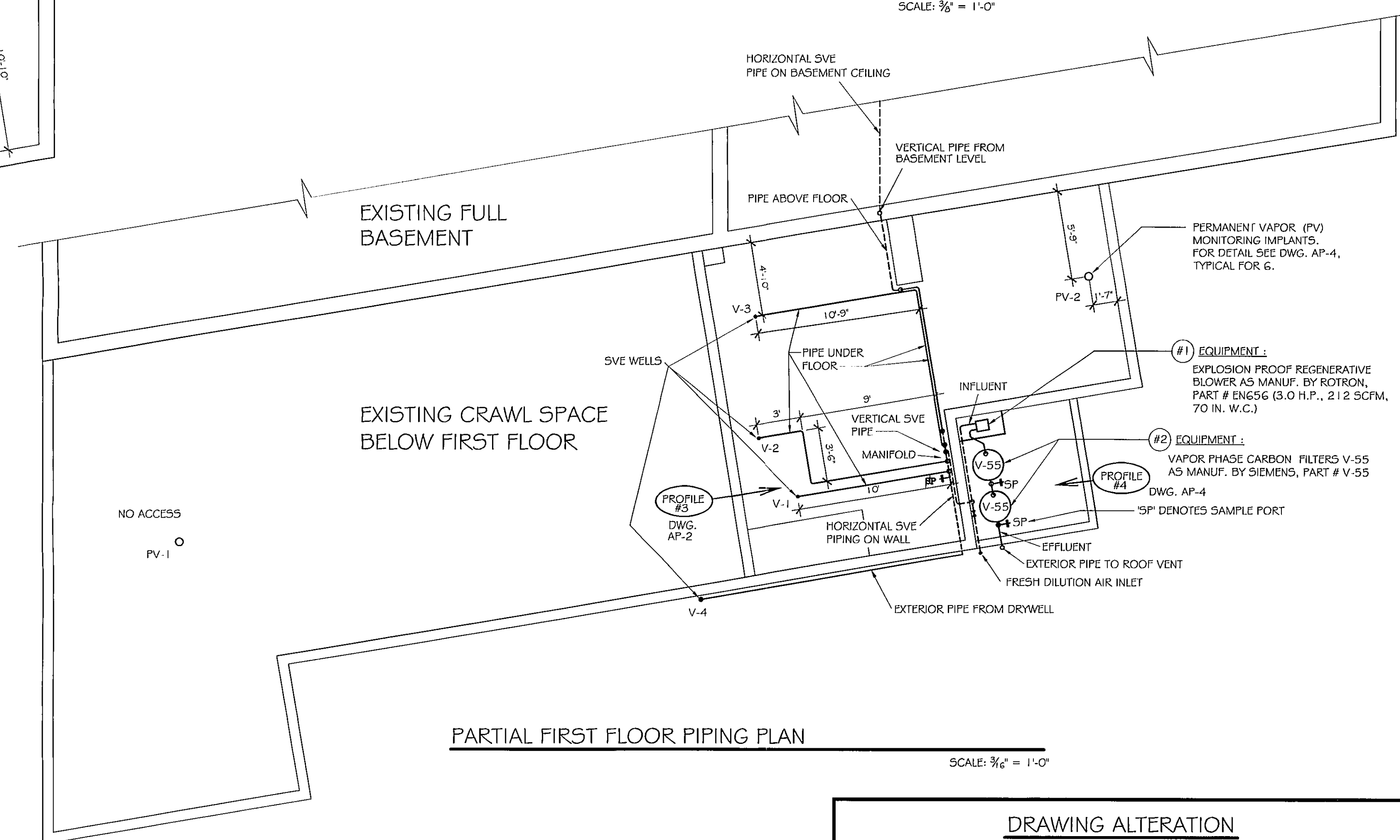
BASEMENT PIPING PLAN

SCALE: 3/16" = 1'-0"



PROFILE #1

SCALE: 3/16" = 1'-0"



PARTIAL FIRST FLOOR PIPING PLAN

SCALE: 3/16" = 1'-0"

DRAWING ALTERATION

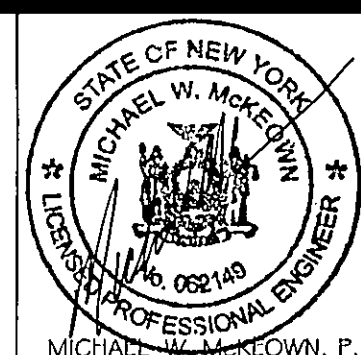
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, PROFESSIONAL ENGINEER, OR LAND SURVEYOR TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY.

ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

Issued for Approval

Berninger Environmental Inc.
90 Knickerbocker Avenue
Bohemia, New York 11716

Michael W. Mckeown, P.E.
6 Oak Ridge Court
Manorville, New York, 11949



NO.	DATE	REVISION	BY
1	6.12.09	ISSUED FOR DEPARTMENT OF HEALTH APPROVAL	W.L.

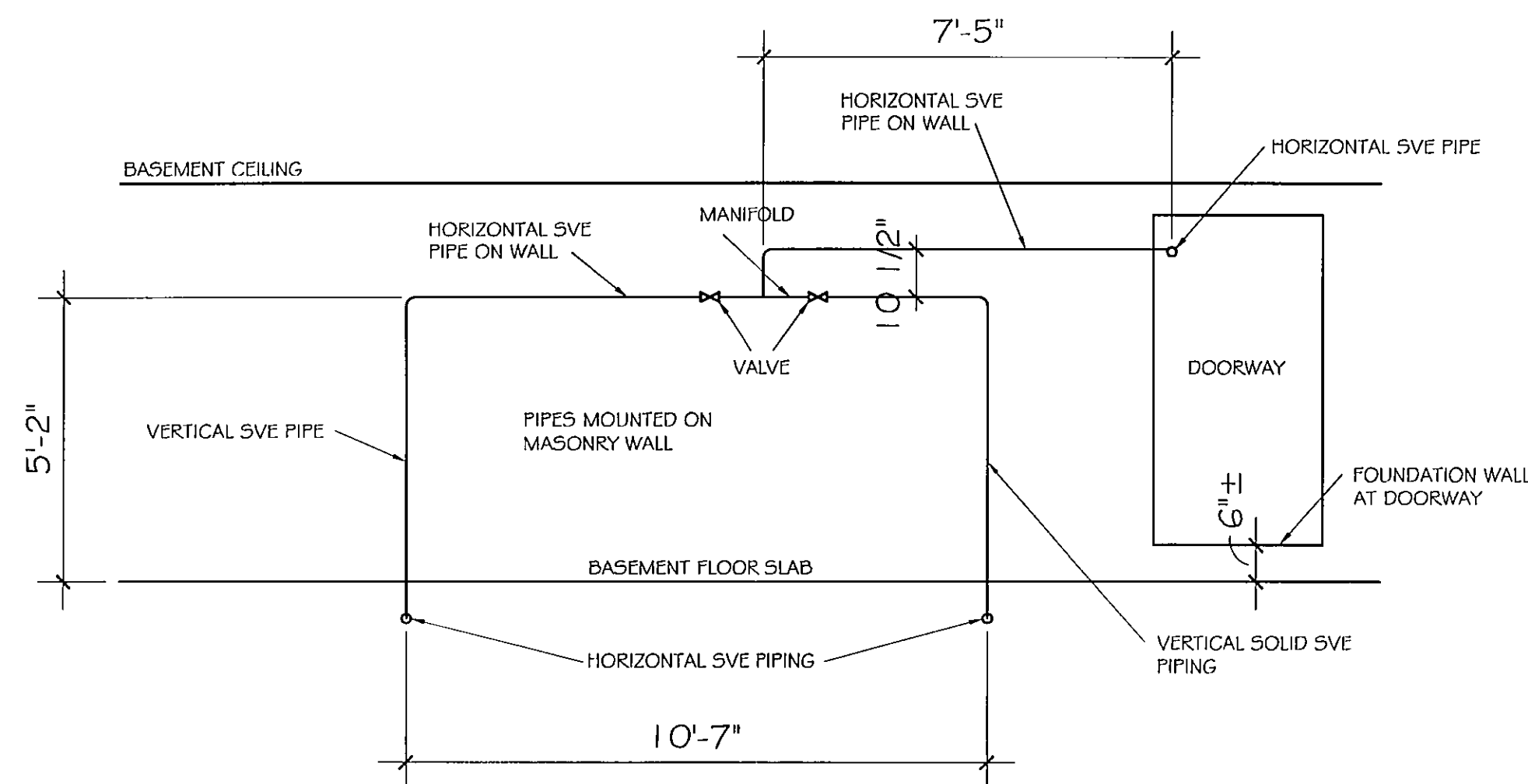
Air Permit Application for :
Schmuklers Cleaners
358-364 North Ave., New Rochelle, NY
Site # C360088

PROJECT NO.	052009
SCALE	AS NOTED
DATE	6.12.09
DRAWN BY	SM
CHECKED BY	M.W.M.

Part Plans and Schematic
Piping Elevations

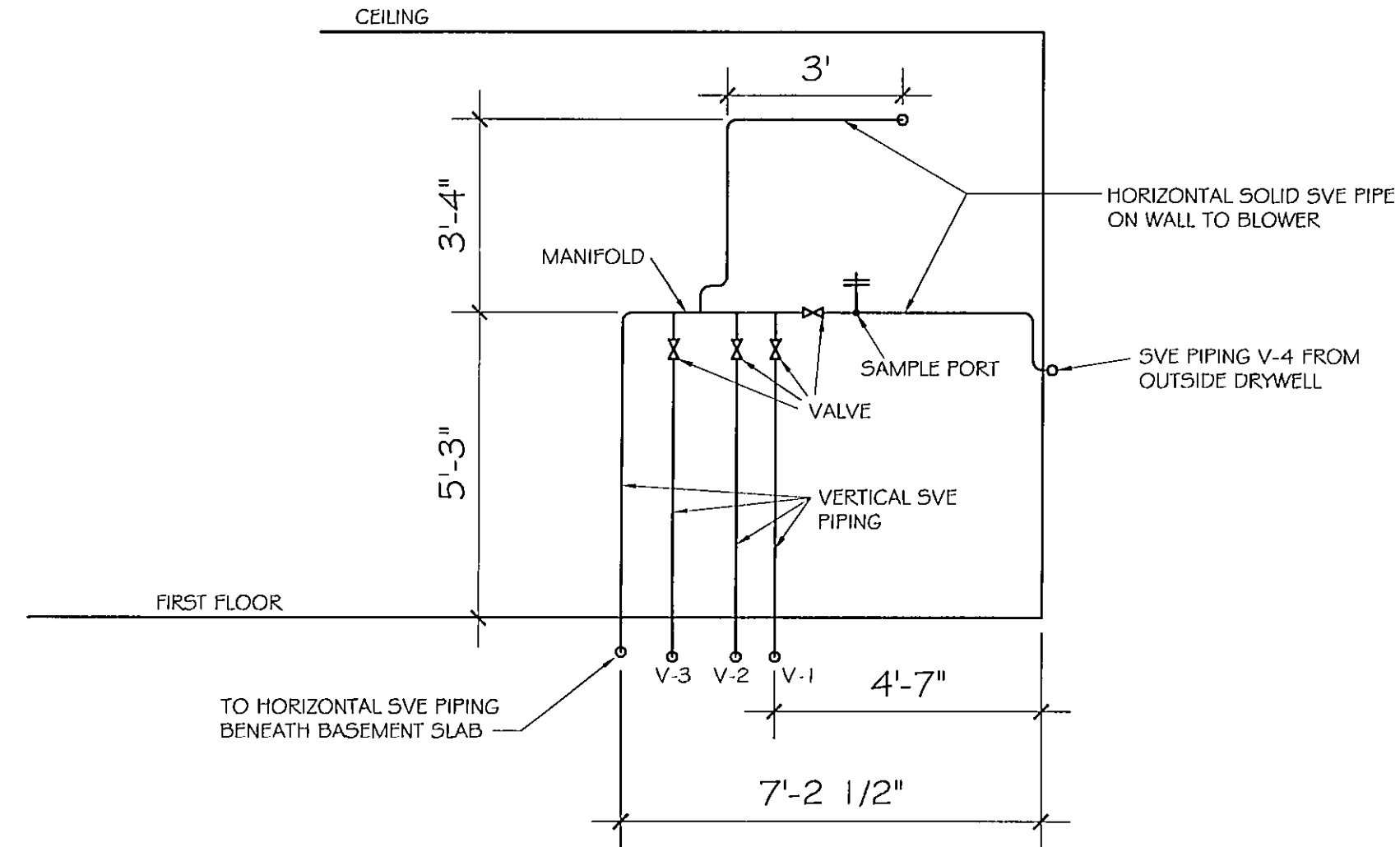
AP-3

SH. 3 OF 4



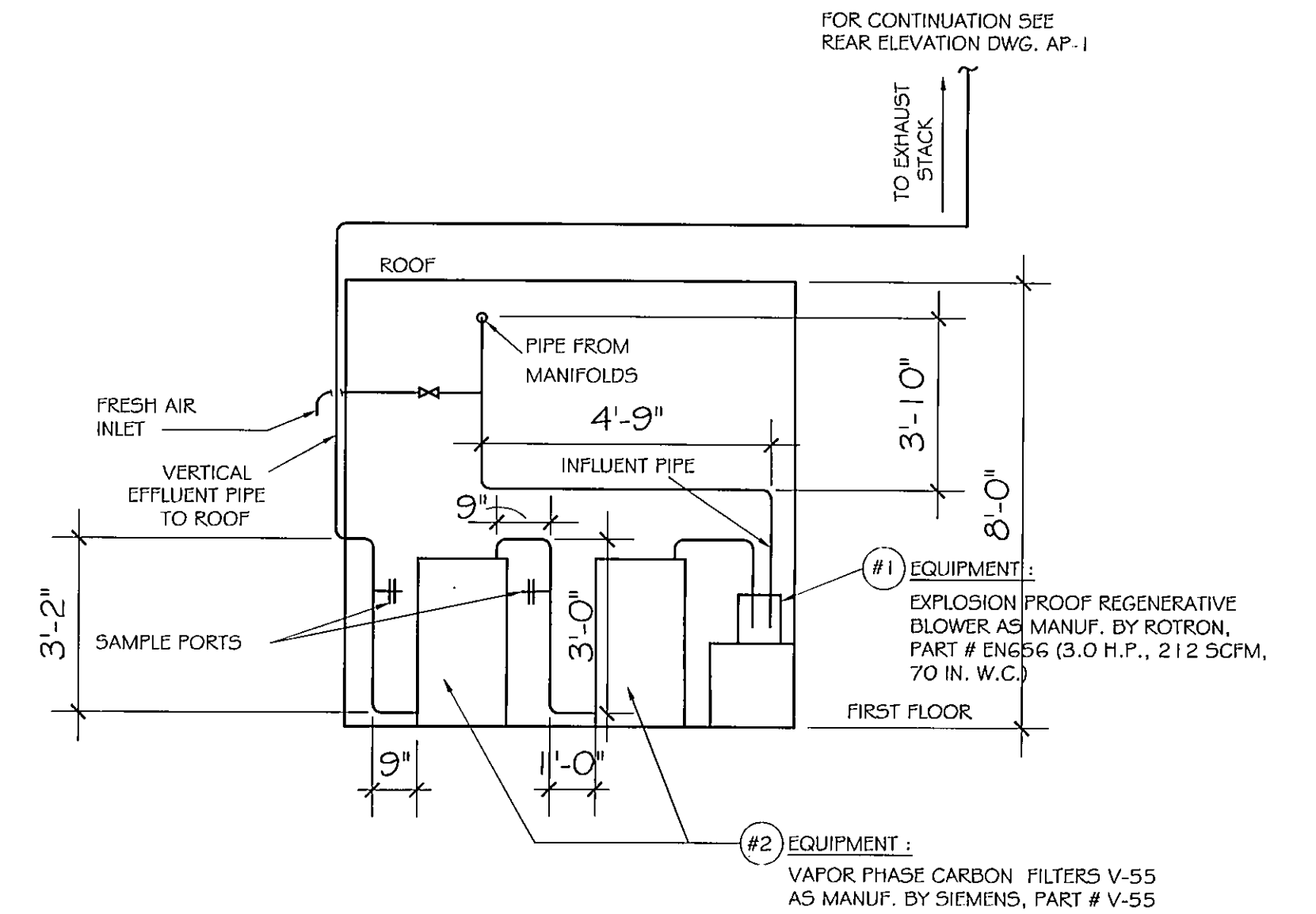
PROFILE #2

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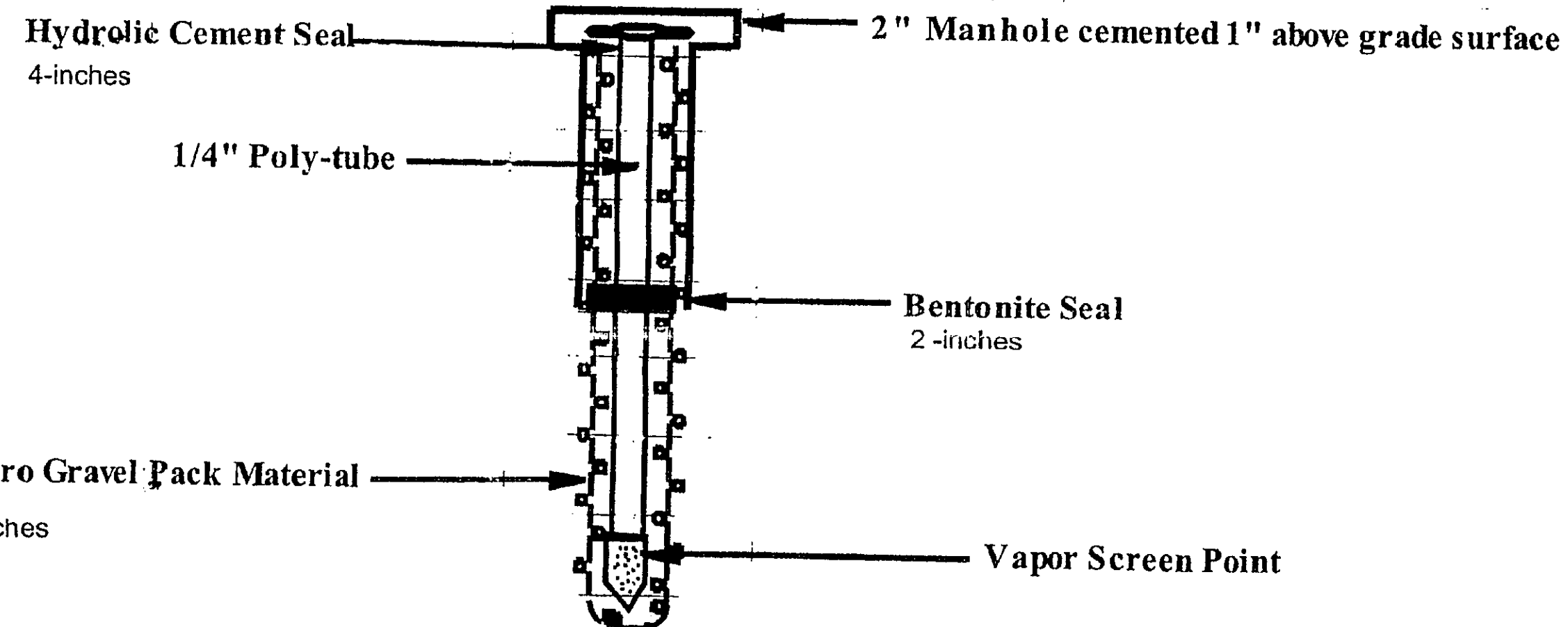
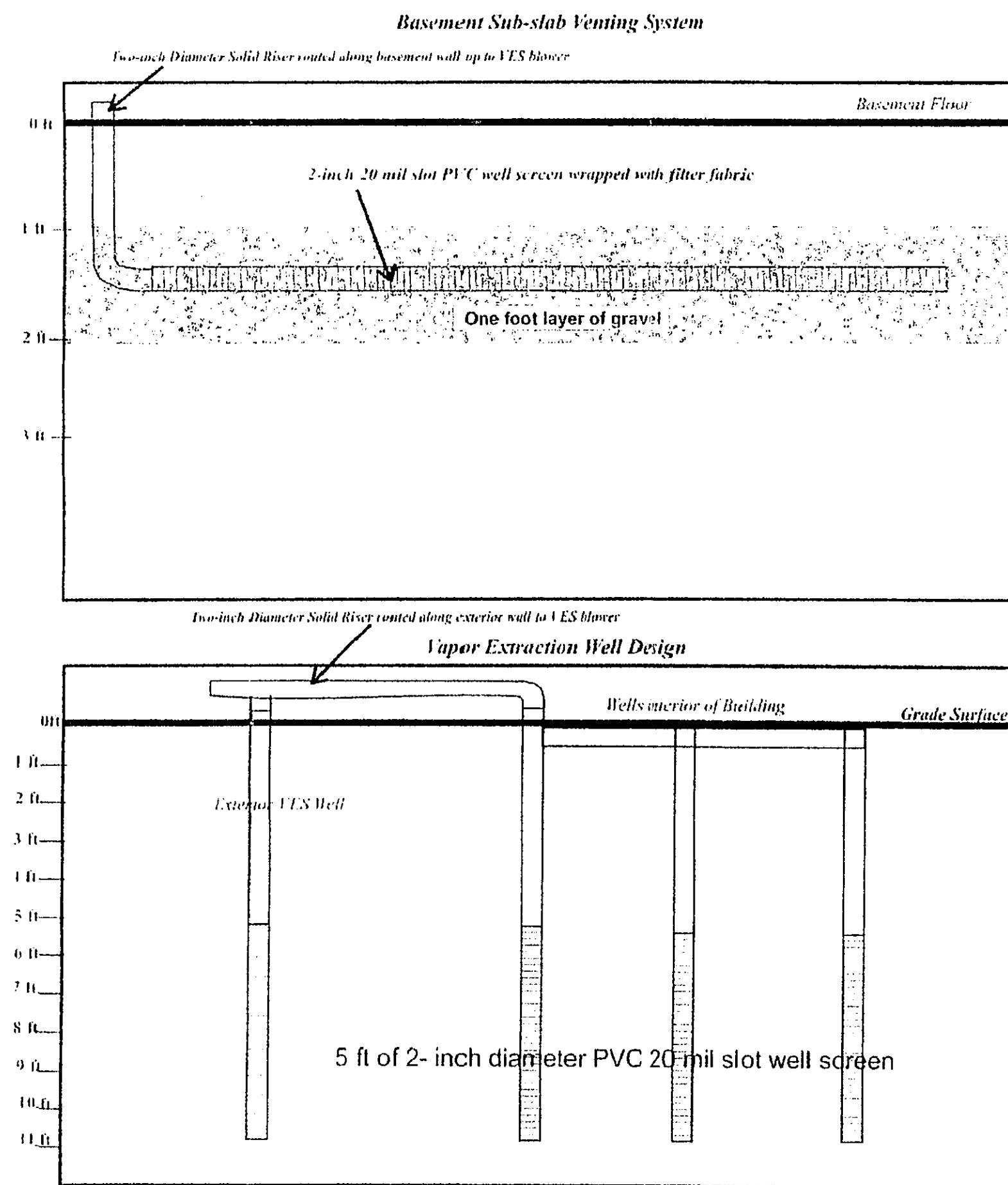
PROFILE #3

SCALE: 3/8" = 1'-0"



PROFILE #4

SCALE: 3/8" = 1'-0"



PERMANENT VAPOR (VP) MONITORING IMPLANTS

SCALE: NONE

Issued for Approval

DRAWING ALTERATION

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, PROFESSIONAL ENGINEER, OR LAND SURVEYOR TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY.

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Berninger Environmental Inc.
90 Knickerbocker Avenue
Bohemia, New York 11716

Michael W. McKeown, P.E.
6 Oak Ridge Court
Manorville, New York, 11949



NO.	DATE	REVISION	BY
1	6.12.09	ISSUED FOR DEPARTMENT OF HEALTH APPROVAL	W.L.

Air Permit Application for :
Schmuklers Cleaners
358-364 North Ave., New Rochelle, NY
Site # C360088

PROJECT NO.	052009
SCALE	SCALE: 3/8" = 1'-0"
DATE	6.12.09
DRAWN BY	SM
CHECKED BY	M.W.M.

TITLE

Piping Profiles

DRAWING NO.

AP-4

SH. 4 OF 4

Appendix-G

Quality Assurance Project Plan

QUALITY ASSURANCE/QUALITY CONTROL

HNJ REALTY LLC.

Former Schmukler's Dry Cleaners

358-364 North Avenue, New Rochelle, NY

Site No.: C360088 / Index No.: A3-0542-0306

PREPARED BY

JOHN V. SODERBERG

PO Box 263

Stony Brook, NY 11790

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jvsode@hotmail.com



631.751.6458

QUALITY
ASSURANCE/
QUALITY
CONTROL
(QA/QC)

August 2017

1.0 Quality Assurance /Quality Control (QA/QC) Procedures

The Quality Assurance/Quality Control Procedures established herein have been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by Site Management Plan (SMP). Quality Assurance/Quality Control (QA/QC) procedures were developed to ensure that suitable and verifiable data results from sampling and analyses are obtained. This investigation work plan provides detailed quality assurance procedures to be followed for sampling and laboratory analysis activities. These procedures will be implemented during the investigation.

To ensure the successful completion of the project each individual responsible for a given component of the project must be aware of the quality assurance objectives of his/her particular work and of the overall project. The Project Director, John V. Soderberg, P.E. will be directly responsible to the client for the overall project conduct and quality assurance/quality control (QA/QC) for the project. The Project Director will be responsible for overseeing all technical and administrative aspects of the project and for directing QA/QC activities. The Project Director will also be responsible for submitting the daily and monthly reports. Kimberly Lotito will serve as the Quality Assurance Officer (QAO) and in this role may conduct:

- periodic field sampling audits;
- interface with the analytical laboratory to resolve problems; and
- interface with the data validator to resolve problems

Walter Berninger will serve as the Project Manager and will be responsible for implementation of the Remedial Investigation and coordination with the field sampling crew. Justin Halpin will act as the Field Operations Officer who will record observations, direct the crew and be responsible for the collection and handling of all samples.

1.1 Organization

Project QA will be maintained under the direction of the Project Manager, in accordance with the QA/QC. QC for specific tasks will be the responsibility of the individuals and organizations listed below, under the direction and coordination of the Project Manager.

GENERAL RESPONSIBILITY	SCOPE OF WORK	RESPONSIBILITY OF QUALITY CONTROL
Field Operations	Supervise field crew, sample collection and handling	Justin Halpin, BEI
Project Manager	Implementation of SMP	Walter Berninger, BEI P.M.
Laboratory Analysis	Analysis of samples by NYSDEC ASP-B methods Laboratory	American Analytical-NYS ELAP certified lab

Data review	Review for completeness and compliance (DUSR)	3 rd party data validation by L.A.B. Validation Corp.
Professional Engineer (P.E) Project Director	QA/QC control and Project Director	John V. Soderberg P.E.
QAO	Field audits, interface with lab and lab validator	Kimberly Lotito, BEI

1.2 **Quality Assurance Objectives**

Overview

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan.

Quality Assurance and Quality Control are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.
- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

1.3 **QA/QC Requirements for Analytical Laboratory**

Samples will be analyzed by a laboratory which holds a current New York State Department of Health (NYSDOH) ELAP certification in the appropriate analyses. Data generated from the laboratory will be used primarily to evaluate on- and off-site contaminant levels consisting of VOCs, SVOCs, metals, PCBs and pesticides. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. The data generated by the analytical laboratory for this project are required to be sensitive enough to achieve detection levels low enough to meet required quantification limits as specified in NYSDEC Analytical Services Protocol (NYSDEC ASP, 07/2005). The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this remedial program as described in the Work Plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

1.3.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of

calibration curves and initial calibration response factors must be consistent with method requirements presented in the NYSDEC ASP 07/2005.

1.3.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hours by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

1.3.3 Method Blanks

Method blank or preparation blank is prepared from an analyte free matrix which includes the same reagents, internal standards and surrogate standards as the related samples. It is carried through the entire sample preparation and analytical procedure. A method blank analysis will be performed once for each 12 hour period during the analysis of samples for volatiles.

For non-target peaks in the method blank, the peak area must be less than 10 percent of the nearest internal standard. The method blank will be used to demonstrate the level of laboratory background and reagent contamination that might result from the analytical process itself.

1.3.4 Trip Blanks

Trip blanks consist of a single set of sample containers filled at the laboratory with deionized laboratory-grade water. The water used will be from the same source as that used for the laboratory method blank. The containers will be carried into the field and handled and transported in the same way as the samples collected that day.

Analysis of the trip blank for VOCs is used to identify contamination from the air, shipping containers, or from other items coming in contact with the sample bottles. (The bottles holding the trip blanks will not be opened during this procedure.) A complete set of trip blanks will be provided with each shipment of samples to the certified laboratory.

1.3.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NYSDEC ASP protocols for samples falling within the quantification limits without dilution.

1.3.6 Matrix Spike/ Matrix Spike Duplicate/Matrix Spike Blank Analysis

MS, MSD and MSB analyses will be performed to evaluate the matrix effect of the sample upon the analytical methodology along with the precision of the instrument by measuring

recoveries. The MS/MSD/MSB samples will be analyzed for each group of samples of a similar matrix at a rate of one for every 20 field samples. The RPD will be calculated from the difference between the MS and MSD. Matrix spike blank analysis will be performed to indicate the appropriateness of the spiking solution(s) used for the MS/MSD.

1.4 Accuracy, Precision, Sensitivity, Representativeness, Completeness, Custody

1.4.1 Accuracy

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%REC = SSR - SR/SA \times 100$$

Where:

SSR = spike sample results
SR = sample results
SA = spike added from spiking mix

1.4.2 Precision

Precision is defined as the measurement of agreement of a set of replicate results among themselves without a Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior formation as to the true result. Precision is assessed by means of duplicate/replicate sample analyses.

Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formula:

$$RPD = D_1 - D_2 / (D_1 + D_2) / 2 \times 100$$

Where:

RPD = relative percent difference
D₁ = first sample value
D₂ = second sample value (duplicate)

1.4.3 Sensitivity

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by the July 2005 NYSDEC ASP and to meet all site-specific standards, criteria and guidance values (SGCs) established for this project.

1.4.4 Representativeness

Representativeness is a measure of the relationship of an individual sample taken from a

particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Remedial Investigation Work Plan.

1.4.5 Completeness

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers, and should be between 70 and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP Category B reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory's ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).
6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results.
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

1.4.6 Laboratory Custody Procedures

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. Approximate sampling locations will be marked on a map with a description of the sample location. The number, type of sample, and sample identification will be entered into the field logbook. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

1.5 Analytical Procedures

1.5.1 Laboratory Analysis

Groundwater samples will be analyzed by the NYSDOH ELAP certified laboratory for TCL VOCs by USEPA Method 8260C with Tentatively Identified Compounds (TICs). Groundwater samples at monitoring wells MW-11 & 12 will additionally be analyzed for TCL SVOCs by USEPA Method 8270BN with TICs. One (1) yearly soil sample will be analyzed via NYSDEC Part 375 protocol for TAL metals by USEPA Method 6010, for pesticides/herbicides by EPA 8081B and 8151A, PCBs by USEPA Method 8082A, VOCs by USEPA Method 8260C, and SVOCs by USEPA Method 8270BN. Soil vapor samples will also be analyzed for VOCs by USEPA Method 8260C. If any modifications or additions to the standard procedures are anticipated, and if any nonstandard sample preparation or analytical protocol is to be used, the NYSDEC will be notified. Prior approval by the NYSDEC will be necessary for any dilution of samples or extracts by greater than a factor of five (5).

1.6 Data Reduction, Review and Reporting

1.6.1 Overview

The process of data reduction, review, and reporting ensures the assessments or conclusions based on the final data accurately reflects actual site conditions. This plan presents the specific procedures, methods, and format that will be employed for data reduction, review and reporting of each measurement parameter determined in the laboratory and field. Also described in this section is the process by which all data, reports, and work plans are proofed and checked for technical and numerical errors prior to final submission.

1.6.2 Data Reduction

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review. All chemical sample analyses will be provided by a New York State ELAP certified environmental laboratory. Laboratory reports for all analyses will include ASP category B deliverables for use in the preparation of a Data Usability Summary Report (DUSR). All lab results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Analytical results shall be presented on standard NYSDEC ASP-B forms or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Laboratory QA/QC information required by the method protocols will be compiled,

including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data. Specifics on internal laboratory data reduction protocols are identified in the laboratory's SOPs. Following receipt of the laboratory analytical results the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability.

1.6.3 Lab Data Reporting

All sample data packages submitted by the analytical laboratory will be required to be reported in conformance to the NYSDEC ASP (7/2005), Category B data deliverable requirements as applicable to the method utilized. All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format.

1.7 Corrective Action

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the field investigation, all changes to the sampling program will be documented in field logs/sheets and the PM will be advised. If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs.

The PM shall be responsible for controlling, tracking, implementing and distributing identified changes only after prior approval from the NYSDEC and NYSDOH.

1.8 Soil Collection

Soil sampling will be conducted using a GeoProbe® direct push sampling rig using the dual tube sampling system. A new PVC liner is installed into the sampling barrel between each sampling event. The non-disposable equipment (drive point, barrel, subs and adaptors) is decontaminated before each sample collection following NYSDEC, Sampling Guidelines & Protocols. The decontamination procedure will include the use of a standard laboratory grade phosphate-free detergent (Alconox), followed by a municipal-supplied tap water, followed by a deionized water rinse and then allowed to air dry. The retrieved samples will be placed in laboratory-supplied analyte-free containers. The samples will be stored in a cooler containing ice to maintain a temperature of 4° Celsius and delivered under strict chain-of-custody to a New York State Department of Health (NYSDOH) ELAP-certified Laboratory providing Category B deliverables. All generated soil cuttings will be maintained in a DOT approved 55 gallon drum and stored in a locked, secured storage room with limited access. Upon completion of the project a soil sample from the drum(s) will be analyzed for disposal by an NYSDOH-ELAP certified laboratory; disposition will be based upon these sample analytical results and will be done in accordance with all federal, state, and city rules and regulations.

To ensure quality control, one (1) field blank will be collected per 20 samples by rinsing the field equipment with deionized water and submitting the rinse water in standard sample containers to a certified laboratory for analysis by EPA Method 8260C. A Matrix Spike/Matrix Spike Duplicate (MS/MSD) will also be collected at a rate of one per 20 soil samples. The MS/MSD serves as a duplicate soil sample for NYSDEC ASP-B deliverables. No trip blanks are required to be collected for soil samples for NYSDEC ASP-B deliverables. See Analytical Methods/Quality Assurance Summary Table-1.

1.9 Groundwater Collection(monitored wells)

Groundwater sampling will be conducted through the use of the existing on and off-site monitoring well network. New polyethylene tubing fitted with a Tubing Check Valve System is inserted down into the monitoring well to the depth of the slotted or screened point. For temporary well sampling EPA low flow procedures will be executed. Low flow procedures help to isolate the screened interval water from the overlying stagnant casing water allowing for most of the sample water to be drawn directly from the adjacent formation. Typical flow rates consist of collecting groundwater at a flow rate of 100ml-500 ml per minute. Groundwater grab samples will be collected from at least 2' above the bottom of the screened interval. BEI will lower a new 3/8" Teflon tube through the probe rods (very slowly) to 2' above the bottom of the slotted screen in order to purge and sample groundwater using a centrifugal pump with the flow rate mentioned above. The groundwater is then extracted through the Teflon tubing until purging parameters reach stabilization. The retrieved samples will be placed in a laboratory supplied analyte free 40 ml vials with hydrochloric acid (HCL) preservative. The samples will be stored in a cooler containing ice to maintain a temperature of 4° Celsius and delivered under strict chain-of-custody to a NYSDOH ELAP-certified laboratory providing Category B deliverables. Purged development water will be contained in a DOT approved 55 gallon drum and stored in a locked and secured storage room

with limited access. Upon completion of the project a liquid sample from the drum(s) will be analyzed for disposal by an NYSDOH ELAP-certified laboratory.

To ensure quality control, one (1) field blank will be collected per 20 samples by rinsing the field equipment with deionized water and submitting the rinse water in standard sample containers to a certified laboratory for analysis by TCL VOCs by EPA Method 8260C. One trip blank sample will be provided per sampling day and will be analyzed for the same parameters as the field blank sample. A Matrix Spike/Matrix Spike Duplicate (MS/MSD) will also be collected at a rate of one per 20 water samples. See Analytical Methods/Quality Assurance Summary Table-1.

1.10 Soil Vapor Intrusion (SVI)

The specific approach to SVI sampling will be dependent upon site-specific and building-specific conditions. The following sub-slab vapor, indoor air and outdoor air sampling procedures were derived from the NYSDOH Guidance for Soil Vapor Intrusion dated 2006.

1.10.1 Sub-slab Sampling

During colder months, heating systems should be operating to maintain normal indoor air temperatures (i.e., 65°-75°F) for at least 24 hours prior to and during the scheduled sampling time. Prior to installation of the sub-slab vapor probe, the building floor should be inspected and any penetrations (cracks floor drains, utility perforations, sumps, etc.) should be noted and recorded. Probes should be installed at locations where the potential for ambient air infiltration via floor penetrations is minimal. Sub-slab vapor probe installations may be permanent, semi-permanent or temporary. A vacuum should not be used to remove boring debris from the sampling port. Sub-slab implants or probes should be constructed in the same manner at all sampling locations to minimize possible discrepancies. The following procedures will be included in any construction protocol for temporary probes:

- Temporary probes will be constructed with inert tubing (e.g. Teflon tubing) of the appropriate size (typically 1/8 to 1/4 inch diameter) and of laboratory or food grade quality;
- Tubing will not extend further than 2 inches into the sub-slab material;
- Porous, inert backfill material will be added to cover about 1 inch of the probe tip;
- Finally, temporary implants will be sealed to surface using a non-VOC containing and non-shrinking products.

In order to obtain representative samples that meet the data quality objectives, sub-slab vapor samples should be collected in the following manner:

- after installation of the probes, one to three volumes (i.e., the volume of the sample probe and tube) will be purged prior to collecting the samples to ensure samples collected are representative;
- flow rates for both purging and collecting will not exceed 0.2 liters per minute to minimize ambient air infiltration during sampling;

- samples should be collected, using conventional sampling methods, in an appropriate container — one which:
 1. meets the objectives of the sampling (e.g., investigation of areas where low or high concentrations of volatile chemicals are expected; to minimize losses of volatile chemicals that are susceptible to photodegradation),
 2. is consistent with the sampling and analytical methods (e.g., low flow rate Summa® canisters if analyzing by using EPA Method TO-15), and
 3. is certified clean by the laboratory;
- sample size depends upon the volume of that will achieve minimum reporting limits the flow rate, and the sampling duration; and
- ideally, samples should be collected over the same period of time as concurrent indoor and outdoor air samples.

When sub-slab vapor samples are collected, the following actions should be taken to document conditions during sampling and ultimately to aid in the interpretation of the sampling results:

- historic and current storage and uses of volatile chemicals should be identified, especially if sampling within a commercial or industrial building (e.g., use of volatile chemicals in commercial or industrial processes and/or during building maintenance);
- the use of heating or air conditioning systems during sampling should be noted;
- floor plan sketches should be drawn that include the floor layout with sampling locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, HVAC system air supply and return registers, compass orientation (north), footings that create separate foundation sections, and any other pertinent information should be completed;
- outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sampling locations (if applicable), compass orientation (north), and paved areas;
- weather conditions (e.g., precipitation and indoor and outdoor temperature) and ventilation conditions (e.g., heating system active and windows closed) should be reported; and
- any pertinent observations, such as spills, floor stains, smoke tube results, odors and readings from field instrumentation (e.g., vapors via PID, ppb RAE, Jerome Mercury Vapor Analyzer, etc.), should be recorded.

Additional documentation that could be gathered to assist in the interpretation of the results includes information about air flow patterns and pressure relationships obtained by using smoke tubes or other devices (especially between floor levels). NYSDOH building questionnaires and inventory forms will also be filed in order to keep records of the building characteristics and sampling event.

1.10.2 Indoor Air Collection

During colder months, heating systems should be operating to maintain normal indoor air temperatures (i.e. 65°-75°F) for at least 24 hours prior to and during the scheduled sampling time. If possible, prior to collecting indoor samples, a pre-sampling inspection should be performed to evaluate the physical layout and conditions of the building being investigated to identify conditions that may affect or interfere with the proposed sampling and to prepare the building for sampling. This process is described in general, indoor air samples should be collected in the following manner:

- sampling duration should reflect the exposure scenario being evaluated without compromising the detection limit or sample collection flow rate (e.g., and 8 hour sample from a workplace with a single shift versus a 24 hour sample from a workplace with multiple shifts). To ensure that air is representative of the locations sampled and to avoid undue influence from sampling personnel, samples should be collected for at least 1 hour. If the goal of the sampling is to represent average concentrations over longer periods, then longer duration sampling periods may be appropriate. Typically, 24 hour samples are collected from residential settings;
- personnel should avoid lingering in the immediate area of the sampling device while samples are being collected;
- sample flow rates must conform to the specifications in the sample collection method and, if possible, should be consistent with the flow rates for concurrent outdoor air and sub-slab samples; and
- samples must be collected, using conventional sampling methods in an appropriate container—one which:
 1. meets the objectives of the sampling (e.g., investigation of areas where low or high concentrations of volatile chemicals are expected; to minimize losses of volatile chemicals that are susceptible to photodegradation),
 2. is consistent with the sampling and analytical methods (e.g., low flow rate Summa® canisters if analyzing by using EPA Method TO-15), and
 3. is certified clean by the laboratory.

NYSDOH building questionnaires and inventory forms will also be filed in order to keep records of the building characteristics and sampling event.

1.10.3 Outdoor Air Collection

Outdoor air samples should be collected simultaneously with indoor air samples to evaluate the potential influence, if any, of outdoor air on indoor air quality. They may also be collected simultaneously with soil vapor samples to identify potential outdoor air interferences associated with infiltration of outdoor air into the sampling apparatus while the soil vapor is collected. To obtain representative samples that meet the data quality objectives, outdoor air samples should be collected in a manner consistent with that for indoor air samples (described in Section 1.10.2).

The following actions should be taken to document conditions during outdoor air sampling and ultimately to aid in the interpretation of the sampling results:

- outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sampling locations, the location of potential interferences (e.g., gasoline stations, factories, lawn mowers, etc.), compass orientation (north), and paved areas;
- weather conditions (e.g., precipitation and outdoor temperature) should be reported; wind direction and;
- any pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity (e.g., operation of heavy equipment or dry cleaners) should be recorded.

Appendix-H

SMP Inspection Forms

Site Name: Schmuklers Cleaners
Appendix-J

Groundwater Data Collection Form Date:

Sampler: _____

Well	DTW	D.O	Cond.	ORP	PH	TEMP	TDS
MW-1							
MW-2							
MW-3							
MW-4							
MW-5							
MW-6							
MW-7							
MW-8							
MW-9							
MW-10							
MW-11*							
MW-12*							
BW-1							
BW-2							
BW-3							
BW-4							

*basement wells

Analytical Parameters:

TCL VOC's (8260C) plus TIC's

SVOCs (8270BN) MW-11 and MW-12 only

Procedures and Protocol (see QA/QC Plan)

SVE/SSDS System Monitor and Maintenance

Site Name: Schmukler Cleaner Site# C360088 Index# A3-0542-0306

Address: New Rochelle , NY Quarterly testing (per WCDOH)

Remediation System Present?

Type of System?

SVE/SSDS

Sampling Date:

PID Readings, MiniRae 2000, in ppm

Primary Drum:

Secondary Drum:

Influent Carbon:

Carbon Middle:

Final Effluent Carbon:

Pressure Readings

Pressure :

Pre motor vac :

Sampling Instructions:

Site Data

Wells	Air Flow Feet/min	PID ppm
V-1		
V-2		
V-3		
V-4		
V-5 (downstairs pipe)		
PV-1		
PV-2		
PV-3		
PV-4		
PV-5		
PV-6		

* na=not available

Site Inspection:

Was Carbon Drum Replaced ? Y __N__

Was Water Knockout Drum Emptied? Y __N__

Was System Shutdown Warning Light On__ Off__

How Much Water Was Drained? __gal__

If Off Why?

Indicate Any Sampling Procedures:

Any Visible Signs Of Leaks? __

Sampled by:

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____
 Address: _____ City: _____
 State: _____ Zip Code: _____ County: _____

Initial Report Period (Start Date of period covered by the Initial Report submittal)

Start Date: _____

Current Reporting Period

Reporting Period From: _____ To: _____

Contact Information

Preparer's Name: _____ Phone No.: _____

Preparer's Affiliation: _____

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	Total to Date
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-site.

	Current Reporting Period (tons)	Total to Date (tons)
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	Total to Date (miles)
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. Water Usage: Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	Total to Date (gallons)
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	Total to Date (acres)
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Other:

CERTIFICATION BY CONTRACTOR
<p>I, _____ (Name) do hereby certify that I am _____ (Title) of the Company/Corporation herein referenced and contractor for the work described in the foregoing application for payment. According to my knowledge and belief, all items and amounts shown on the face of this application for payment are correct, all work has been performed and/or materials supplied, the foregoing is a true and correct statement of the contract account up to and including that last day of the period covered by this application.</p>
<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Date</div> <div>Contractor</div> </div>

Appendix-I

Field Maintenance Logs

SVE/SSDS System Monitor and Maintenance

Site Name: Schmukler Cleaner Site# C360088 Index# A3-0542-0306

Address: New Rochelle , NY Quarterly testing (per WCDOH)

Remediation System Present?

Type of System?

SVE/SSDS

Sampling Date:

PID Readings, MiniRae 2000, in ppm

Primary Drum:

Secondary Drum:

Influent Carbon:

Carbon Middle:

Final Effluent Carbon:

Pressure Readings

Pressure :

Pre motor vac :

Sampling Instructions:

Site Data

Wells	Air Flow Feet/min	PID ppm
V-1		
V-2		
V-3		
V-4		
V-5 (downstairs pipe)		
PV-1		
PV-2		
PV-3		
PV-4		
PV-5		
PV-6		

* na=not available

Site Inspection:

Was Carbon Drum Replaced ? Y __N__

Was Water Knockout Drum Emptied? Y __N__

Was System Shutdown Warning Light On__ Off__

How Much Water Was Drained? __gal__

If Off Why?

Indicate Any Sampling Procedures:

Any Visible Signs Of Leaks? __

Sampled by:

Appendix-J

Groundwater Monitoring Parameters

Site Name: Schmuklers Cleaners
Appendix-J

Groundwater Data Collection Form Date:

Sampler: _____

Well	DTW	D.O	Cond.	ORP	PH	TEMP	TDS
MW-1							
MW-2							
MW-3							
MW-4							
MW-5							
MW-6							
MW-7							
MW-8							
MW-9							
MW-10							
MW-11*							
MW-12*							
BW-1							
BW-2							
BW-3							
BW-4							

*basement wells

Analytical Parameters:

TCL VOC's (8260C) plus TIC's

SVOCs (8270BN) MW-11 and MW-12 only

Procedures and Protocol (see QA/QC Plan)

Appendix-K

Monitoring Well Logs

John V. Soderberg P.E.
PO BOX 263
Stony Brook, NY

Figure-11

Drawn By: JGH

Well Log

Project: Schmuklers Dry Cleaners
Client: HNJ Realty LLC.
Location: Lockwood Ave. New Rochelle, NY
Well No: BW-1 **Use:** Monitoring
Drilling Method:
Casing Type: PVC **Casing Dia:** 2" **Casing Length:** 12'
Screen Type: PVC **Screen Dia:** 2" **Screen Length:** 5'
Screen Slot: 20 mil **Gravel Pack:** #2 Fil-pro
Casing Seal: Cement **Finish:** Cement flush
Date: 04/15/09
Be Job No:
Driller: Aquifer Drilling and Testing Inc.
Bore Hole Dia: 4.25"
Sample Method: N/A
Depth to Water: 9.47'
Total Depth: Approx. 18'
Security: 5" Manhole

[illegible]

Figure-12

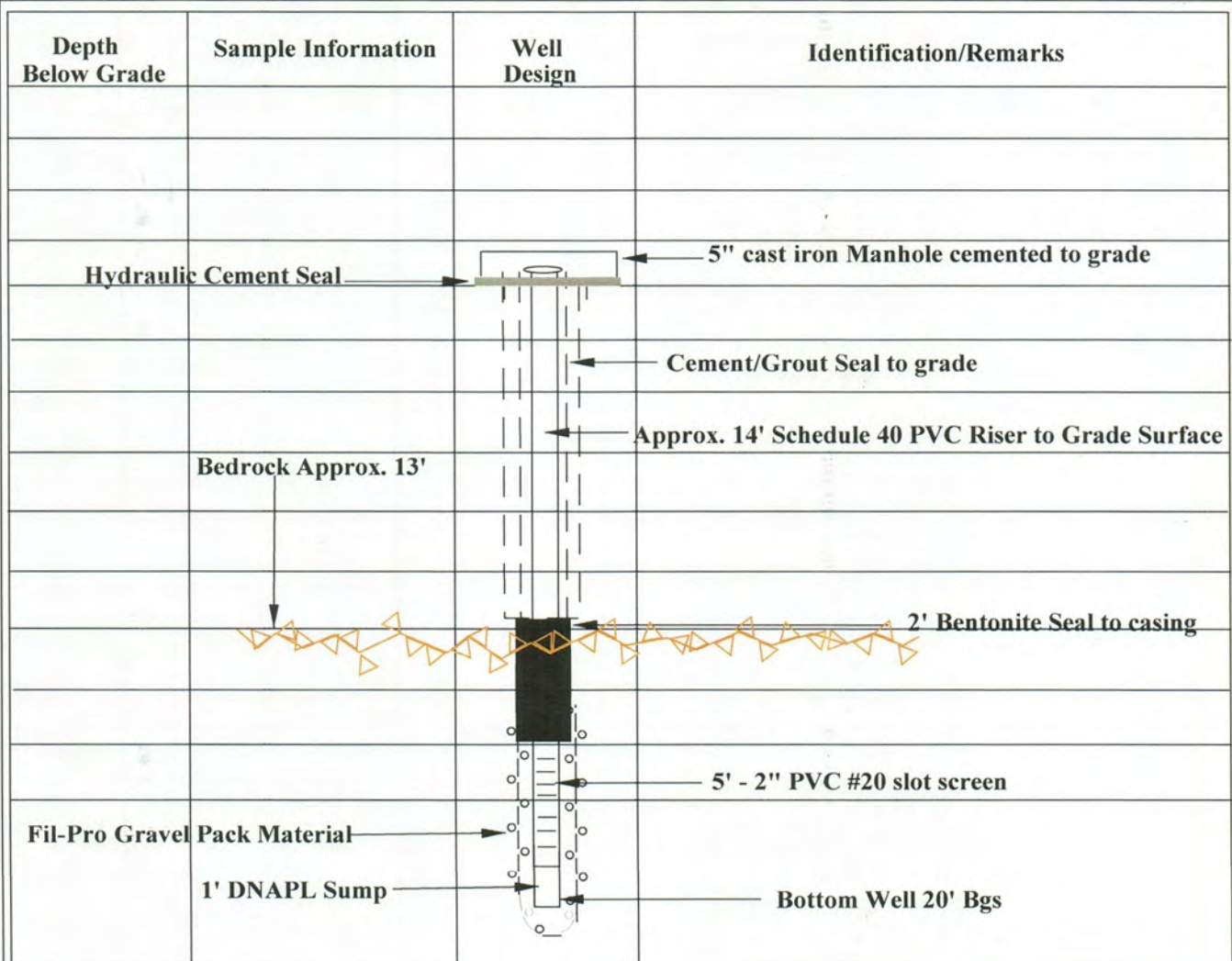
Drawn By: JGH

Project: Schmuklers Dry Cleaners
Client: HNJ Realty LLC.
Location: North Ave. New Rochelle, NY
Well No: BW-2 **Use:** Monitoring
Drilling Method:
Casing Type: PVC **Casing Dia:** 2" **Casing Length:** 11.5'
Screen Type: PVC **Screen Dia:** 2" **Screen Length:** 5'
Screen Slot: 20 mil **Gravel Pack:** #2 Fil-pro
Casing Seal: Cement **Finish:** Cement flush
Date: 04/15/09
Be Job No:
Driller: Aquifer Drilling and Testing Inc.
Bore Hole Dia: 4.25"
Sample Method: N/A
Depth to Water: 10.40'
Total Depth: 17.35'
Security: 5" Manhole

[illegible]

Drawn By: JGH

Project: Schmuklers Dry Cleaners
Client: HNJ Realty LLC.
Location: May St. New Rochelle, NY
Well No: BW-3 **Use:** Monitoring
Drilling Method:
Casing Type: PVC **Casing Dia:** 2" **Casing Length:** 14'
Screen Type: PVC **Screen Dia:** 2" **Screen Length:** 5'
Screen Slot: 20 mil **Gravel Pack:** #2 Fil-pro
Casing Seal: Cement **Finish:** Cement flush



John V. Soderberg P.E
PO BOX 263
Stony Brook, NY

Figure-23

Drawn By: JGH

Well Log

Project: Schmuklers Dry Cleaners
Client: HNJ Realty LLC.
Location: North Ave. New Rochelle
Well No: BW-4 **Use:** Monitoring
Drilling Method:
Casing Type: PVC **Casing Dia:** 2" **Casing Length:** 10'
Screen Type: PVC **Screen Dia:** 2" **Screen Length:** 10'
Screen Slot: 0.02" **Gravel Pack:** #2 Fil-pro
Casing Seal: Cement **Finish:** Cement flush

Date: March 2013
Be Job No:
Driller: Salamone Bros.
Bore Hole Dia: 4.25"
Sample Method: 8260 and 8270
Depth to Water: 12'
Total Depth: 20'
Security: 5" Manhole

Figure: 23

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0			
4			
8	Bedrock Approx. 9'		
12			
16			
20			

5" cast iron Manhole cemented to grade
Hydraulic Cement Seal

Cement/Grout Seal to grade

10' Schedule 40 PVC Riser to Grade Surface

2' Bentonite Seal to casing

10' - 2" PVC #20 slot screen

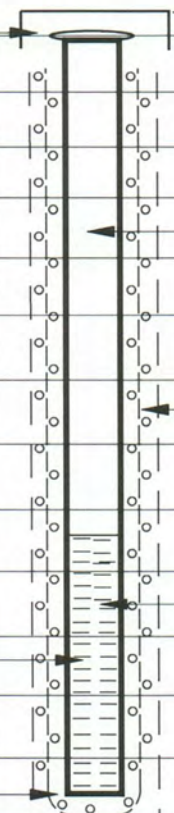
Fil-Pro Gravel Pack Material

1' DNAPL Sump

Bottom Well 21' Bgs

Drawn By: JHC

Project:	Schmuklers Dry Cleaners			Date:	11/11/08
Client:	HNJ Realty LLC.			Be Job No:	
Location:	358-364 North Ave. New Rochelle, NY			Driller:	Jon Jeffrey
Well No:	MW-1	Use:	Monitoring	Bore Hole Dia:	3.5"
Drilling Method:	Geoprobe direct push			Sample Method:	N/A
Casing Type:	PVC	Casing Dia:	2"	Casing Length:	9' 3"
Screen Type:	PVC	Screen Dia:	2"	Screen Length:	5'
Screen Slot:	20 mil	Gravel Pack:	#2 Fil-pro	Depth to Water:	12'
Casing Seal:	Cement	Finish:	Cement flush	Total Depth:	14' 3"
				Security:	5" Manhole

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole cemented in place (2" thick)
			2" x 9' 3" Schedule 40 Solid Riser
			Fil-Pro Gravel Pack Material
			2" x 5' PVC 20 mil. Slot Screen
Water Table 12'			
14' 3"	Bottom		
		Bedrock	

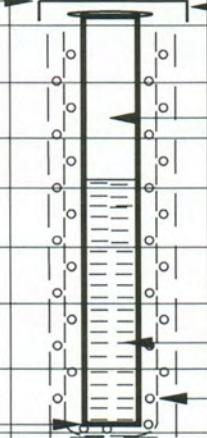
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PO BOX 263
Stony Brook, NY

Figure-15

Drawn By: JHG

Well Log

Project: Schmuklers Dry Cleaners	Date: 11/11/08
Client: HNJ Realty LLC.	Be Job No:
Location: 358-364 North Ave. New Rochelle, NY	Driller: Jon Jeffrey
Well No: MW-2 Use: Monitoring	Bore Hole Dia: 3.5"
Drilling Method: Geoprobe direct push	Sample Method: N/A
Casing Type: PVC Casing Dia: 2" Casing Length: 2' 2"	Depth to Water: N/A
Screen Type: PVC Screen Dia: 2" Screen Length: 5'	Total Depth: 7' 2"
Screen Slot: 20 mil Gravel Pack: #2 Fil-pro	Security: 5" Manhole
Casing Seal: Cement Finish: Cement flush	

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole cemented in place (2" thick)
			2" x 2' 2" Schedule 40 Solid Riser
			2" x 5' PVC 20 mil. Slot Screen
7' 2"	Bottom		Fil-Pro Gravel Pack Material
			Water Table 12'

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PO BOX 263
Stony Brook, NY

Figure-16

Drawn By: JGH

Well Log

Project: Schmuklers Dry Cleaners	Date: 11/11/08
Client: HNJ Realty LLC.	Be Job No:
Location: 358-364 North Ave. New Rochelle, NY	Driller: Jon Jeffrey
Well No: MW-3 Use: Monitoring	Bore Hole Dia: 3.5"
Drilling Method: Geoprobe direct push	Sample Method: N/A
Casing Type: PVC Casing Dia: 2" Casing Length: 8'	Depth to Water: 12.33'
Screen Type: PVC Screen Dia: 2" Screen Length: 5'	Total Depth: 13'
Screen Slot: 20 mil Gravel Pack: #2 Fil-pro	Security: 5" Manhole
Casing Seal: Cement Finish: Cement flush	

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole cemented in place (2" thick)
13'	Bottom		Water Table 12'

Drawn By: JGH

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
Aprox. 8 Feet		<p>The diagram shows a vertical cross-section of a well. At the top, there is a circular manhole opening. Below it, the well shaft is filled with gravel pack material, represented by small circles. A horizontal slot screen is located near the bottom of the shaft. The bottom of the well is labeled 'Bottom'.</p>	5" Manhole cemented in place (2" thick)
			Fil-Pro Gravel Pack Material
			2"x 2' PVC 20 mil. Slot Screen
Aprox. 10'	Bottom		

Drawn By: JGH

Project:	Schmuklers Dry Cleaners	Date:	11/11/08
Client:	HNJ Realty LLC.	Be Job No:	
Location:	358-364 North Ave. New Rochelle, NY	Driller:	Jon Jeffrey
Well No:	MW-5	Use:	Monitoring
Drilling Method:	Geoprobe direct push		
Casing Type:	PVC	Casing Dia:	2"
		Casing Length:	N/A
Screen Type:	PVC	Screen Dia:	2"
		Screen Length:	17"
Screen Slot:	20 mil	Gravel Pack:	#2 Fil-pro
Casing Seal:	Cement	Finish:	Cement flush
		Security:	5" Manhole

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
Aprox. 8 Feet		<p>The diagram shows a vertical cross-section of a well. At the top, there is a circular manhole opening. Below it, the well shaft is filled with gravel pack material, represented by small circles. A horizontal line indicates the level of the gravel pack. Below the gravel pack, there is a slot screen, represented by a dashed line. The bottom of the well is labeled 'Bottom'.</p>	5" Manhole cemented in place (2" thick)
			Fil-Pro Gravel Pack Material
			2"x 17" PVC 20 mil. Slot Screen
Aprox. 10'	Bottom		

Drawn By: JHG

[illegible]

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PO BOX 263
Stony Brook, NY

Figure-25

Drawn By: JHG

Well Log

Project: Schmuklers Dry Cleaners
Client: HNJ Realty LLC. 358-364 North Ave. New Rochelle, NY
Location: Rear of building
Well No: MW-7 **Use:** Monitoring
Drilling Method: Geoprobe direct push
Casing Type: PVC **Casing Dia:** 1" **Casing Length:** 2'
Screen Type: PVC **Screen Dia:** 1" **Screen Length:** 10'
Screen Slot: 0.02" **Gravel Pack:** #2 Fil-pro
Casing Seal: Cement **Finish:** Cement flush

Date: March 2013
Be Job No:
Driller: Butch
Bore Hole Dia: 2.25"
Sample Method: n/a
Depth to Water: n/a
Total Depth: 12'
Security: 5" Manhole

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole cemented in place
			2' of (1") Schedule 40 Solid Riser
			2' Bentonite Seal to casing
5'			
			Fil-Pro Gravel Pack Material
			10' - 2" PVC 0.02" Slot Screen
12'	Bedrock		

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Stony Brook, NY

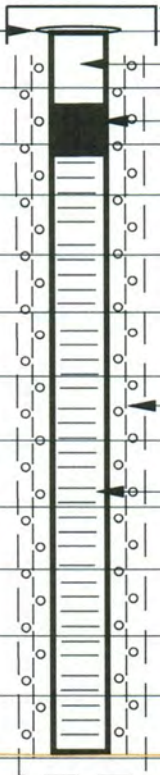
Figure: 26

Drawn By: JHG

Well Log

Project: Schmuklers Dry Cleaners
Client: HNJ Realty LLC. 358-364 North Ave. New Rochelle, NY
Location: Rear of building
Well No: MW-8 **Use:** Monitoring
Drilling Method: Geoprobe direct push
Casing Type: PVC **Casing Dia:** 1" **Casing Length:** 2'
Screen Type: PVC **Screen Dia:** 1" **Screen Length:** 10'
Screen Slot: 0.02" **Gravel Pack:** #2 Fil-pro
Casing Seal: Cement **Finish:** Cement flush

Date: March 2013
Be Job No:
Driller: Butch
Bore Hole Dia: 2.25"
Sample Method: n/a
Depth to Water: n/a
Total Depth: 12'
Security: 5" Manhole

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole cemented in place
			2' of (1") Schedule 40 Solid Riser
			2' Bentonite Seal to casing
5'			
			Fil-Pro Gravel Pack Material
			10' - 2" PVC 0.02" Slot Screen
12'	Bedrock		

John V. Soderberg P.E
PO BOX 263
Stony Brook, NY

Drawn By: JHG

Specs for MW-9 and 10

Project: Schmuklers Dry Cleaners	Date: July 2015
Client: HNJ Realty LLC. 358-364 North Ave. New Rochelle, NY	Be Job No:
Location: Rear of building	Operator: Butch
Well No: MW-9 and 10 Use: Monitoring	Bore Hole Dia: 2.25"
Install Method: Geoprobe direct push	Sample Method: n/a
Casing Type: PVC Casing Dia: 1" Casing Length: 10'	Depth to Water: 12'
Screen Type: PVC Screen Dia: 1" Screen Length: 5'	Total Depth: 15'
Screen Slot: 0.02" Gravel Pack: #2 Fil-pro	Security: 5" Manhole
Casing Seal: Cement Finish: Cement flush	Figure - 5

Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole Cover (flush grade, cemented in place)
			Hydraulic Cement Seal
5'			10' of (1") PVC Riser Pipe
			2' Bentonite Seal to Casing
10'			Fil-Pro Gravel Pack Material
			5' - 1"PVC 0.02" Slot Screen
15'			DTB = 15'

John V. Soderberg P.E
PO BOX 263
Stony Brook, NY

Drawn By: JHG

Specs for MW-11 and 12

Project: Schmuklers Dry Cleaners	Date: June 2015
Client: HNJ Realty LLC. 358-364 North Ave. New Rochelle, NY	Be Job No: 6800
Location: Rear of building	Operator: Butch
Well No: MW-11 and 12 Use: Monitoring	Bore Hole Dia: 2.25"
Install Method: Manual Hand Auger	Sample Method: 8260/8270
Casing Type: PVC Casing Dia: 2" Casing Length: 2'	Depth to Water: 4'
Screen Type: PVC Screen Dia: 2" Screen Length: 3.5'	Total Depth: 5.5'
Screen Slot: 0.02" Gravel Pack: #2 Fil-pro	Security: 5" Manhole
Casing Seal: Cement Finish: Cement flush	Figure -6

* Depth Below Grade	Sample Information	Well Design	Identification/Remarks
0 Feet			5" Manhole Cover (flush grade, cemented in place)
			Hydraulic Cement Seal
1.5'			2' of (2") PVC Riser Pipe
3'			1' Bentonite Seal to Casing
4.5'			3.5' - 2" PVC 0.02" Slot Screen
6'			Fil-Pro Gravel Pack Material
			DTB = 5.5'

notes: *wells are located in basement floor approx 8' bgs

John V. Soderberg P.E
PO BOX 263
Stony Brook, NY

Figure-19

drawn by: JGH

Bedrock Core Log

Project: Schmuklers Dry Cleaners

Client: HNJ Realty LLC.

Location: Lockwood

Be Job No:

Driller: ADT

Drill Rig: 

Date: 5/7/09

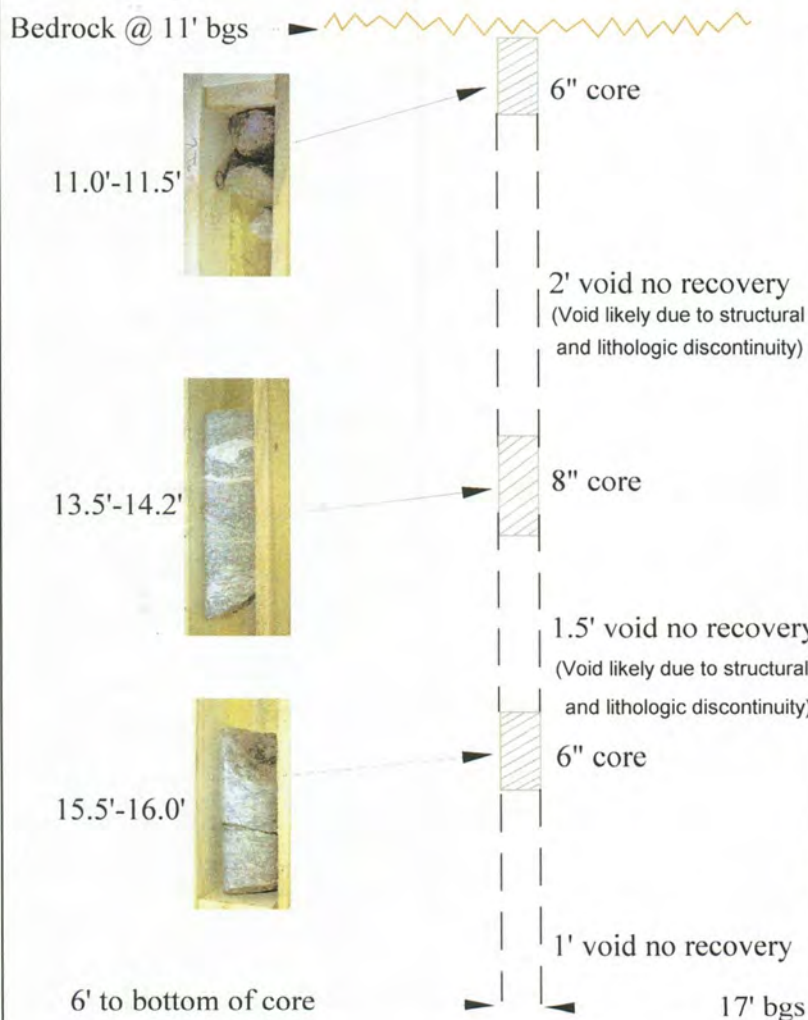
Use: Monitoring/Surveying

Depth to Water: N/A

Total length: 7.2'

Well No: BW-1

Bore Hole Dia: 4.25"



Lithology

11.0'-11.5'

-Mica schist, very little foliation, iron mottling on angular fragments (weathering on natural fracture surfaces). Smaller core was quartzite; angular with 3 out of 4 faces weathered, little foliation.

Comments:

-Moderately weathered upper bedrock surface, with natural fractures with evidence of water/chemical degradation. No calcite or evaporates deposits.

13.5'-14.2'

-Schist has changed over to a dense quartzite with larger quartz veins. Induced conchoidal fractures, not weathered, more competent rock.
-Natural fracture noted at base of core, with weathering, but not degradation of rock surface.

Comments:

-More competent rock, fracture only at base of core.
-Little secondary permeability, dense.

15.5'-16.0'

-Very dense quartzite, remnant foliations present.
-Fractures appear tight and secondarily caused by drilling, some weathering, no mottling of surfaces.

Comments:

- Little if any secondary permeability, competent dense rock.

John V. Soderberg P.E
PO BOX 263
Stony Brook, NY

Figure-20

drawn by: JGH

Bedrock Core Log

Project: Schmuklers Dry Cleaners

Client: HNJ Realty LLC.

Location: North Ave.

Be Job No:

Driller: ADT

Drill Rig:



Date: 5/7/09

Use: Monitoring/Surveying

Depth to Water: N/A

Total length:

Well No: BW-2

Bore Hole Dia: 4.25"

Bedrock @ 9.5' bgs



no recovery

Comments/Notes

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Stony Brook, NY

Figure-21

drawn by: JGH

Bedrock Core Log

Project: Schmuklers Dry Cleaners

Client: HNJ Realty LLC.

Location: May st.

Be Job No: _____

Driller: ADT

Drill Rig: 

Date: 5/7/09

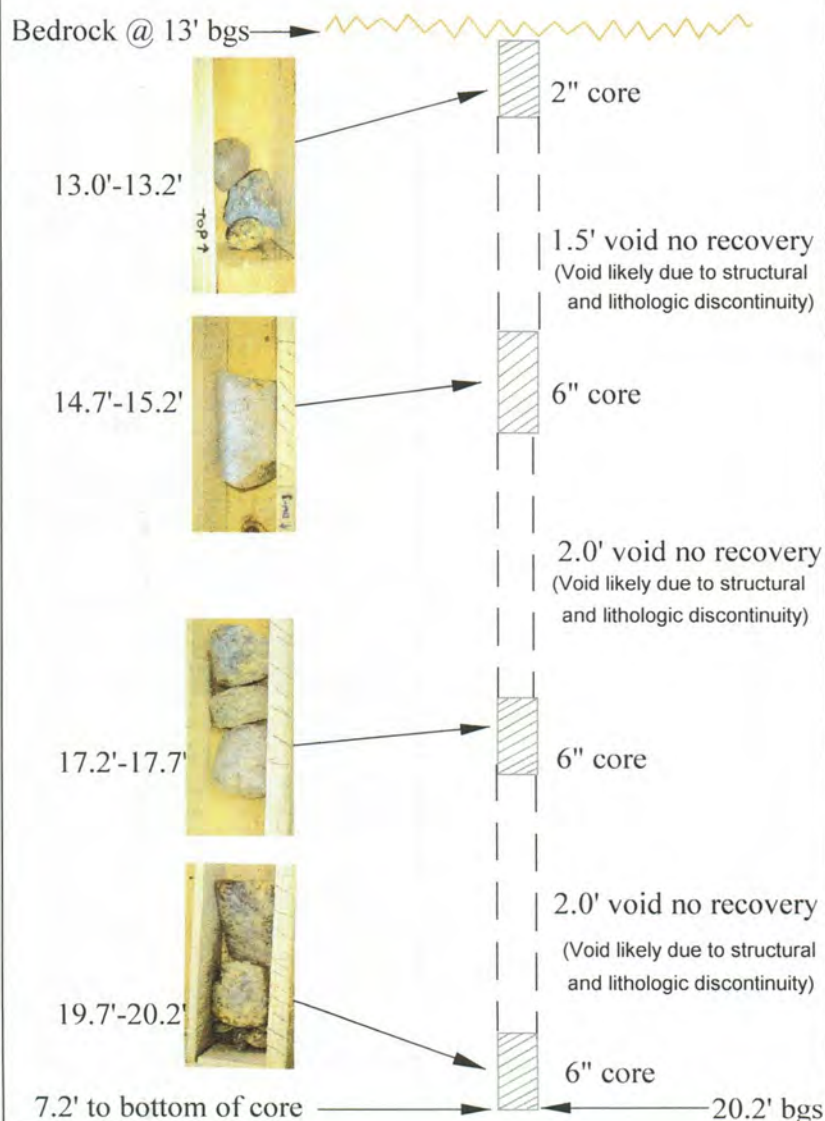
Use: Monitoring/Surveying

Depth to Water: N/A

Total length: 7.2'

Well No: BW-3

Bore Hole Dia: 4.25"



Lithology

13.0'-13.2'

-Mica schist, heavily weathered and degraded
Schist grades into quartzite which shows a
"manufactured" fracture caused by drilling
-One horizon was partially weathered and rust
mottled

Comments: Heavily weathered upper bedrock
surface, grading into denser rock, with less
weathering. No calcite or evaporates deposits.

14.7'-15.2'

-Very dense quartzite, with very little iron or
remnant foliations. Competent rock, base of
core is a natural fracture with a weathered
surface.

Comments:
Little secondary permeability

17.2'-17.7'

-Very dense quartzite, with more iron-rich remnant
foliations. Core possessed a natural fracture
length-wise indicating a high degree of large
scale fractures, likely secondary permeability.
Surfaces were weathered.

Comments: High degree of large scale fractures
likely good secondary permeability.

19.7'-20.2'

-Dense quartzite with significantly more large
scale weathered fractures. Surfaces were
weathered

Comments:
-High degree of fractures indicating a high degree
of likely secondary permeability.

Appendix-L

OM&M Plan (SVE/SSDS)

BROWNFIELD CLEANUP PROGRAM

INTERIM REMEDIAL MEASURE

CONSTRUCTION COMPLETION REPORT

FINAL

FOR

HNJ REALTY LLC.

FOR

SCHMUKLER'S CLEANERS

358 - 364 North Avenue, New Rochelle, New York

Site No.: C360088

Index No.: A3-0542-0306

PREPARED FOR

NEW YORK STATE DEPARTMENT OF

ENVIRONMENTAL CONSERVATION

625 Broadway

Albany, New York 12233-7016



PREPARED BY

JOHN V. SODERBERG P.E

PO Box 263

STONY BROOK, NEW YORK

October 2013

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Appendix - B	Photo Log (SVE install pictures)
Appendix - C	WCDOH Air Discharge Permit (ADP)
Appendix - D	As-built P.E drawings
Appendix - E	Flex hose spec sheet (1ZLR2)
Appendix - F	System Venting Door Louvers
Appendix - G	Monitoring frequency reduction letter

Professional Engineer Certification

Certification:

I John V. Soderberg, PE, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER- 10.)

John Soderberg, P.E



Signature

SEAL:



NYS P.E License No.: 049975

Dated: October 24, 2013

1.0 INTRODUCTION

The following document is an Interim Remedial Measure Construction Completion Report (IRMCCR) developed for the subject property pursuant to the requirements of an executed Brownfield Cleanup Agreement (dated February 27, 2006), between the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER) and HNJ Realty, LLC, the Volunteer. The Site is a commercial property located at 358 through 364 North Avenue, New Rochelle, New York (see Figures 1-2), fully described as Section 4 - Block 1206 - Lot 19 of the tax maps of City of New Rochelle.

As per NYSDEC correspondence dated January 23, 2008, the NYSDEC in conjunction with the New York State Department of Health (NYSDOH) have dictated that *“a mitigation plan for the building must be prepared for Department review, and should be installed as an IRM in lieu of additional sampling in the on-site building.”* Therefore, this IRMCCR is provided to detail the installation of an engineering control to mitigate present and potential future impacts to indoor air quality within the subject building. Based upon prior studies, the VOCs are associated with the former historic uses of the building (i.e dry cleaning).

This IRMCCR contains the following: a summary of previous site data; summary of IRM remedial objectives; pilot test data and the final design of the engineering control; a description of all work performed in order to initialize start-up; documentation and permits from the Westchester County

Department of Health (WCDOH) authorizing operation. The IRMCCR has been drafted in accordance with section 5.8 of technical guidance document DER-10.

2.0 PREVIOUS SITE INVESTIGATION

The primary purpose of the remedial investigation was to delineate the lateral and vertical extent of VOC contamination (tetrachloroethene and its breakdown products) in all media that may be emanating from the subject property. The dry-cleaning operations previously occurred in a self-contained small portion of the property, comprised of a small added-on extension to the main building.

The remedial site investigation was performed pursuant to the requirements of the Brownfield Cleanup Agreement between the NYSDEC DER and HNJ Realty, LLC, the Volunteer. Task 1a (Indoor Air Testing), Task 1b (Soil Gas Investigation), Task 2 (Soil Investigation), and Task 3 (Groundwater Investigation) of the approved BCP Work Plan were performed by Berninger Environmental Inc. (BEI) in August of 2007. Supplemental (SRI) activities including the installation of three (3) bedrock wells, bedrock coring and sampling of these wells was conducted based upon the results of the RIWP. Additional supplemental investigation work is proposed as part of the ongoing supplemental site investigation which includes: the installation of one (1) additional bedrock well; and one (1) additional overburden well in order to delineate groundwater contamination. Groundwater flow direction will also be determined as part of the SRI but

preliminary geological assessments insinuate a southwesterly flow. At this point in the investigation BEI has set two primary goals: the first to delineate PCE contamination in groundwater and the second to determine the source of the on-site petroleum related contamination in soil.

3.0 INTERIM REMEDIAL MEASURE (IRM)

The IRM implemented includes both mitigation and remediation of the soil conditions underneath the basement concrete slab and the former dry cleaning equipment room. The installation of an active Soil Vapor Extraction (SVE) / Sub-Slab Depressurization System (SSDS) has been installed to accomplish soil gas, soil and to some extent groundwater remediation. Installation construction occurred during November and December of 2008. Pilot testing of the system was conducted during February 2009. The official start-up date for the SVE/SSDS is June 16, 2010.

3.1 Soil Vapor Migration Pathways

Typical soil vapor migration pathways include entrance into a building through cracks or perforations in the slab or walls, and through openings around sump pumps or where pipes and electrical wires go through the foundation. The vapor movement is primarily a result of a difference between interior and exterior pressures. As established in the NYSDOH Vapor Intrusion Guidance, October 2006, the basic requirements that must be established with respect to a soil vapor mitigation program are as follows:

- Methods of mitigation;
- Pilot Testing, Installation and design of mitigation system;
- Post-mitigation testing;

- Operation, maintenance and monitoring of mitigation systems and;
- Termination of mitigation system operations

3.2 Methods of Mitigation

The most effective mitigation methods for soil vapors include a combination of sealing any infiltration points and actively manipulating the pressure differential between the building's interior and exterior. The Soil Vapor Extraction/Sub-slab Depressurization (SVE/SSDS) system installed at the site has accomplished both soil gas mitigation and remediation of contaminated media.

3.2.1 Sealing of Infiltration Points

The interior area(s) identified as requiring mitigation has been further inspected as to the integrity and condition of the poured concrete floor and any utility or other perforation or penetrations into the subgrade surface. The basement contains a pit and other small scale penetrations through the floor that have been sealed with plexiglass and cement covers. As part of the IRM activities, all cracks and “sealable” penetrations have been sealed utilizing hydraulic cement or equivalent sealing material. All joints, cracks and other penetrations of slabs, floor assemblies and foundation walls below or in contact with the ground surface have been sealed with materials that prevent air leakage. All areas were sealed prior to the pilot test or any other testing performed at the property in order to limit the generation of misleading site data.

3.2.2 Buildings with a Basement

Knowledge of the building's foundation design was essential to determine the appropriate method to use for soil vapor mitigation. The building has been identified as possessing a basement with a poured concrete floor construction. In conjunction with sealing potential subsurface vapor entry points, an active Sub-Slab Depressurization System has been installed within the basement of the building, in addition to four SVE wells within the main level (rear) of the building and within an exterior drywell structure (see Figure 3). Specifically, a horizontal-laid SVE (H-pattern) that is functioning as a Sub-Slab Depressurization System (SSDS) has been installed within the basement of the building to mitigate soil/ soil vapors. The horizontal H-pattern system had to be installed within the basement due to the close proximity of groundwater within 3-3.5 feet below the basement slab. The horizontal PVC slotted pipes have been set within one foot sub-grade of the concrete floor, via trenching, in a gravel-based bed. Three conventional vertical SVE wells were installed within the slab-on grade rear portion of the building (former dry-cleaning equipment room). One exterior SVE well has been installed in the footprint of the drywell located adjacent to the rear building wall. This drywell was clearly identified during the prior RI as being impacted from former site operations. An overflow drywell possibly associated with same could not be identified during the RI.

The most common approach to achieving the depressurization beneath the slab is to insert the piping through the floor slab into the crushed rock or soil underneath (i.e., essentially creating a vacuum beneath the slab) and vent to the atmosphere. However, at this property, an active SVE/SSDS system acts to both depressurize and remediate the shallow soils underneath that have been confirmed to possess VOC impacts. The combined SVE/SSDS uses a vacuum blower and piping to draw vapors from the soil beneath the building's slab. This system uses high flow rates, induced vacuum or both to collect and remove contamination. The SSDS/SVE system has resulted in lower air pressure in the sub-slab, relative to indoor air pressure, which has served to prevent the future infiltration of sub-slab vapors into the building, in addition to actual mitigation of soil contamination that is giving rise to soil vapors.

3.3 Remedial SVE/SSDS System Design

Given the size and shape of the basement, the horizontal piping has been constructed in an elongated “H” pattern. The legs of the “H” are two sets of 2-inch, schedule 40 PVC, 0.02 inch slotted pipe approximately 30 feet long. These two sets of pipes are connected and manifolded via solid 2-inch PVC riser. This resulted in two sets of 60 feet (total of 120 feet) of slotted screen piping, traversing the entire width of the basement, offset by a distance of approximately 30 feet. The horizontal screened piping has been manifolded together via solid PVC piping mounted to the interior wall located in the center of the basement. Each H-pattern unit contains a manifold consisting of two (2) sampling ports in order to isolate monitoring at select areas of the basement. Gate valves affixed to each manifold allow for the levels of influence in a particular area to be adjusted according to contamination levels.

The solid pipe from the basement passes through a moisture separator before joining up with the manifolded piping from the three vertical, schedule 40, SVE wells located in the former dry-cleaning equipment room. At that point, the piping exits at the rear of the building to an effluent air treatment system. The one exterior SVE well installed in the drywell location was also connected to the SVE system. Access/sampling ports have been installed on the main manifold to allow for monitoring/evaluating the effectiveness of the system. (Figure-6 V-1-5 construction specs)

The solid SVE riser piping has been extended from the main manifold, where the blower unit is located, in a shed unit at the rear of the building. The PVC piping has been connected to the blower intake using non-collapsible flexible ductwork. Non-collapsible hose has been connected to the blower outlet or exhaust to form an air emission treatment system using vapor phase carbon canisters.(Appendix-E for hose specs 1ZLR2) Schedule 80 PVC connects the carbon units to the schedule 40 PVC exhaust stack. In-line sample ports and airflow gauges have been installed at locations along the exhaust piping prior to and subsequent to the air emission treatment system to evaluate the concentration of VOCs being discharged. Ultimately the effluent air stack extends to a height of approximately 10 feet above the highest neighboring roofline. The exhaust point is located away from the openings of other buildings and HVAC air intakes. See Appendix-D for P.E as built drawings of the SVE/SSDS system.

In addition to the NYSDEC and NYSDOH requirements, the Westchester County Department of Health has been contacted and a permit for the air discharges associated with the SSDS/SVE has been applied for and accepted. On November 29, 2010 the WCDOH issued a renewal CTO (certificate to operate) which is valid until November 29, 2013. Relevant correspondence, monitoring requirements and the renewed permit is attached as Appendix-C.

The engineering control and power source of the system is a 5.0 Hp EN 6 ROTRON explosion-proof blower, formerly a 3.0 Hp EN 656 ROTRON. See Appendix-A for blower specs. This unit is used to create the vacuum for the SVE/SSDS system. The blower unit has been wired to an existing electric sub-panel and operated by a control box located in a secure area of the building. An alarm or system fault light has been installed to indicate times that the system becomes inoperable due to equipment malfunction or power outages. The alarm is located in an area readily visible to the building occupants. Venting in the form of door louvers have been installed to reduce heat within the control room shed. See Appendix-F for pictures of vents. A pressure gauge has also been included as a supplemental warning device of system malfunction or failure. See Appendix-B for a photographic log of the system installation.

3.3.1 Pilot Testing of SVE System

A one-day pilot-test of the sub-slab beneath the basement floor has been conducted and the data results are positive. The objective of the pilot testing was to establish the radius of influence (ROI) for the SVE system. The pilot test has been conducted via six small diameter shallow soil sub-slab permanent vapor wells (PV). Four have been installed within the basement (PV-3-6) and two within the former steam-press and dry cleaning equipment rooms (PV-1-2) (see Figure 5). Specifically, the PVs in the basement are at an approximate distance of fifteen feet away from the legs of the “H”, installed approximately one foot deep within the poured concrete floor. Two PVs have been set inside the footprint of the “H” and two PVs to the east of the “H”, toward North Avenue. Two additional PVs have been installed 15-20 feet (north-south) radial distances from the three SVE wells

in the former dry cleaning equipment room. The PV monitoring points have been used to record pressure responses during the pilot test as per the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. (NYSDOH, 2006) and the *Radon Mitigation Standards* (USEPA 402-R-03-078). These PVs can also be used if necessary during other key phases of the project to check both on pressure as well as VOCs in soil gas. PVs are also referred to as SSVWs (Sub-Slab Vapor Wells)

A rotary coring tool was used to penetrate the concrete floor slab (in the basement and the first floor) to install ½ inch diameter PV monitoring points to an approximate depth of one foot below the concrete. These wells were installed as permanent points as per the NYSDOH guidance. A 3/8-inch diameter polyethylene tubing was affixed to the permanent soil vapor screen point which was installed to within one inch of the bottom of the hole at these monitoring locations. A permanent seal between the tubing and the concrete sub-floor was used to ensure that no air leaks are possible at the vacuum measuring point.(Figure-4 well log)

Air pressure (vacuum) measurements have been recorded at each of the six PV or SSVW monitoring points just before the start of each test to ensure that baseline sub-slab air pressures were within normal ranges. Air pressure measurements continued approximately once every 10 minutes while applying a continuous vacuum to the SVE/SSDS system. Air pressure has been measured with a Dwyer Magnehelic® vacuum meter, calibrated to atmospheric pressure prior to the test. The test has been run utilizing the Rotron blower, with the equivalent vacuum reading of 6 in/h₂O and a vacuum flow rate of approximately 80 cubic feet per minute (CFM).

The first test period was conducted until equilibrium conditions were established and completed. BEI conducted vacuum readings on each of the permanent vapor points (PV-1-6) in order to establish the

system radius of influence or ROI. CFM and PID readings were measured from the vertical SVE wells (V-1-5) to ensure proper airflow and VOC concentrations.(Figure-5)

The following table below displays all data recorded during the pilot test:

Wells	Vacuum	CFM	PID (ppm)
PV-1	0.1 in/H ₂ O	n/a	0.0
PV-2	0.2 in/H ₂ O	n/a	0.0
PV-3	.16 in/H ₂ O	n/a	2.8
PV-4	.76 in/H ₂ O	n/a	3.9
PV-5	0.1 in/H ₂ O	n/a	0.0
PV-6	.48 in/H ₂ O	n/a	0.0
V-1	4.1 in/H ₂ O	44.9 ft ³ /min	538
V-2	4.3 in/H ₂ O	48.42 ft ³ /min	170
V-3	4.5 in/H ₂ O	44.35 ft ³ /min	28.7
V-4	4.0 in/H ₂ O	50.88 ft ³ /min	0.1
V-5	3.5 in/H ₂ O	43.52 ft ³ /min	26.5

*n/a not available

The radius of influence appears to be approximately 15 feet from the center of each SVE well installed at the site. In the basement area impacted soils can be effected as far away as 15' from any point on the screened piping being that it is installed horizontally. Please refer to Figure-5 for the anticipated ROI of each vapor well.

3.4 Post-installation Testing

Routine airflow and concentration sampling of the SVE system has occurred on a monthly basis and BEI staff has collected airflow and bulk air concentration data over the last few years. Airflow

calculations for the SVE are generated using inline airflow rates and concentration data collected near the SVE well. In order to collect air concentration measurements, total VOC measurements have been measured with a Photoionization detector (PID) via a sample port installed in the solid PVC piping.

BEI has already started generating a database to store all data acquired during monthly monitoring. Quarterly reports to the Department include routine airflow and VOC concentration data collected during each monitoring event. Reports also detail any system repairs or alterations that occurred between sampling events. Generally, no continued indoor air quality monitoring is required because the system has been installed properly and is maintaining a vacuum beneath the entire slab. Drastic VOC reduction has been recorded since the early stages of the system's operation. This has led to a reduction in monitoring frequency approved by the Department. See Appendix-G for the frequency reduction letter.

3.5 Operation, Maintenance and Monitoring of SVE/SSDS

Based upon the mitigation system implemented at the site, the operation, maintenance and monitoring (OM&M) protocols for the system have been set forth in a site-specific OM&M plan. Subsequent to the initial installation and start-up of the system, weekly monitoring was conducted to evaluate the effectiveness of the system, as well as to ensure that the emission control system was operating effectively. Monthly vapor sampling (of the in-line sample ports) has been conducted to ensure that the system is adequately remediating VOC-impacted soils.

Routine maintenance has been conducted on a monthly basis with quarterly reporting being issued to the NYSDEC and WCDOH.

During routine maintenance, the following activities are conducted:

- a. A visual inspection of the complete system (e.g., vent fan, piping, warning device, labeling on systems, etc.);
- b. Identification and repair of leaks; and
- c. Inspection of the exhaust or discharge point to verify no air intakes have been located nearby.

As necessary, preventive maintenance (e.g., replacing vent fans), repairs and/or adjustments are made to the system to ensure its continued effectiveness at mitigating exposures related to soil vapor intrusion. The need for preventive maintenance depends upon the life expectancy and warranty for the specific part, as well as visual observations over time. The need for repairs and/or adjustments depends upon the results of a specific activity compared to that obtained when system operations were initiated. If significant changes are made to the system or when the system's performance is unacceptable, the system may need to be redesigned and restarted.

Operation and maintenance of the SVE has also been performed by BEI, which consists of observation and documentation of system component operations and conditions. BEI has established a point of contact with the property manager in the event that the system becomes inoperable ("system fault condition"). If a major repair requires the system to be offline for longer than a 24-hour period, the representative of the owner will contact the NYSDEC to discuss the problem and offer a schedule for repair.

In addition to the routine OM&M activities described herein, the building's owner and tenants have been given information packages that explain the systems operation, maintenance and monitoring.

Therefore, at any time during the systems operation, the building's owner or tenants may check that the system is operating properly.

On July 13, 2012 BEI replaced the original 3 Hp Rotron blower with a 5 Hp Rotron blower. The original 3 Hp blower exhibited internal catastrophic failure as a result of normal "wear and tear." Typically these blowers only last 2 -3 years due to the strenuous nature of continuously running 24 hours a day seven days a week.

3.6 Termination of SVE Operations

The SVE will not be turned off without prior approval from the State and WCDH (if necessary), except in emergency situations. The SVE will remain operational until it is no longer needed to address current or potential exposures related to soil vapor intrusion. Termination of the mitigation system will comply with the procedures discussed in the NYSDOH guidance and with NYSDEC and NYSDOH concurrence. A petition for the termination of the SVE operation would be based upon the following:

- a. Residual subsurface sources of contamination, if any, of VOCs in subsurface vapors have been remediated based upon an evaluation of appropriate post-remedial sampling results;
- b. Residual contamination, if any, in subsurface vapors is not expected to affect indoor air quality significantly based upon indoor air, outdoor air and sub-slab vapor sampling results;
- c. Residual contamination, if any, in subsurface vapors is not expected to affect indoor air quality significantly when the SVE is turned off based upon indoor air, outdoor air and sub-

slab vapor sampling results at representative structures: and

- d. There is no "rebound" effect that requires additional mitigation efforts observed when the SVE system is turned off for prolonged periods of time. This determination is based upon indoor air, outdoor air and sub-slab vapor sampling from the building over a time period, which will depend upon site-specific conditions.

BEI will work with the property owner to make such a determination if any one of the above conditions has been satisfied and both the NYSDEC and NYSDOH will be petitioned on this matter for concurrence prior to system termination.

4.0 EVALUATION OF PROPOSED MITIGATION PROGRAM

4.1 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375 Section 1.10, which governs the remediation of environmental restoration projects in New York State. The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection as follows:

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of the remedial alternative's ability to protect public health and the environment. The installation of engineering controls such as an SVE/SSDS has been recognized for a long time as the foremost means of achieving protection of public health, relative to sub-slab vapor migration and to address

residual soil contamination. Significant research on the successfulness of SVE and other types of sub- slab depressurization has been performed as a result of the mitigation of radon. The majority of technology regarding the installation of SVE and/or SSDS systems to mitigate volatile organic compounds is an outgrowth of radon research and VOCs. Furthermore, this technology is specifically recommended for use as per the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH 2006)* and the *Radon Mitigation Standards (USEPA 402-R-03-078)*.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the NYSDEC has determined to be applicable on a case-specific basis. The installation and operation of a SVE fully complies with the New York State SCGs relative to VOC vapor migration as it will serve to mitigate or remove the potential for current and/or future potential exposure pathways. The remainder of the criteria set forth in Part 375 are five "primary balancing criteria" and are used to compare the positive and negative aspects of the remedial strategy.

3. Short-term Effectiveness. This criterion relates to the potential short-term adverse impacts of the remedial action upon the community, the workers and the environment during the construction and/or implementation of the SVE. As the SVE system can be both pilot-tested and installed within a quick independent time frame (several days), no short-term adverse impacts were identified relative to the workers, community or the environment. A Photoionization Detector was used to

monitor VOCs in air during the installation of the SSDS-SVE system, as part of normal health and safety provisions.

4. Long-term Effectiveness and Permanence. This criterion is used to evaluate the long-term effectiveness of the remedial alternative after implementation. The SVE system has been designed to address shallow soil conditions at the site. Therefore, this criterion looks at: 1) the magnitude of the remaining risks; 2) the adequacy of the engineering and/or institutional controls intended to limit the risk; and 3) the reliability of these controls. As this system specifically addresses any shallow source of VOC contamination present below the basement and/or emanating from groundwater, concentrations will diminish over time. Therefore, the magnitude of remaining environmental risks can be considered to be addressed under this option. Furthermore, the implementation of an active SSDS will serve to mitigate and prevent any indoor air impacts from occurring. The basement of the structure is not occupied and no occupancy is proposed. The adequacy of the SVE (properly installed, operated, monitored, and maintained) to control sub-slab vapors, in addition to its reliability over time, are both considered to be excellent, due to the long-term track record established.

5. Reduction of Toxicity, Mobility or Volume. The ability of the remedial alternative to permanently and/or significantly reduce the toxicity, mobility or volume of the wastes is required to be evaluated. The SVE is specifically designed to significantly reduce the toxicity, mobility and volume over time of the shallow VOC contamination in soil. Furthermore, as there will be pressure changes, soil gas

IRM CCR

will be routed exterior to the building, ultimately resulting in reduced volume over time. Monitoring and ongoing maintenance of the system provides the ability to measure changes in concentrations.

6. Implementability. The technical and administrative feasibility of implementing the remedial alternative must be considered. Again, as SVE is a widely used application for soil gas mitigation and soil remediation, implementability of the construction and use of this system is considered to be excellent.

7. Cost-Effectiveness. Capital costs and operation, maintenance, and monitoring costs are also part of the evaluation criteria. The construction of a SVE is considered to be extremely cost-effective as it can be installed into existing structures (retrofit) without requiring widespread, difficult and costly building reconstruction. Furthermore, it can be used in the basement proximate to any shallow soil source areas.

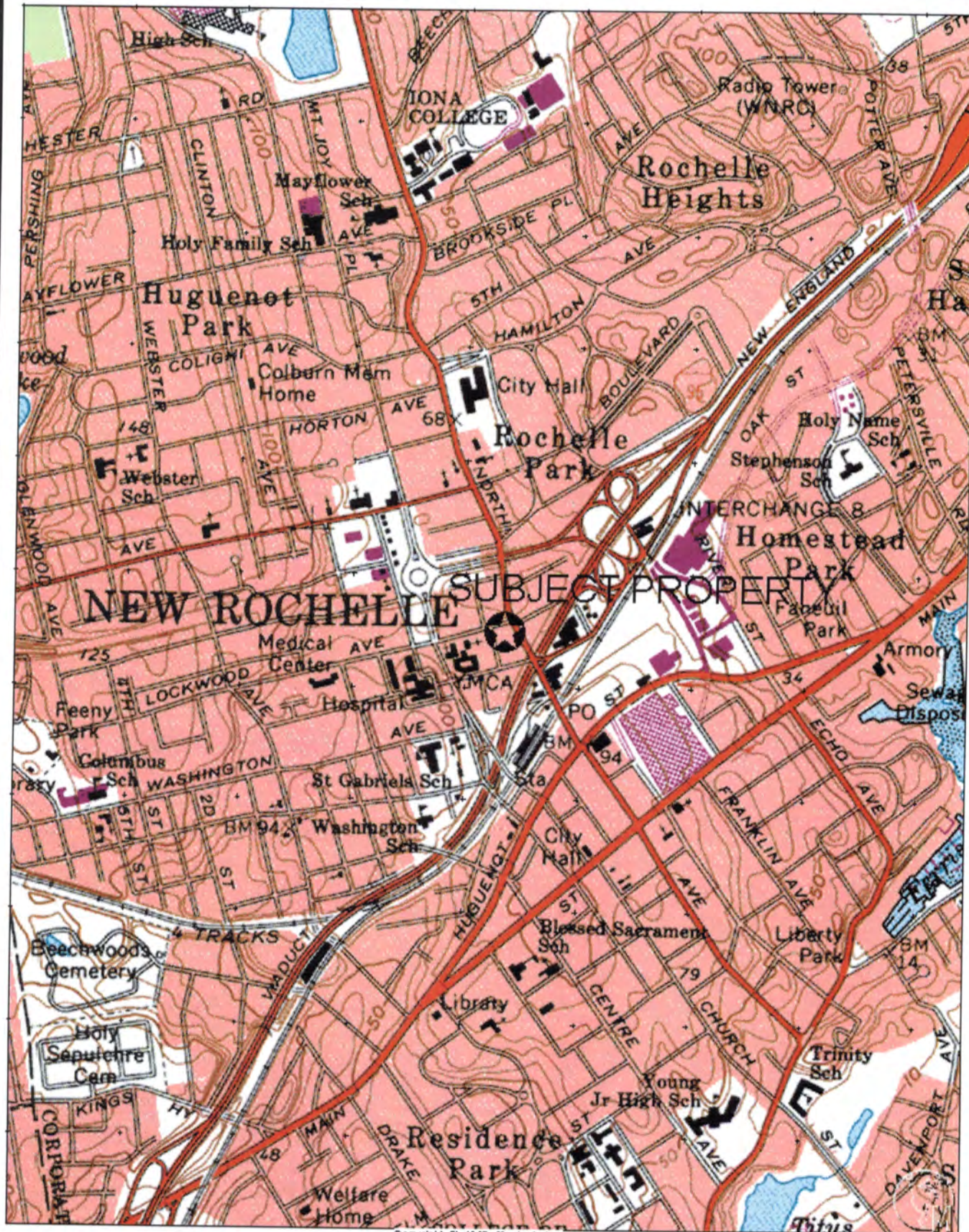
8. Community Acceptance. As the installation of an SVE system will generally not result in activities noticeable or that will affect the surrounding community, and as a SVE is generally considered to be a widely accepted presumptive remedy, community acceptance should be high.

5.0 CONCLUSION

Therefore, the installation of the SVE as an active SSDS at the subject property satisfies the threshold criteria and provides an excellent balance relative to the remainder of the criteria cited in Part 375. The installation of the SVE/SSDS will achieve the remediation goals for the site by addressing the future potential exposure pathway, involving sub-slab vapor migration that might pose a direct exposure pathway to property occupants. The SVE will also provide active remediation of shallow impacted soils.

Additional media such as groundwater will be addressed in separate documents. Although groundwater is not directly being remediated through the use of the SVE/SSDS BEI has evidence of reductions in groundwater contamination, which we surmise is a result of the continued operation of the system. Simply explained, the volatile contamination in the groundwater is being removed via the SVE/SSDS due to the shallow elevation of the water table.

FIGURES



Copyright © 1997, Maptech, Inc.

Remedial Investigation Report November 2007

Figure 1- Site Location

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg, P.E.
PO BOX 263
Stony Brook, NY 11790
631-751-6458



John V. Soderberg, P.E.

PO Box 263

Stony Brook, NY 11760

631-751-6458

Schmuklers Cleaners
358 - 364 North Avenue

New Rochelle, NY

Site #C360088

Index# A3-0542-0306

Figure 2-Aerial Photograph

Scale:

0 25 ft.

**B-3/GW-6**

	B-3 (4-4.5')	GW-6
cis-1,2-DCE	3,000	1,1,2,2-PCA ND
PCE	4,100	1,1,2-TCE ND
TCE	1,300	1,1-DCA ND
		1,1-DCE 18
		1,2-Dichl 1
		Chlor ND
		cis-1,2-DCE 8,700
		Hexachlor ND
		PCE 310
		trans-1,2-DCE 44
		TCE 170
		VC 2

B-6/GW-5

	B-6 (2.5-3')	GW-5
cis-1,2-DCE	ND	1,1,2,2-PCA ND
PCE	89	1,1,2-TCE ND
TCE	ND	1,1-DCA ND
		1,1-DCE ND
		1,2-Dichl ND
		Chlor ND
		cis-1,2-DCE 3
		Hexachlor ND
		PCE 150
		trans-1,2-DCE ND
		TCE 29
		VC ND

B-8/GW-4

	B-8 (8-10')	GW-4
cis-1,2-DCE	6	1,1,2,2-PCA 700
PCE	210,000	1,1,2-TCE 170
TCE	280	1,1-DCA 7
		1,1-DCE 27
		1,2-Dichl 58
		Chlor ND
		cis-1,2-DCE 1,000
		Hexachlor 2
		PCE 830,000
		trans-1,2-DCE 14
		TCE 58,000
		VC 28

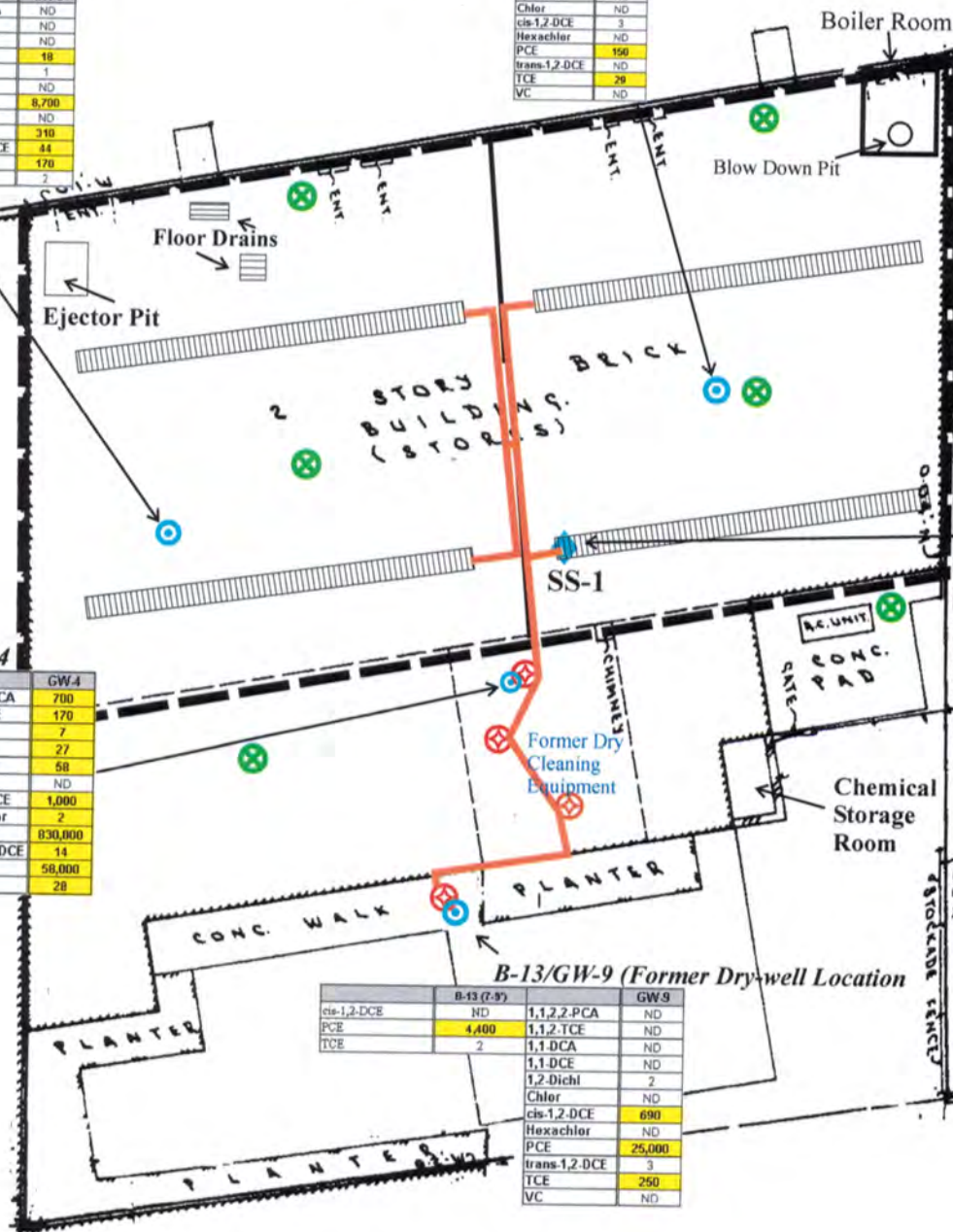
B-13/GW-9 (Former Dry-well Location)

	B-13 (7-9')	GW-9
cis-1,2-DCE	ND	1,1,2,2-PCA ND
PCE	4,400	1,1,2-TCE ND
TCE	2	1,1-DCA ND
		1,1-DCE ND
		1,2-Dichl 2
		Chlor ND
		cis-1,2-DCE 690
		Hexachlor ND
		PCE 25,000
		trans-1,2-DCE 3
		TCE 250
		VC ND

SS-1

VC	34.0
MC	50.7
1,1-DCE	25.8
Hex	8.11
trans-1,2-DCE	76.1
cis-1,2-DCE	46,000
1,1,1-TCE	157
Cyfltex	ND
PCE	15,200
TCE	787,000

LOCKWOOD



1,1,2,2-PCA - 1,1,2,2-Tetrachloroethane; 1,1,2-TCE - 1,1,2-Trichloroethene; 1,1 - DCA - 1,1-Dichloroethane; 1,1-DCE - 1,1-Dichloroethene; 1,2-Dichl - 1,2-Dichlorobenzene; Chlor - Chloroethene; cis-1,2-DCE - cis-1,2-Dichloroethene; Hexachlor - Hexachlorobutadiene; PCE - Tetrachloroethene; TCE - Trichloroethene; VC - Vinyl chloride

Bolded and highlighted concentrations are indicative of VOC detected at concentration exceeding applicable NYSDEC Recommended Soil Clean-up Objectives, Class GA Groundwater Standards and/or Guidance Values, and/or NYSDEC/NYDOH Indoor Air Guidance Values

- Basement Portion of the Building - August 2007 Soil and groundwater sampling locations - August 2007 Subslab Vapor Sample Location
 - Vapor Extraction Well - Sub-slab Vent Piping - PV well or Sub-slab Vapor Well [SSVW] (monitoring)

Figure 3 -August 2007 Halogenated VOC Concentrations and Proposed SSDS/SVE system

Schmuklers Cleaners
 358 - 364 North Avenue
 New Rochelle, NY
 Site #C360088
 Index# A3-0542-0306

John V. Soderberg, P.E.
 PO Box 263
 Stony Brook, NY 11790
 631-751-6458

John V. Soderberg, P.E.
PO Box 263
Stony Brook, NY 11760
Phone: 631-751-6458

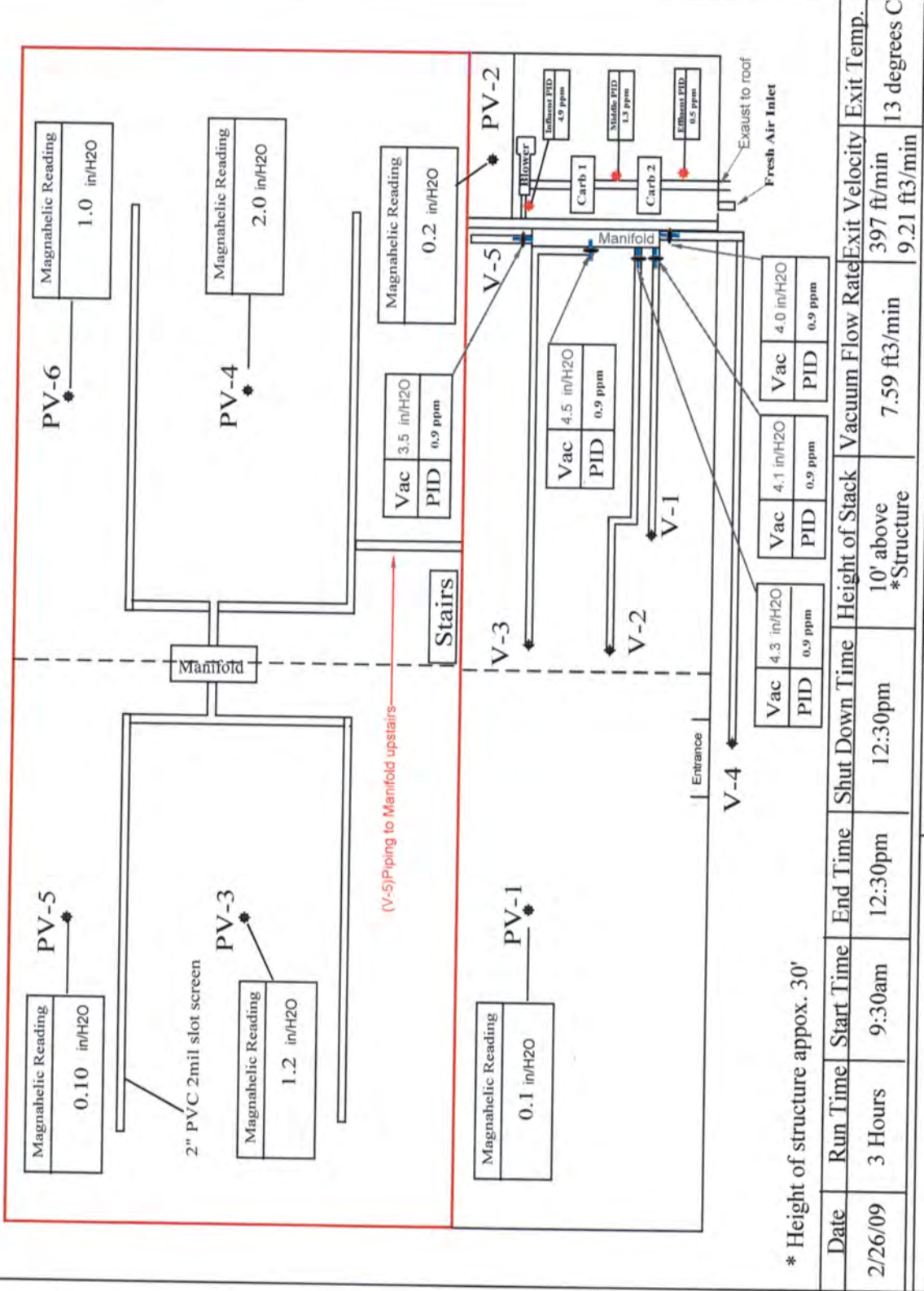
Drawn By: JGH

Figure-4

Well Log

Project: Schmuklers Dry Cleaners	Date: 12/18/08
Client: HNJ Realty LLC.	Be Job No: _____
Location: 358-364 North Ave. New Rochelle, NY	Driller: Jon Jeffrey
Well No: PV-1-6 Use: Monitoring	Bore Hole Dia: 2.0"
Drilling Method: Geoprobe direct push	Sample Method: N/A
Casing Type: N/A Casing Dia: N/A Casing Length: N/A	Depth to Water: N/A
Screen Type: N/A Screen Dia: N/A Screen Length: N/A	Total Depth: 1'
Screen Slot: N/A Gravel Pack: #2 Fil-pro	Security: 2" Manhole
Casing Seal: Cement Finish: Cement 1" above grade	

[illegible]



* Height of structure approx. 30'

John V. Soderberg, P.E.
 PO Box 263
 Stony Brook, NY 11790 Phone: 631-751-6458

Schmuklers Cleaners
 358-364 North Ave.
 New Rochelle, NY
 Site# C360088
 SVE Pilot Test

Figure-5

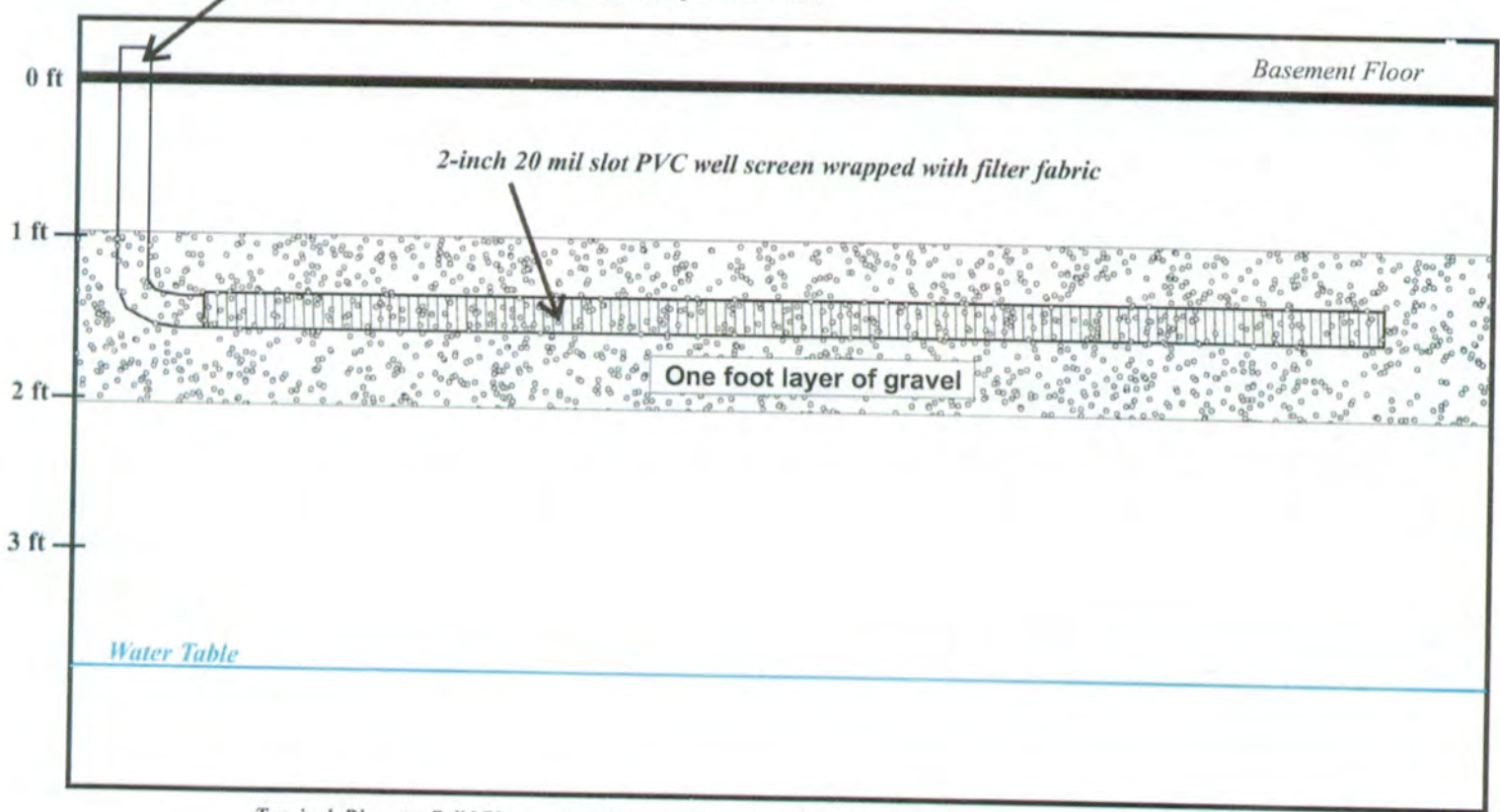
Key

- Basement Area
- + Check Valve
- ◆ Permanent Vapor Point
- Sample Point
- ◆ Vapor Extraction Well

Drawn by: JGH

Basement Sub-slab Venting System

Two-inch Diameter Solid Riser routed along basement wall up to VES blower



Two-inch Diameter Solid Riser routed along exterior wall to VES blower

Vapor Extraction Well Design

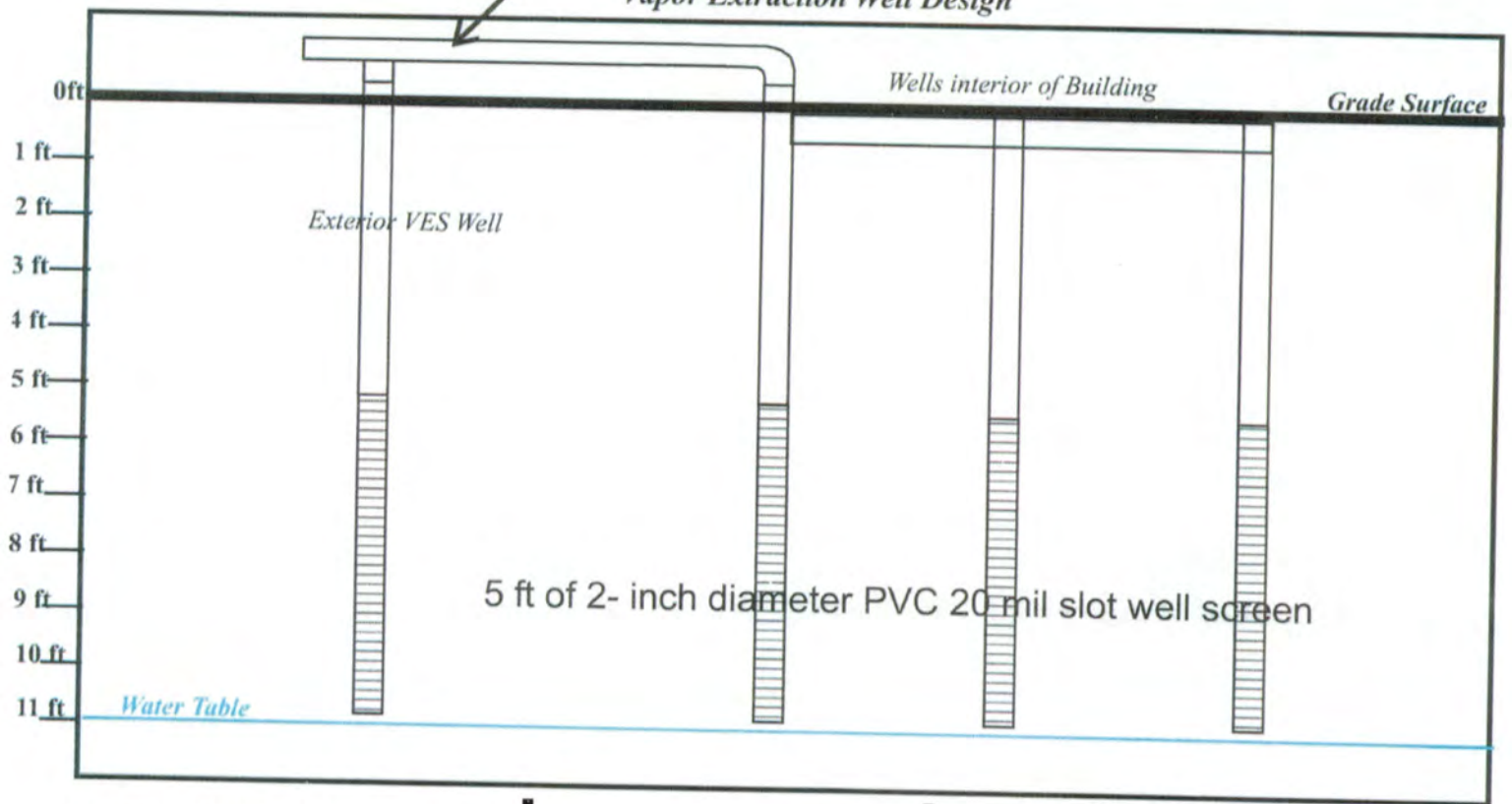


Figure-6 SVE/SSDS System Design

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg, P.E.
PO Box 263
Stony Brook, NY 11760
631-751-6458

APPENDIX A

Specification Sheet for Rotron EN656 and EN 6 replacement

ROTRON® Regenerative Blowers

EN 656 & CP 656 Sealed Regenerative Blower w/Explosion-Proof Motor

FEATURES

- Manufactured in the USA – ISO 9001 compliant
- Maximum flow: 212 SCFM
- Maximum pressure: 70 IWG
- Maximum vacuum: 70 IWG
- Standard motor: 3.0 HP, explosion-proof
- Cast aluminum blower housing, cover, impeller & manifold; cast iron flanges (threaded); teflon lip seal
- UL & CSA approved motor with permanently sealed ball bearings for explosive gas atmospheres Class I Group D minimum
- Sealed blower assembly
- Quiet operation within OSHA standards

MOTOR OPTIONS

- International voltage & frequency (Hz)
- Chemical duty, high efficiency, inverter duty or industry-specific designs
- Various horsepower for application-specific needs

BLOWER OPTIONS

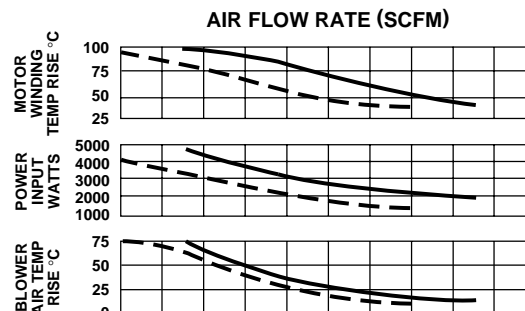
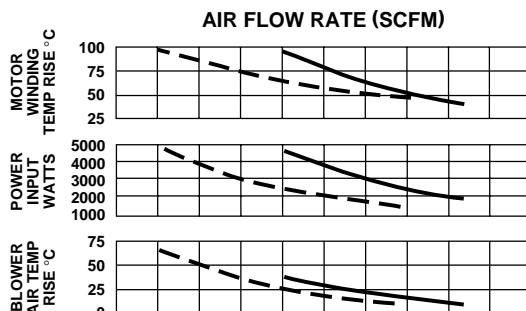
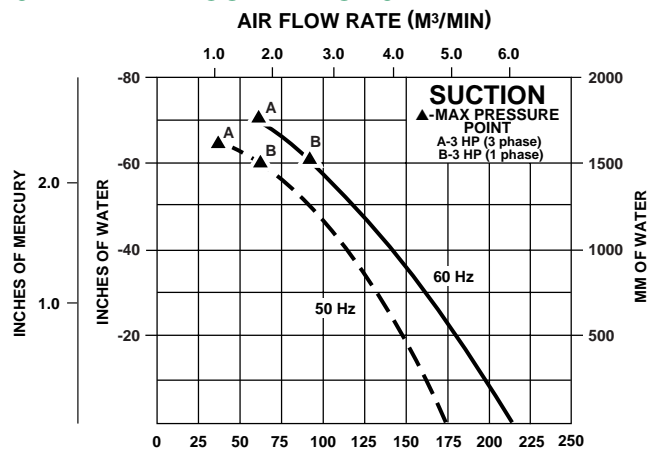
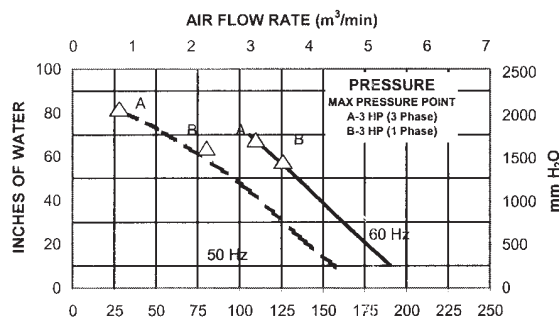
- Corrosion resistant surface treatments & sealing options
- Remote drive (motorless) models
- Slip-on or face flanges for application-specific needs

ACCESSORIES (See Catalog Accessory Section)

- Flowmeters reading in SCFM
- Filters & moisture separators
- Pressure gauges, vacuum gauges & relief valves
- Switches – air flow, pressure, vacuum or temperature
- External mufflers for additional silencing
- Air knives (used on blow-off applications)
- Variable frequency drive package



BLOWER PERFORMANCE AT STANDARD CONDITIONS

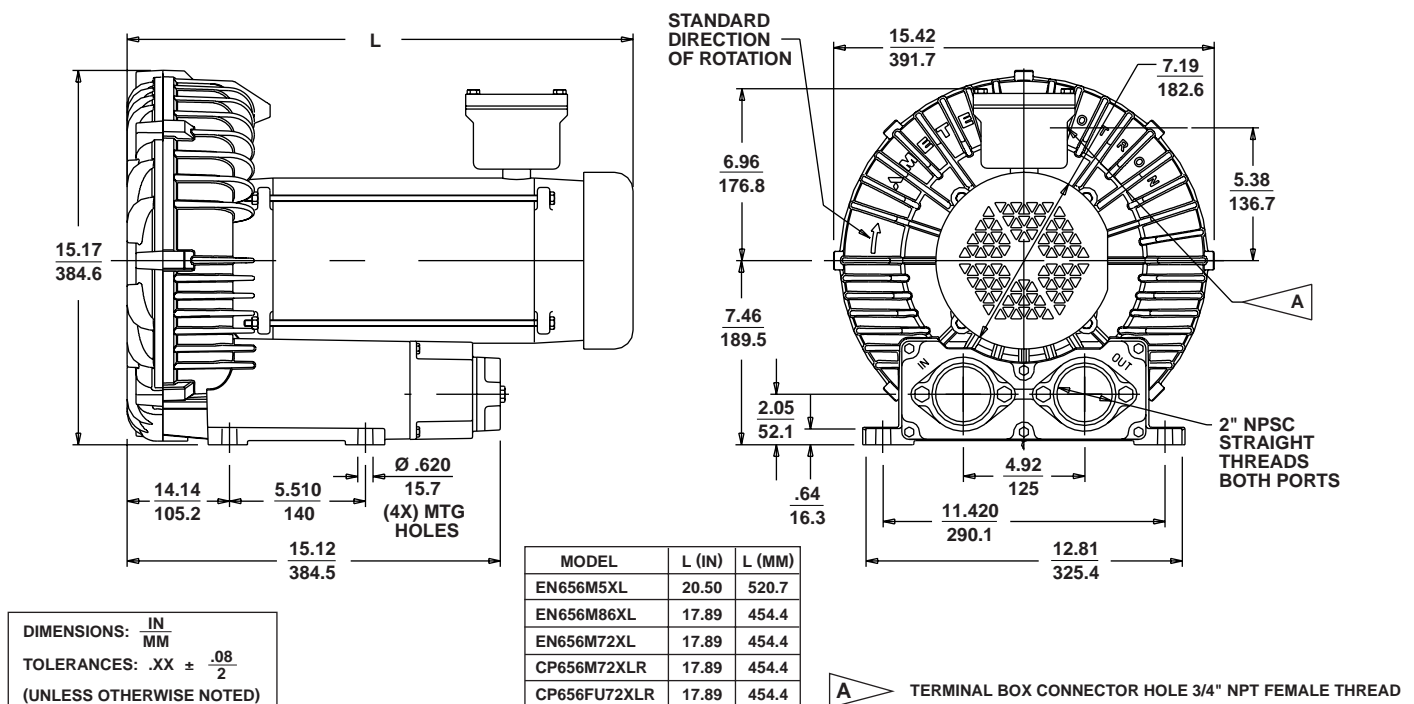


Rev. 2/04

ROTRON® Regenerative Blowers

EN 656 & CP 656 Sealed Regenerative Blower w/Explosion-Proof Motor

Scale CAD drawing available upon request.



SPECIFICATIONS

MODEL	EN656M5XL	EN656M72XL	EN656M86XL	CP656FU72XLR
Part No.	080060	080059	080058	080142
Motor Enclosure – Shaft Material	Explosion-proof–CS	Explosion-proof–CS	Explosion-proof–CS	Chem XP – SS
Horsepower	3	3	3	Same as EN656M72XL 080059 except add Chemical Processing (CP) features from catalog inside front cover
Phase – Frequency ¹	Single - 60 Hz	Three - 60 Hz	Three - 60 Hz	
Voltage ¹	208-230	208-230 460	575	
Motor Nameplate Amps ³	15.5-14.5	7.4 3.7	3.0	
Max. Blower Amps ³	16.3-16.8	8.2 4.1	4.1	
Inrush Amps	95-86	54 27	21.6	
Starter Size	1	0 0	0	
Service Factor	1.0	1.0	1.0	
Thermal Protection ²	Class B - Pilot Duty	Class B - Pilot Duty	Class B - Pilot Duty	
XP Motor Class – Group	I-D, II-F&G	I-D, II-F&G	I-D, II-F&G	
Shipping Weight	135 lb (64 kg)	110 lb (50 kg)	110 lb (50 kg)	

¹ Rotron motors are designed to handle a broad range of world voltages and power supply variations. Our dual voltage 3 phase motors are factory tested and certified to operate on both: **208-230/415-460 VAC-3 ph-60 Hz** and **190-208/380-415 VAC-3 ph-50 Hz**. Our dual voltage 1 phase motors are factory tested and certified to operate on both: **104-115/208-230 VAC-1 ph-60 Hz** and **100-110/200-220 VAC-1 ph-50 Hz**. All voltages above can handle a ±10% voltage fluctuation. Special wound motors can be ordered for voltages outside our certified range.

² Maximum operating temperature: Motor winding temperature (winding rise plus ambient) should not exceed 140°C for Class F rated motors or 120°C for Class B rated motors. Blower outlet air temperature should not exceed 140°C (air temperature rise plus inlet temperature). Performance curve maximum pressure and suction points are based on a 40°C inlet and ambient temperature. Consult factory for inlet or ambient temperatures above 40°C.

³ Maximum blower amps corresponds to the performance point at which the motor or blower temperature rise with a 40°C inlet and/or ambient temperature reaches the maximum operating temperature.

Specifications subject to change without notice. Please consult your Local Field Sales Engineer for specification updates.

Rev. 2/04

AMETEK Technical and Industrial Products, Kent, OH 44240 • e mail: rotronindustrial@ametek.com • internet: www.ametektmd.com

C-14

ROTRON® Regenerative Blowers

EN 6 & CP 6 Sealed Regenerative Blower w/Explosion-Proof Motor

FEATURES

- Manufactured in the USA – ISO 9001 compliant
- Maximum flow: 225 SCFM
- Maximum pressure: 104 IWG
- Maximum vacuum: 85 IWG
- Standard motor: 5.0 HP, explosion-proof
- Cast aluminum blower housing, cover, impeller & manifold; cast iron flanges (threaded); teflon lip seal
- UL & CSA approved motor with permanently sealed ball bearings for explosive gas atmospheres Class I Group D minimum
- Sealed blower assembly
- Quiet operation within OSHA standards

MOTOR OPTIONS

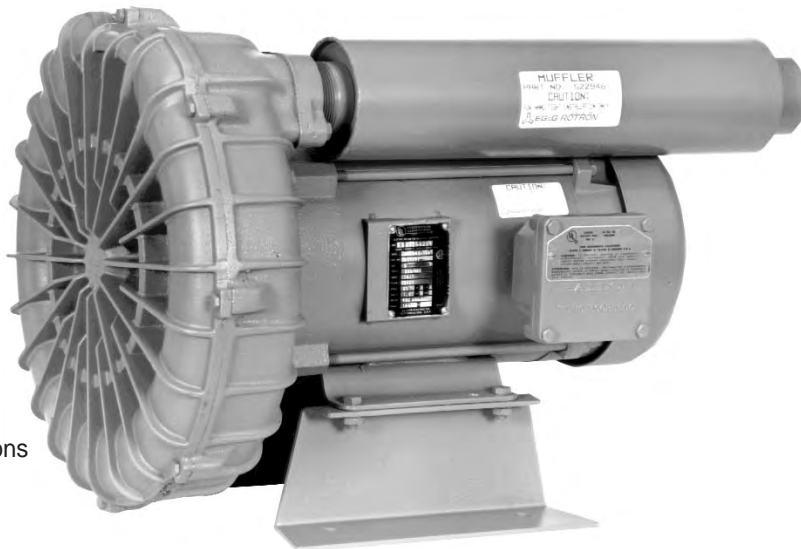
- International voltage & frequency (Hz)
- Chemical duty, high efficiency, inverter duty or industry-specific designs
- Various horsepower for application-specific needs

BLOWER OPTIONS

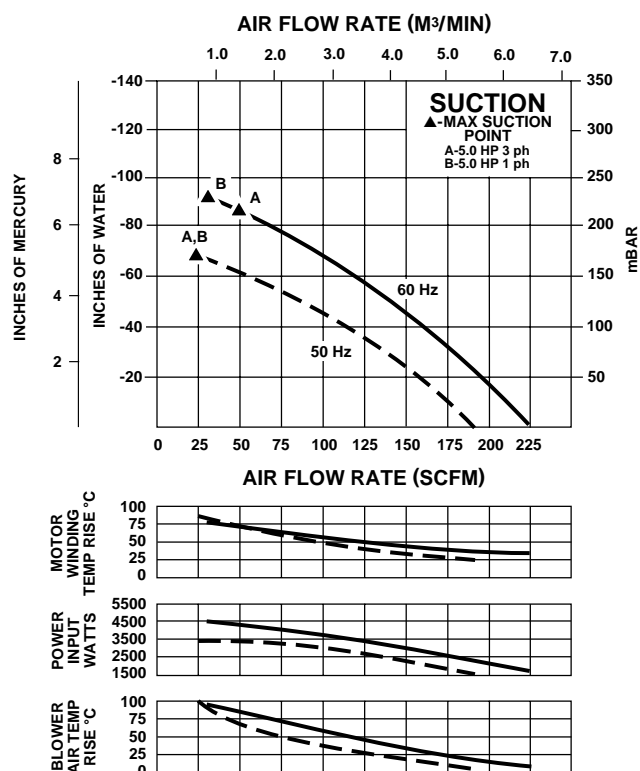
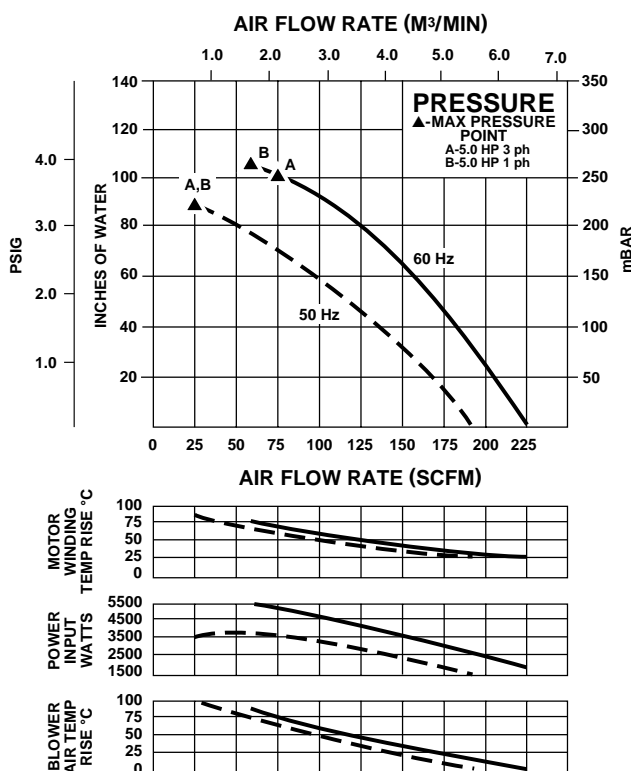
- Corrosion resistant surface treatments & sealing options
- Remote drive (motorless) models
- Slip-on or face flanges for application-specific needs

ACCESSORIES (See Catalog Accessory Section)

- Flowmeters reading in SCFM
- Filters & moisture separators
- Pressure gauges, vacuum gauges & relief valves
- Switches – air flow, pressure, vacuum or temperature
- External mufflers for additional silencing
- Air knives (used on blow-off applications)
- Variable frequency drive package



BLOWER PERFORMANCE AT STANDARD CONDITIONS

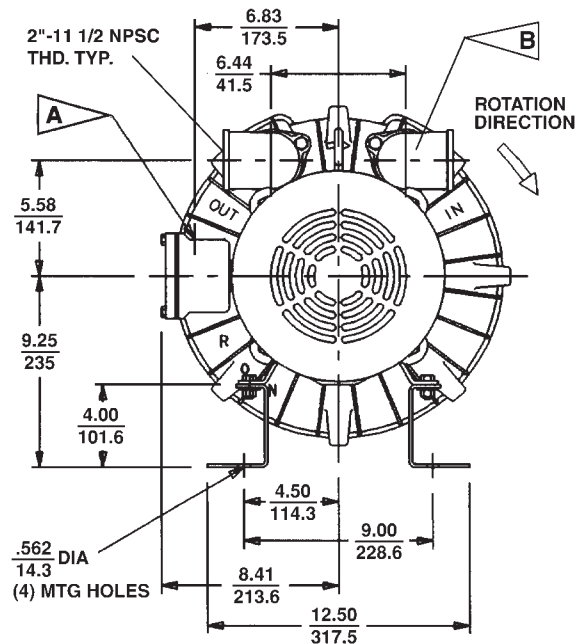
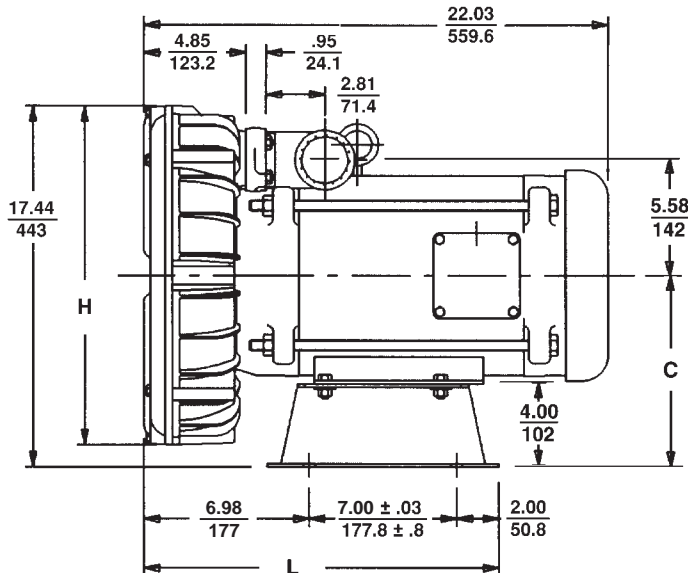


Rev. 2/04

ROTRON® Regenerative Blowers

EN 6 & CP 6 Sealed Regenerative Blower w/Explosion-Proof Motor

Scale CAD drawing available upon request.



DIMENSIONS: IN
MM
TOLERANCES: .XX ± .12
3
(UNLESS OTHERWISE NOTED)

MODEL	L (IN/MM)	C (IN/MM)	H (IN/MM)
EN/CP6F72L	20.37/517	8.5/216	16.7/424
EN/CP6F5L	22.0/560	10.21/259	17.5/443

A 0.75" NPT CONDUIT CONNECTION AT 12 O'CLOCK POSITION

B 90° ELBOW SUPPLIED ON 1 PHASE MODEL ONLY

SPECIFICATIONS

ALL PRODUCTS LISTED INCLUDE MUFFLER PN 522948

MODEL	EN6F5L	EN6F72L	EN6F86L	CP6FW5LR	CP6FW72LR
Part No.	038361	038180	038438	—	038978
Motor Enclosure – Shaft Material	Explosion-proof – CS	Explosion-proof – CS	Explosion-proof – CS	Chem XP – SS	Chem XP – SS
Horsepower	5.0	5.0	5.0	Same as EN6F5L – 038361 except add Chemical Processing (CP) features from catalog inside front cover	Same as EN6F72L – 038180 except add Chemical Processing (CP) features from catalog inside front cover
Phase – Frequency ¹	Single - 60 Hz	Three - 60 Hz	Three - 60 Hz		
Voltage ¹	230	230 460	575		
Motor Nameplate Amps	19.5	14 7	5.7		
Max. Blower Amps ³	23	15.8 7.9	6.3		
Inrush Amps	175	152 76	38		
Starter Size	2	1 0	0		
Service Factor	1.0	1.0	1.0		
Thermal Protection ²	Class B - Pilot Duty	Class B - Pilot Duty	Class B - Pilot Duty	Same as EN6F5L – 038361 except add Chemical Processing (CP) features from catalog inside front cover	Same as EN6F72L – 038180 except add Chemical Processing (CP) features from catalog inside front cover
XP Motor Class – Group	I-D, II-F&G	I-D, II-F&G	I-D, II-F&G		
Shipping Weight	232 lb (105 kg)	160 lb (73 kg)	160 lb (73 kg)		

¹ Rotron motors are designed to handle a broad range of world voltages and power supply variations. Our dual voltage 3 phase motors are factory tested and certified to operate on both: **208-230/415-460 VAC-3 ph-60 Hz** and **190-208/380-415 VAC-3 ph-50 Hz**. Our dual voltage 1 phase motors are factory tested and certified to operate on both: **104-115/208-230 VAC-1 ph-60 Hz** and **100-110/200-220 VAC-1 ph-50 Hz**. All voltages above can handle a ±10% voltage fluctuation. Special wound motors can be ordered for voltages outside our certified range.

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Specifications subject to change without notice. Please consult your Local Field Sales Engineer for specification updates.

Rev. 2/04

AMETEK Technical and Industrial Products, Kent, OH 44240 • e mail: rotronindustrial@ametek.com • internet: www.ametektmd.com

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APPENDIX B

Photo Log SVE/SSDS Installation



Installation of manifold for all SVE wells and SSDS



Trenching for SSDS in Basement of Schmukler's Cleaners



Basement piping manifold for each for North and South basement trenching



SVE/SSDS exhaust piping to 10' above roof line



System control room and carbon filtration units



SVE blower and system intake



Hand installation of permanent vapor point



Installed permanent vapor point with gravel pack



Hydrating bentonite to assure proper seal



Finished permanent vapor point sealed to grade surface

APPENDIX C

WCDOH Air Permit

Robert P. Astorino
County Executive

Department of Health

Cheryl Archbald, MD, MPH
Acting Commissioner

December 8, 2010

HNJ Realty LLC
c/o Berninger Environmental, Inc.
90-B Knickerbocker Avenue
Bohemia, NY 11716
Attn: Walter Berninger

**RE: Renewal Certificate to Operate
Schmukler's Cleaners
New Rochelle, NY**

Dear Mr. Berninger:

Receipt of your fees for the above-referenced facility is hereby acknowledged. Please be advised that our records reveal that your facility is being operated in compliance with applicable County Laws and Regulations.

Enclosed please find your renewal Certificate to Operate, which is valid until December 31, 2013.

Very truly yours,



Paul Kutzy, P.E.
Assistant Commissioner
Bureau of Environmental Quality

PK:kf
Enclosure

cc: File



Robert P. Astorino
County Executive
Department of Health
Cheryl Archbald, MD, MPH, FAAP
Acting Commissioner of Health

**Westchester County
Department of Health**
Bureau of Environmental Quality
**CERTIFICATE TO OPERATE SOURCES
OF AIR CONTAMINATION**

Facility Information:

Emission Point Number: 001

Facility Name: Schmuklers Cleaners

Facility Telephone:

Street Address: 358-364 North Avenue New Rochelle, NY 10801

Municipality:

Facility Owner Information:

Owner's Name: HNJ Realty LLC c/o Berninger Environmental, Inc.

Owner Telephone: (631) 589-6521

Mailing Address: 90-B Knickerbocker Avenue Bohemia, NY 11716

Description Process:

Sub slab depressurization system consisting of one (1) horizontal soil vapor extraction system and three (3) recovery wells, one (1) 3 hp, 200 acfm Rotron EN656 regenerative blower and two (2) 200 pound Siemen Vent-Scrub 200 vapor phase granular activated carbon (GAC) vessel in series. Emissions from the outlet of the GAC vessels are vented directly into atmosphere via a 2-inch diameter stack. Monitoring report, as required by NYSDEC, including air monitoring perchloroethylene and VOC concentrations at the inlet and outlet of each air pollution control system shall be submitted to the Department.

The Certificate supersedes any earlier Certificate to Operate issued for this source by the Department pursuant to Chapter 873, Article XIII, Section 873.1306.1 of the Laws of Westchester County.

That the operation of this source is in accordance with the source description, approved plans, and emission limits for this source on file with the Department.

The source of air contamination shall be operated in compliance with the provisions of Chapter 873, Article XIII of the Laws of Westchester County and 6NYCRR.

This certificate shall be suspended or revoked as provided by the laws of Westchester County, if this source of air contamination is maintained or operated other than in compliance with the above.

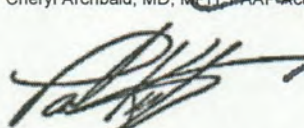
Air contaminants collected by air cleaning devices shall be handled and disposed of in an approved manner.

FOR THE COMMISSIONER

BY:


Cheryl Archbald, MD, MPH, FAAP Acting Commissioner of Health

BY:


Paul Kutzy, P.E., Assistant Commissioner
Bureau of Environmental Quality

Certificate Issued: 01/01/2011

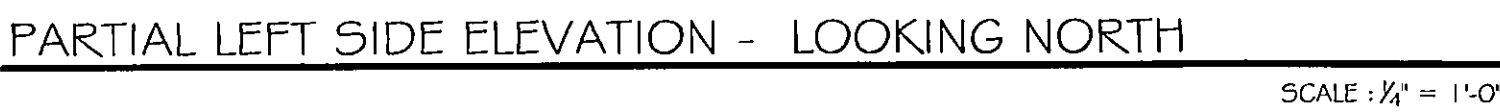
Certificate Expires: 12/31/2013

145 Huguenot Street • 8th Floor New Rochelle, N.Y. 10801

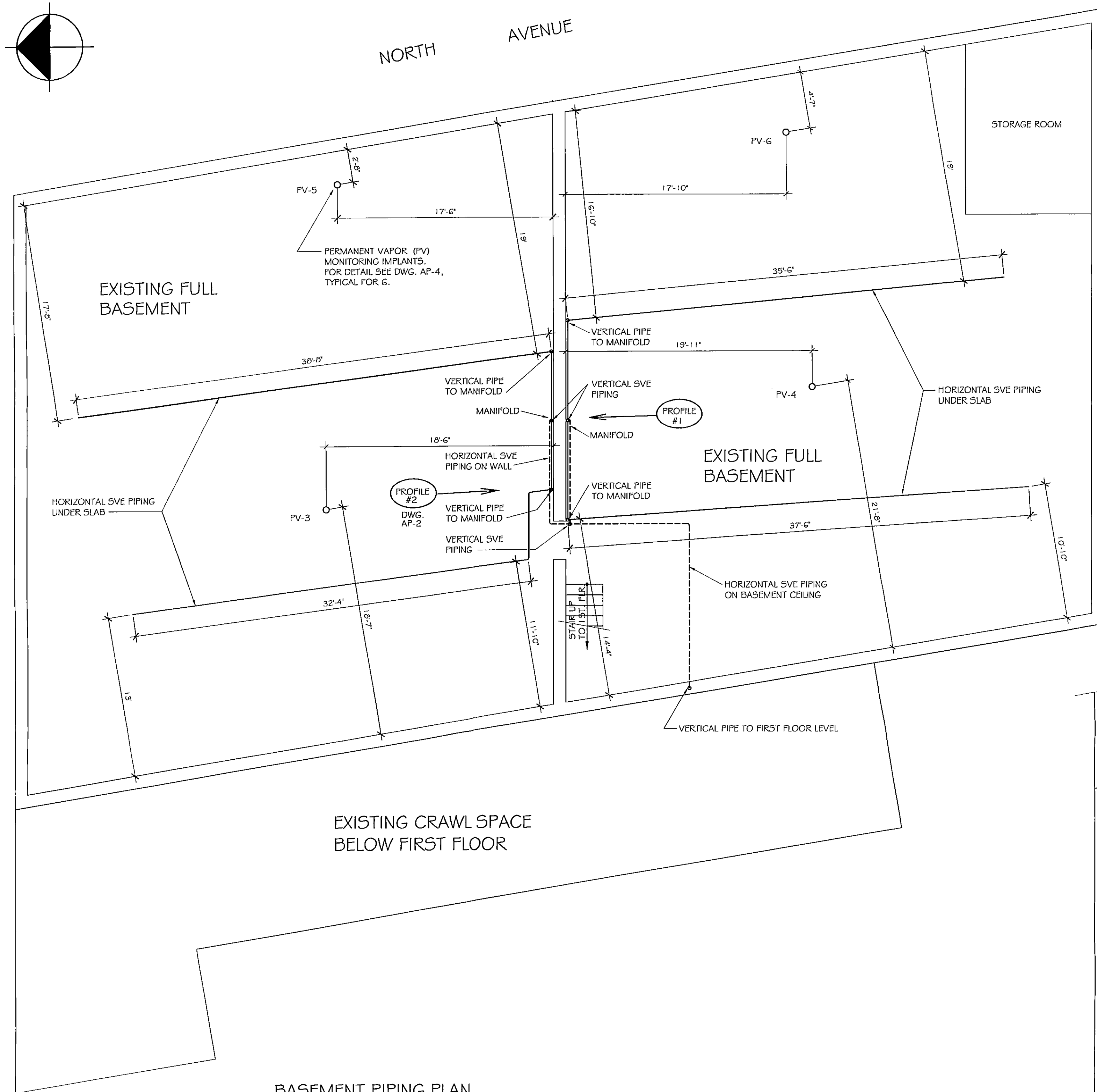
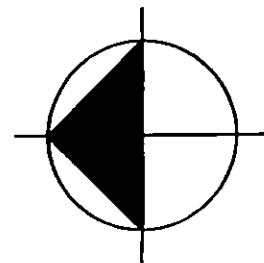
THIS PERMIT MUST BE POSTED CONSPICUOUSLY

APPENDIX-D

P.E As-Built Drawings

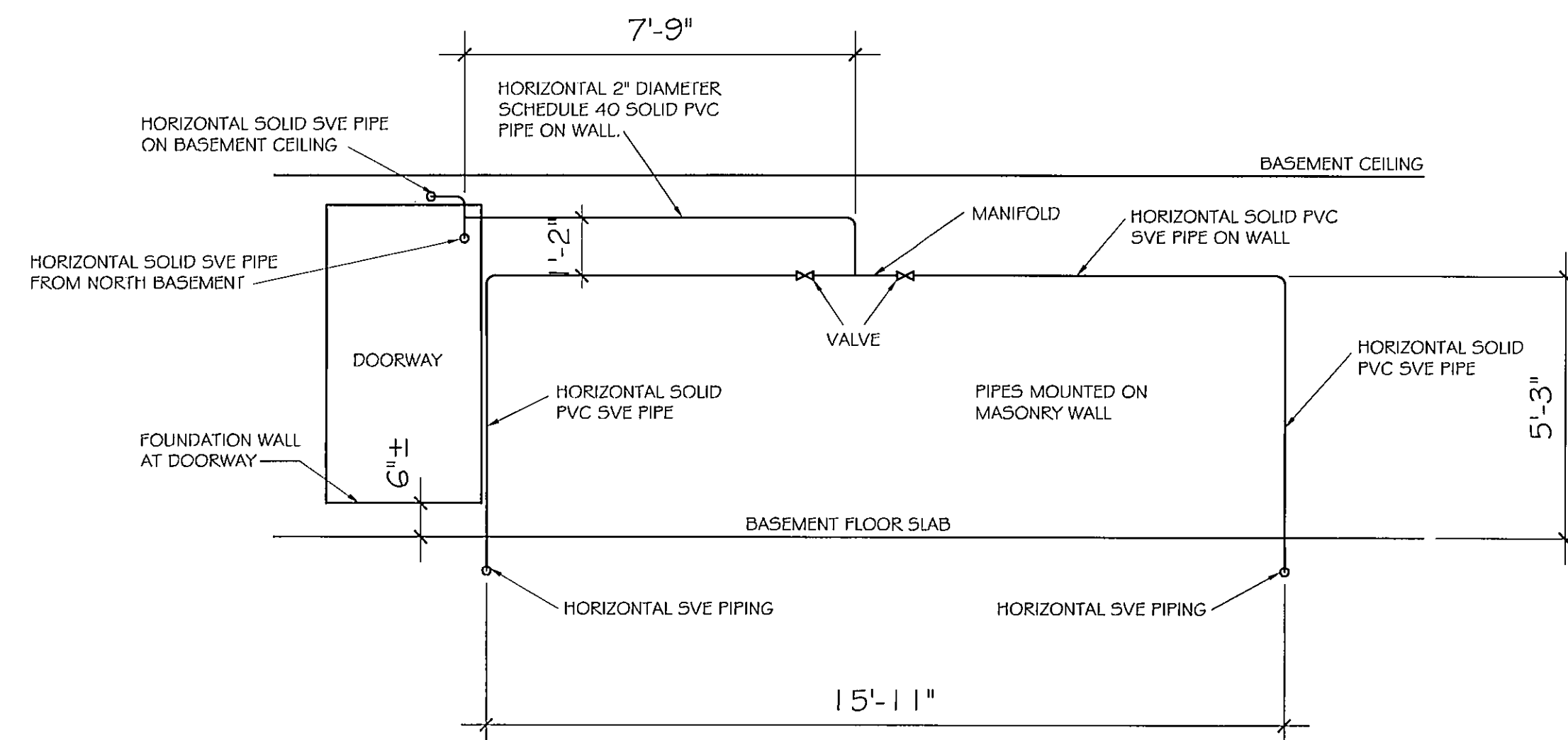


SH. 2 OF 4



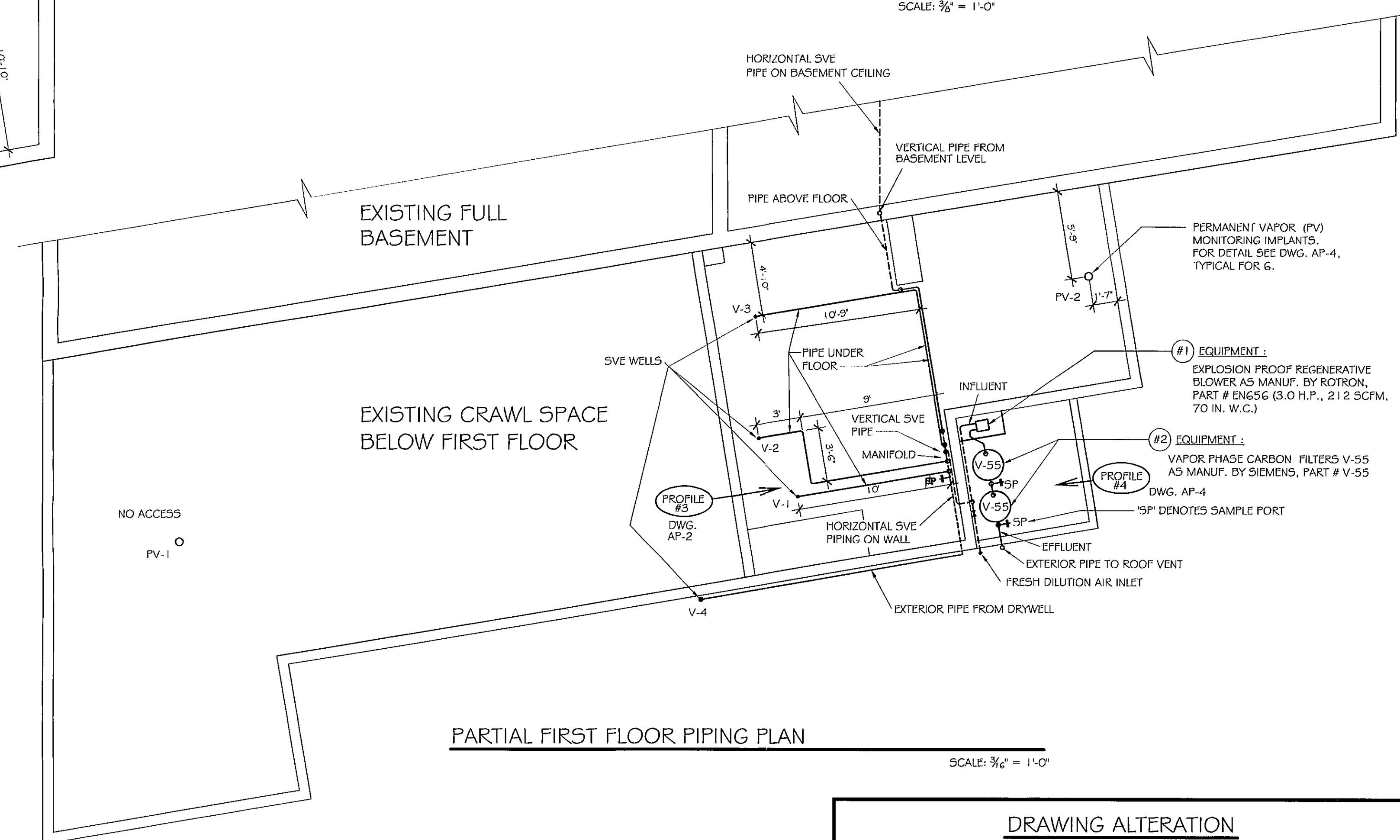
BASEMENT PIPING PLAN

SCALE: 3/16" = 1'-0"



PROFILE #1

SCALE: 3/16" = 1'-0"



PARTIAL FIRST FLOOR PIPING PLAN

SCALE: 3/16" = 1'-0"

DRAWING ALTERATION

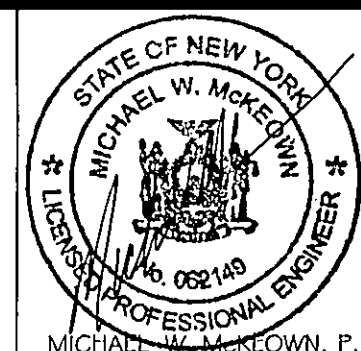
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Issued for Approval

Berninger Environmental Inc.
90 Knickerbocker Avenue
Bohemia, New York 11716

Michael W. Mckeown, P.E.
6 Oak Ridge Court
Manorville, New York, 11949



NO.	DATE	REVISION	BY
1	6.12.09	ISSUED FOR DEPARTMENT OF HEALTH APPROVAL	W.L.

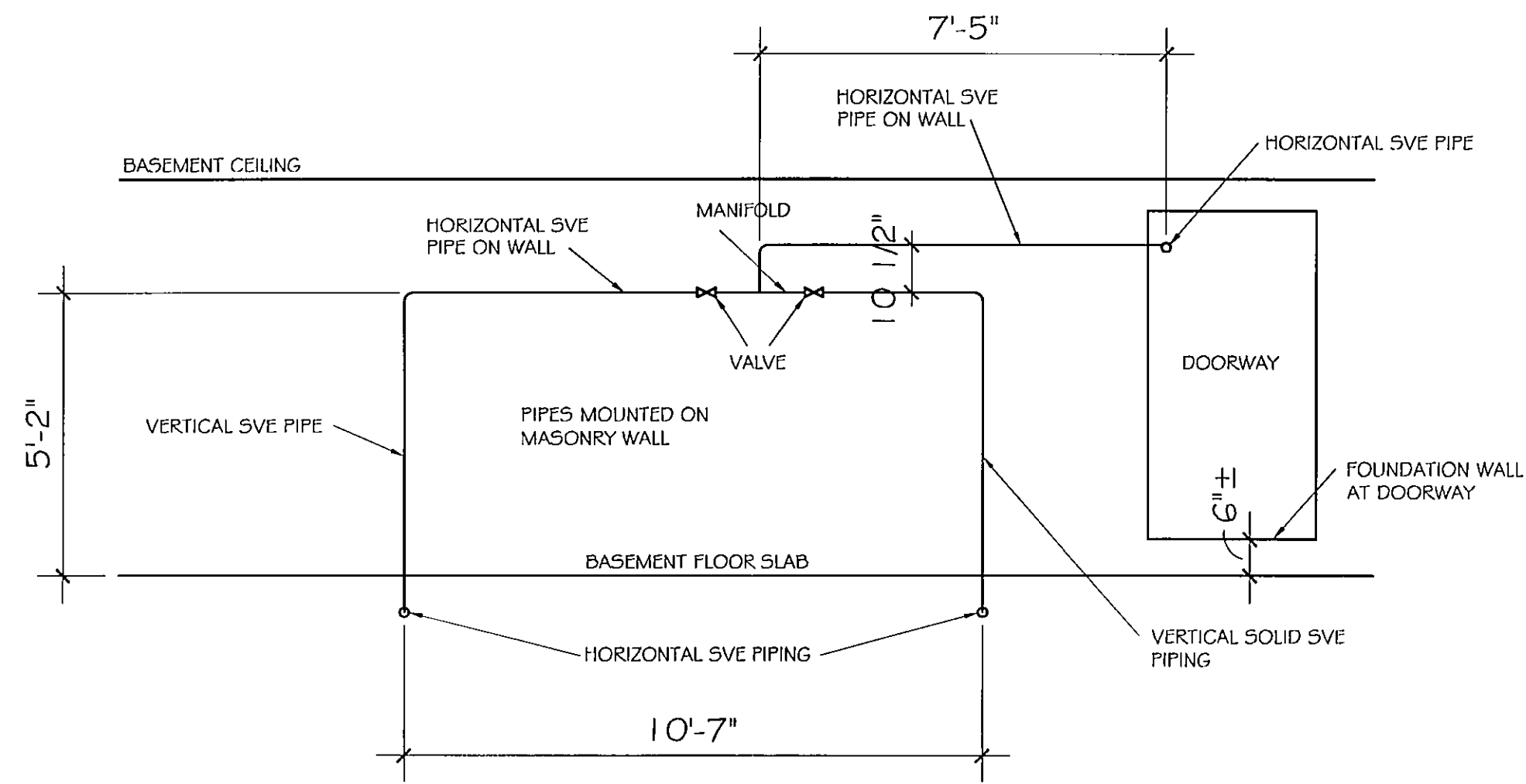
Air Permit Application for :
Schmuklers Cleaners
358-364 North Ave., New Rochelle, NY
Site # C360088

PROJECT NO.	052009
SCALE	AS NOTED
DATE	6.12.09
DRAWN BY	SM
CHECKED BY	M.W.M.

Part Plans and Schematic
Piping Elevations

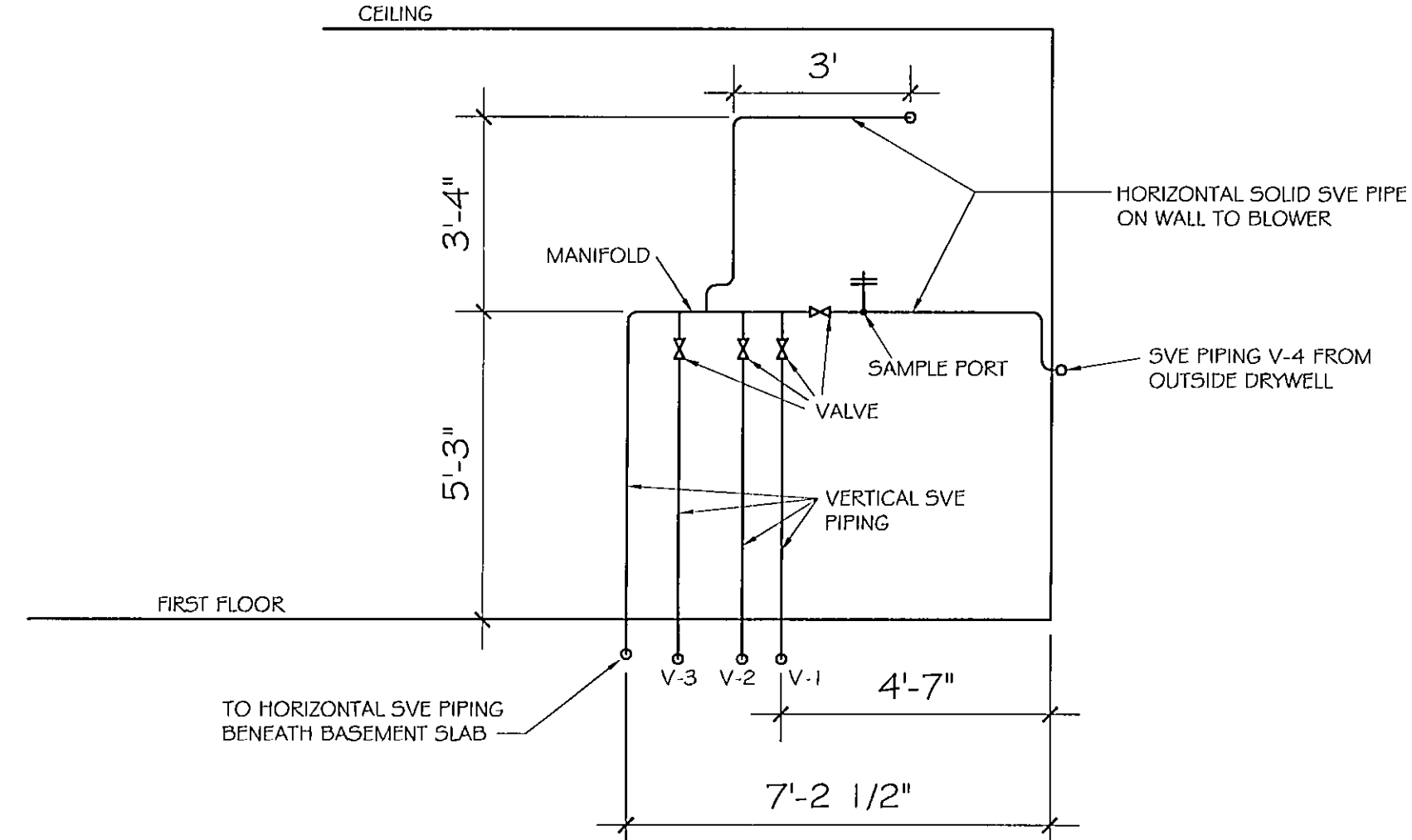
AP-3

SH. 3 OF 4



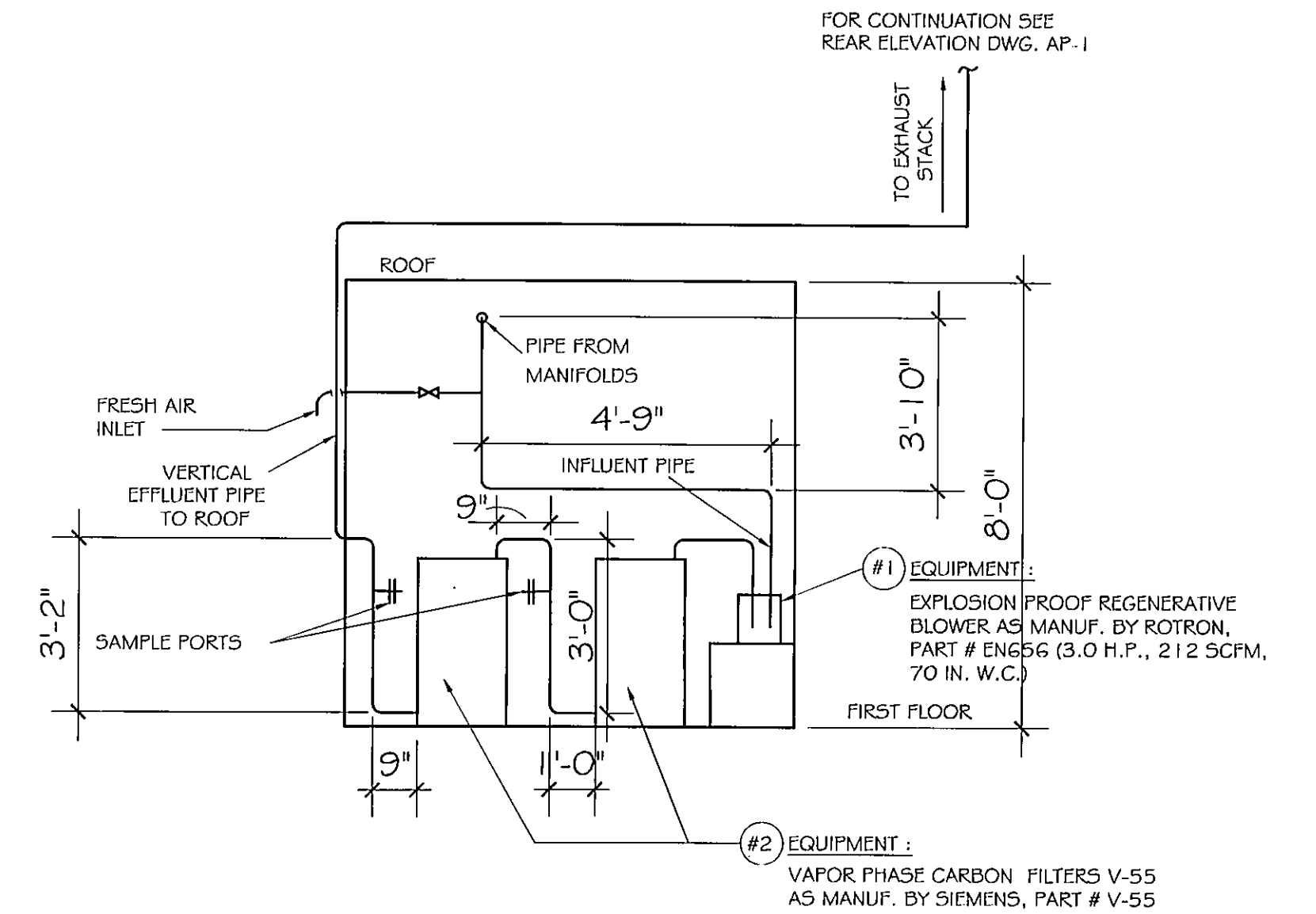
PROFILE #2

SCALE: 3/8" = 1'-0"



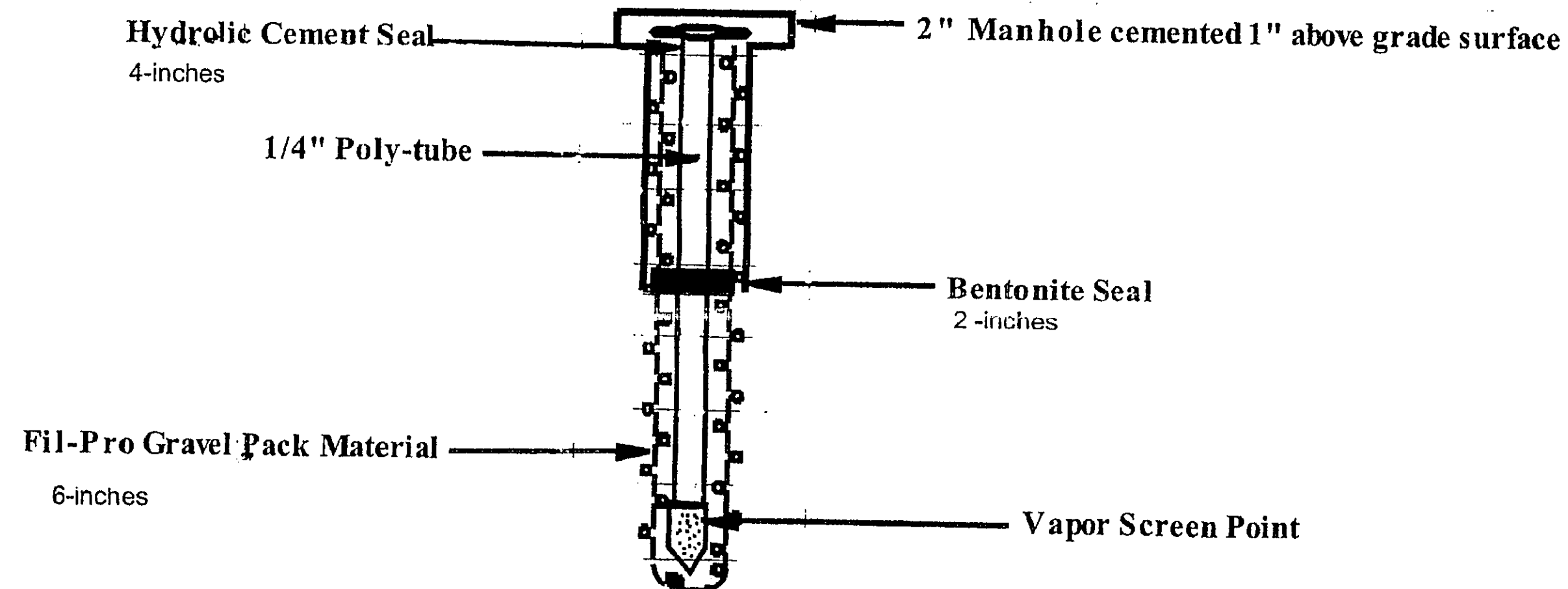
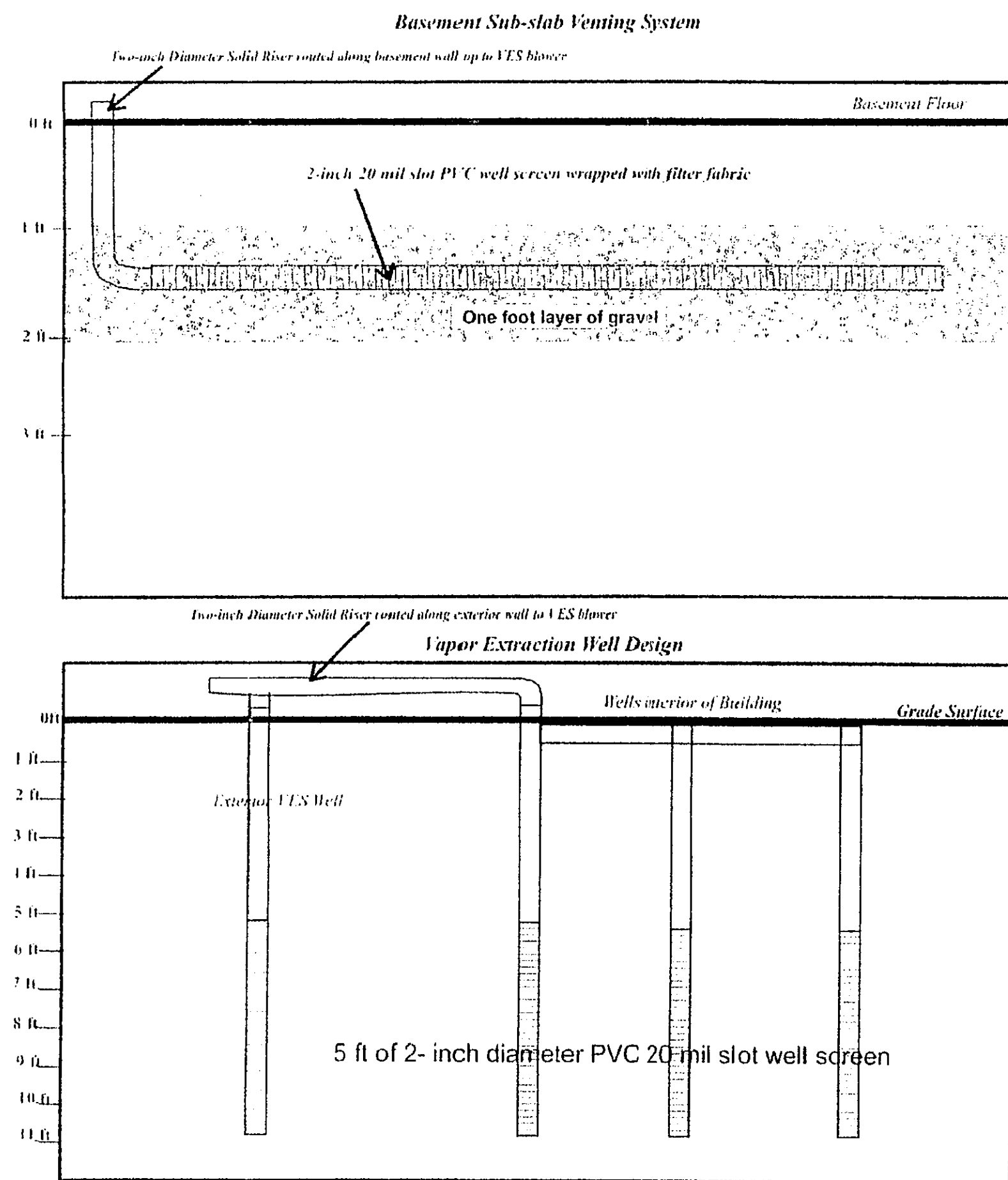
PROFILE #3

SCALE: 3/8" = 1'-0"



PROFILE #4

SCALE: 3/8" = 1'-0"



PERMANENT VAPOR (VP) MONITORING IMPLANTS

SCALE: NONE

DRAWING ALTERATION

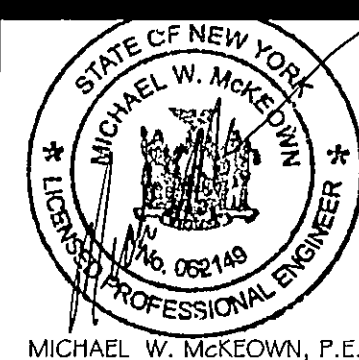
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Issued for Approval

Berninger Environmental Inc.
90 Knickerbocker Avenue
Bohemia, New York 11716

Michael W. McKeown, P.E.
6 Oak Ridge Court
Manorville, New York, 11949



NO.	DATE	REVISION	BY
1	6.12.09	ISSUED FOR DEPARTMENT OF HEALTH APPROVAL	W.L.

Air Permit Application for :
Schmuklers Cleaners
358-364 North Ave., New Rochelle, NY
Site # C360088

PROJECT NO.	052009
SCALE	SCALE: 3/8" = 1'-0"
DATE	6.12.09
DRAWN BY	SM
CHECKED BY	M.W.M.

TITLE	Piping Profiles	DRAWING NO.	AP-4
			SH. 4 OF 4

APPENDIX-E

Flex Hose Specs

PNEUMATIC SYSTEM COMPONENTS

Hose

All Weather EDPM/Polyethylene Suction/Discharge Hose



No. 1ZMY4



No. 1ZM22



No. 1ZM28



No. 1ZLP9

- Max. temperature: 180°F
- Max. vacuum: 29" Hg

Goodyear Green Hornet® hose has unique material properties shared between PVC and rubber suction hose. It is lighter weight and lower cost than rubber, but more flexible in cold weather and more durable than PVC. Smooth bore tube minimizes material

buildup and resists a variety of chemicals found in agricultural and sanitary industries. Slightly corrugated outer helix promotes abrasion resistance and extends hose life. Hose can be used in both suction and discharge applications.

Uses: For waste management, construction, agricultural, marine, and manufacturing applications.

Hose Inside Dia. (In.)	Hose Length (Ft.)	Fittings	Fitting Size (NPSM)	Hose Outside Dia. (In.)	Bend Radius (In.)	Max. Pressure (psi)	Item No.	\$ Each	Shpg. Wt.
Aluminum/Brass Threaded M + F									
1½	20	Aluminum Male x Female w/Brass Swivel	1½	1.86	4.0	50	1ZMY3	65.40	8.0
2	20	Aluminum Male x Female w/Brass Swivel	2	2.40	5.0	50	1ZMY4	94.90	14.0
3	20	Aluminum Male x Female w/Brass Swivel	3	3.47	12.0	45	1ZMY5	179.50	24.0
4	20	Aluminum Male x Female w/Brass Swivel	4	4.67	18.0	40	1ZMY6	302.00	45.0
1½	25	Aluminum Male x Female w/Brass Swivel	1½	1.86	4.0	50	1ZMY7	76.70	10.0
2	25	Aluminum Male x Female w/Brass Swivel	2	2.40	5.0	50	1ZMY8	110.40	17.0
3	25	Aluminum Male x Female w/Brass Swivel	3	3.47	12.0	45	1ZMY9	224.25	31.0
Aluminum Quick Coupling x Nipple									
1½	20	1½" Aluminum Female Camlock x Steel MNPT	—	1.86	4.0	50	1ZM21	84.65	10.0
2	20	2" Aluminum Female Camlock x Steel MNPT	—	2.40	5.0	50	1ZM22	114.30	15.0
3	20	3" Aluminum Female Camlock x Steel MNPT	—	3.47	12.0	45	1ZM23	210.00	26.0
4	20	4" Aluminum Female Camlock x Steel MNPT	—	4.67	18.0	40	1ZM24	325.75	45.0
1½	25	1½" Aluminum Female Camlock x Steel MNPT	—	1.86	4.0	50	1ZM25	94.10	11.0
2	25	2" Aluminum Female Camlock x Steel MNPT	—	2.40	5.0	50	1ZM26	133.80	17.0
3	25	3" Aluminum Female Camlock x Steel MNPT	—	3.47	12.0	45	1ZM27	239.00	39.0
Aluminum Quick Coupler									
1½	25	1½" Aluminum Cam and Groove	—	1.86	4.0	50	1ZM28	96.50	11.0
2	25	2" Aluminum Cam and Groove	—	2.40	5.0	50	1ZM29	136.10	17.0
3	25	3" Aluminum Cam and Groove	—	3.47	12.0	45	1ZNA1	245.25	34.0
1½	50	1½" Aluminum Cam and Groove	—	1.86	4.0	50	1ZNA2	162.50	20.0
2	50	2" Aluminum Cam and Groove	—	2.40	5.0	50	1ZNA3	223.50	30.0
3	50	3" Aluminum Cam and Groove	—	3.47	12.0	45	1ZNA4	411.75	59.0
Bulk Hose Without Fittings									
1½	100	—	—	1.50	3.0	50	1ZLP9	189.75	22.0
1½	100	—	—	1.80	4.0	50	1ZLR1	204.25	32.0
2	100	—	—	2.40	5.0	50	1ZLR2	287.75	54.0
3	100	—	—	3.50	9.0	45	1ZLR3	584.00	109.0
4	100	—	—	4.70	16.0	40	1ZLR4	953.50	198.0

Clear PVC Suction/Discharge Hose



No. 1ZMX3



No. 1ZMX9



No. 4XR71

- Temperature range: 15° to 158°F

Clear PVC allows for visual confirmation of material flow and is lightweight for ease of handling. Corrugated cover provides increased flexibility. Smooth inner bore surface provides high flow rates and easy cleaning. Handles pressure, vacuum, and gravity flow applications. All fittings include gasket.

Uses: For agricultural, industrial, construction, and septic tank cleaning applications.

Hose Inside Dia. (In.)	Hose Length (Ft.)	Fittings	Fitting Size (NPSM)	Hose Outside Dia. (In.)	Bend Radius (In.)	Max. Pressure (psi)	Item No.	\$ Each	Shpg. Wt.
Aluminum/Brass Threaded M + F									
1	20	Aluminum Male x Female w/Brass Swivel	1	1.23	1.5	60	1ZMW9	84.45	5.1
1½	20	Aluminum Male x Female w/Brass Swivel	1½	1.52	2.5	50	1ZMX1	90.85	7.0
1½	20	Aluminum Male x Female w/Brass Swivel	1½	1.78	3.0	50	1ZMX2	93.70	9.0
2	20	Aluminum Male x Female w/Brass Swivel	2	2.36	3.2	40	1ZMX3	132.30	14.0
3	20	Aluminum Male x Female w/Brass Swivel	3	3.48	6.5	35	1ZMX4	251.50	25.0
4	20	Aluminum Male x Female w/Brass Swivel	4	4.50	10.5	35	1ZMX5	369.50	41.0
Aluminum Quick Coupler									
1	20	1" Aluminum Female Camlock x Steel MNPT	—	1.23	1.5	60	1ZMX6	77.05	5.2
1½	20	1½" Aluminum Female Camlock x Steel MNPT	—	1.52	2.5	50	1ZMX7	92.15	8.2
1½	20	1½" Aluminum Female Camlock x Steel MNPT	—	1.78	3.0	50	1ZMX8	97.45	10.0
2	20	2" Aluminum Female Camlock x Steel MNPT	—	2.36	3.2	40	1ZMX9	139.80	15.0
3	20	3" Aluminum Female Camlock x Steel MNPT	—	3.48	6.5	35	1ZMY1	262.00	27.0
4	20	4" Aluminum Female Camlock x Steel MNPT	—	4.50	10.5	35	1ZMY2	382.25	42.0
Bulk Hose Without Fittings									
1	100	—	—	1.23	1.5	60	4XR68	119.00	17.6
1½	100	—	—	1.52	2.5	50	4XR69	164.00	25.1
1½	100	—	—	1.78	3.0	50	4XR70	175.00	28.2
2	100	—	—	2.36	3.2	40	4XR71	249.00	49.0
3	100	—	—	3.48	6.5	35	4XR72	409.00	94.0
4	100	—	—	4.50	10.5	35	4XR73	579.00	123.0

APPENDIX-F

System Venting (Door Louvers)



APPENDIX - G

Monitoring frequency letter

New York State Department of Environmental Conservation

Division of Environmental Remediation

Remedial Bureau C, 11th Floor

625 Broadway, Albany, New York 12233-7014

Phone: (518) 402-9662 • Fax: (518) 402-9679

Website: www.dec.ny.gov



Joe Martens
Commissioner

August 22, 2013

Mr. Hal Shapiro
HNJ Realty, LLC
364 North Avenue #107
New Rochelle, NY 10801

Re: Schmukler's Dry Cleaners
Brownfields Cleanup Project Site No. C360088
City of New Rochelle, Westchester County

Dear Mr. Shapiro:

The New York State Department of Environmental Conservation (Department) in consultation with the New York State Department of Health (NYSDOH) has reviewed your request to reduce the frequency of monitoring of the combined soil vapor extraction system/sub-slab depressurization system (SVES/SSDS) currently operating at the above-referenced site. The request, which was presented to the Department on July 29, 2013 via an email from your consultant Berninger Environmental, Inc., is for a reduction from monthly monitoring to quarterly monitoring of the SVES/SSDS.

Given that the monitoring data presented over the last three years demonstrates decreased contaminants of concern in the influent and pressure data indicates that the SVES/SSDS provides adequate negative pressure across the entire building slab, the Department grants the reduction in monitoring frequency from monthly to quarterly. The next monitoring report must be submitted in October 2013.

If you have any questions or concerns, please contact me at (518) 402-9662, or via email at kathomps@gw.dec.state.ny.us.

Sincerely,

Kiera Thompson
Project Manager
Remedial Bureau C, Section B
Division of Environmental Remediation

cc: Natasha Court, WCDOH

ec: W. Berninger - BEI
J. Halpin – BEI
N. Walz/C. Bethoney – NYSDOH
D. Crosby, NYSDEC

Berninger Environmental Inc.
groundwater consultants and geologists

90-B Knickerbocker Avenue
Bohemia, New York 11716

Phone # (631) 589-6521
Fax # (631) 589-6528

July 29, 2013

Mrs. Kiera Thompson
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway, 11th Floor
Albany, New York 12233-7015

Re: Schmukler's Dry Cleaners, SVE/SSDS Monitoring Frequency
Brownfield Cleanup Agreement Site No. C360088
City of New Rochelle, Westchester County, NY

Dear Mrs. Thompson,

Introduction

The following letter issued by Berninger Environmental Incorporated (BEI) on behalf of our client HNJ Reality LLC, is a request to obtain approval from the New York State Department of Environmental Conservation (NYSDEC) regarding the monitoring frequency at the above mentioned site. Currently, site monitoring is conducted on the previously installed Soil Vapor Extraction/ Sub-slab Depressurization System (SVE/SSDS) each month. BEI on behalf of HNJ Realty would like to request that monthly monitoring operations be reduced to quarterly monitoring operations as conclusive evidence in order to substantiate this request is provided below.

SVE/SSDS Historical Evidence

Over the last few years BEI has observed drastic influent PID reductions. PID readings that once averaged approximately 120 ppm to 150 ppm during the 2010 monitoring period now range from 45 ppm to 75 ppm in recent months. Please see the attached Figure-1 which demonstrates influent and effluent PID readings from the commencement of the SVE/SSDS system to the present day. PCE concentrations have also significantly declined according to certified lab data collected over the past several years on the influent. Please see Figure-2 for tabulated lab data showing the declination of influent PCE concentrations.

Overall, the system has been operating twenty-four (24) hours a day for seven (7) days a week since it's inception in November of 2009. Monthly influent and effluent sampling has been conducted since November 2009 and we feel that after three (3) years of continuous operation the active system has removed a substantial amount of vapors from the point source area. Reductions in groundwater contamination have also been noticed in the area known as the, "former dry cleaning equipment room" due to the volatilizing effects the system has had on the contaminated groundwater.

The system has also maintained adequate air flow readings throughout the operational period with vacuum readings on each individual vapor well ranging from approximately 4.0 - 4.5 in/H₂O. Please refer to Figure-3 for more on the vacuum readings.

Frequency Request

Based upon the above mentioned historical data, BEI would like to request that the Department approve the monitoring and sampling reduction from monthly influent and effluent sampling to quarterly effluent sampling only. BEI perceives that the functioning of the system will remain adequate despite the monitoring and sampling reduction. The integrity of the on-going source removal is not expected to be compromised due to this frequency reduction nor will it have any effect on the systems ability to continually remove source material via vapor extraction.

Thank You ,

Justin Halpin
Project Manager

Walter Berninger
President/Env.Consultant

Schmukler's Cleaners, New Rochelle NY

PID Readings For Inf/Eff. Carbon Drum Sample Points ppm

Date	INF.	Middle	EFF.	Before Drum Replaced		
				INF.	Middle	EFF.
17-Sep-10	89.00	0.70	0.00			
11-Oct-10	156.00	0.80	0.00			
3-Nov-10	98.60	1.75	0.00			
3-Dec-10	145.10	2.30	0.00			
3-Jan-11	87.42	2.60	0.00			
4-Feb-11	38.70	4.20	0.00			
1-Mar-11	92.60	7.30	0.00			
4-Apr-11	165.00	3.30	0.00	166.00	3.30	0.10
9-May-11	18.04	0.00	0.00			
24-Jun-11	12.10	2.90	0.00			
21-Jul-11	34.00	0.70	0.00			
2-Aug-11	40.70	0.70	0.00			
13-Sep-11	18.10	1.40	0.00			
3-Oct-11	16.90	0.00	0.00			
11-Nov-11	42.34	0.00	0.00	50.00	5.60	0.20
5-Dec-11	37.40	2.30	0.00			
18-Jan-12	38.50	1.90	0.00			
9-Feb-12	40.23	0.50	0.00			
22-Mar-12	46.80	0.90	0.00			
30-Apr-12	54.60	1.30	0.00			
22-May-12	51.30	1.70	0.00			
13-Jul-12	59.93	4.20	0.20			
8-Aug-12	61.5	1.2	0.2			
6-Sep-12	74.3	4.5	1.1			
3-Oct-12	60.00	1.00	0.00	33.2	18.6	3.3
13-Nov-12	51.20	6.30	0.00			
6-Dec-12	45.60	5.30	0.00			
10-Jan-13	77.90	4.60	0.00			

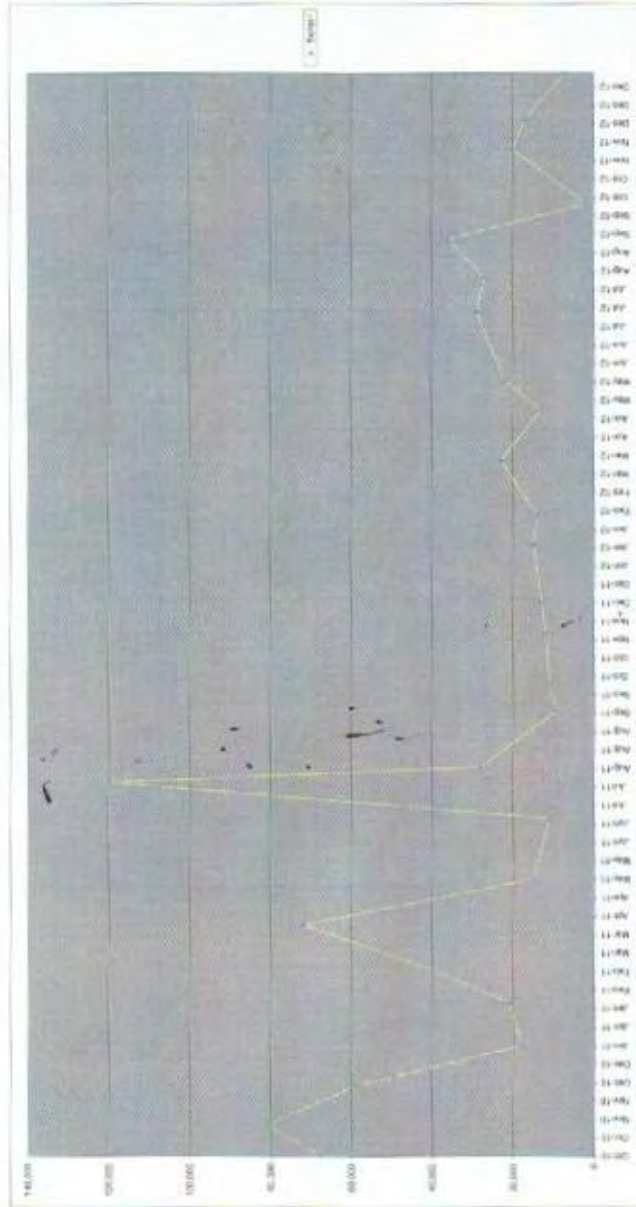
* when carbon drum replaced PID readings are taken before and after replacement

FIGURE-1

Schnukler's Cleaners, New Rochelle NY

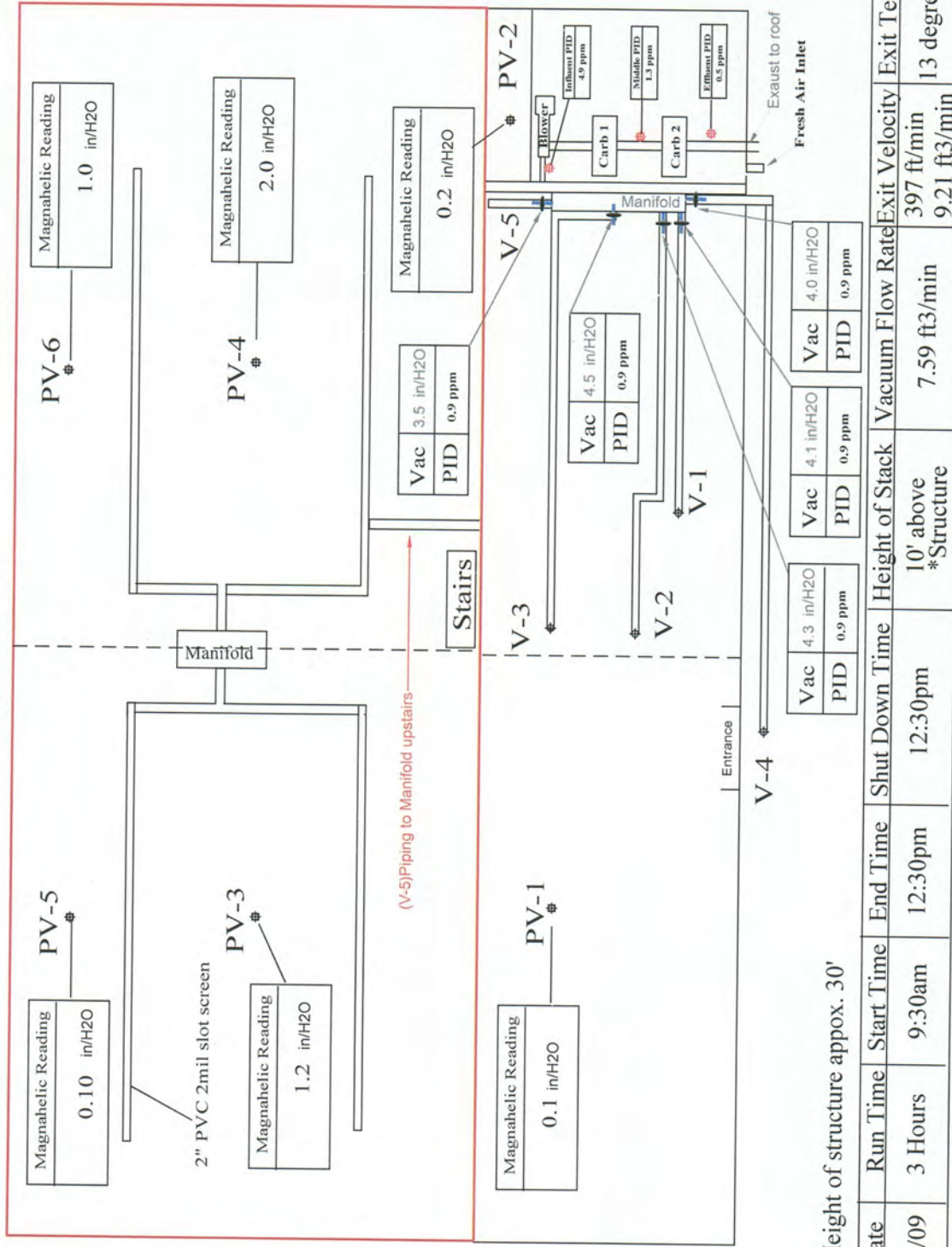
FIGURE-2

Date	Influent PCE ppb
Oct-10	83,000
Nov-10	81,000
Dec-10	59,000
Jan-11	18,000
Feb-11	21,000
Mar-11	40,000
Apr-11	72,000
May-11	15,000
Jun-11	11,000
Jul-11	120,000
Aug-11	28,000
Sep-11	9,400
Oct-11	11,000
Nov-11	12,000
Dec-11	13,000
Jan-12	15,000
Feb-12	14,000
Mar-12	23,000
Apr-12	13,000
May-12	22,000
Jun-12	26,000
Jul-12	27,000
Aug-12	27,000
Sep-12	36,000
Oct-12	1,900
Nov-12	20,000
Dec-12	17,000
Jan-13	7,200



North Ave.

Z



* Height of structure approx. 30'



BERNINGER

ENVIRONMENTAL INC.

groundwater consultants and geologists

90-B Knickerbocker Avenue Phone # (631) 589-6521

Bohemia, New York 11716 Fax # (631) 589-6528

Figure-3

Schmuklers Cleaners

358-364 North Ave.

New Rochelle, NY

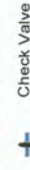
Site# C360088

SVE Pilot Test

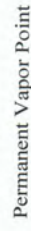
Key



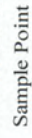
Basement Area



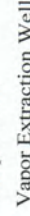
Check Valve



Permanent Vapor Point



Sample Point



Vapor Extraction Well

Drawn by: JGH

Appendix-M

Vulnerable Systems Components



SVE/SSDS exhaust piping to 10' above roof line



System control room and carbon filtration units



SVE blower and system intake

Appendix-N

Remedial Site Optimization Outline

REMEDIAL SYSTEM OPTIMIZATION FOR [Site Name] Schmuklers Cleaners

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1.3 REPORT OVERVIEW

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2.2 REGULATORY HISTORY AND REQUIREMENTS

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Appendix-0
Indoor air Lab Data



ANALYTICAL REPORT

Lab Number:	L1735150
Client:	WRS Environmental Services, Inc. 17 Old Dock Road Yaphank, NY 11980
ATTN:	Justin Halpin
Phone:	(631) 924-8111
Project Name:	SCHMUKLERS
Project Number:	9851
Report Date:	10/06/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), NJ NELAP (MA015), CT (PH-0141), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-13-00067), USFWS (Permit #LE2069641).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: SCHMUKLERS
Project Number: 9851

Lab Number: L1735150
Report Date: 10/06/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1735150-01	IAQ-092717	AIR	NEW ROCHELLE	09/27/17 14:49	09/29/17

Project Name: SCHMUKLERS
Project Number: 9851

Lab Number: L1735150
Report Date: 10/06/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: SCHMUKLERS
Project Number: 9851

Lab Number: L1735150
Report Date: 10/06/17


Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on September 25, 2017. The canister certification results are provided as an addendum.

L1735150-01: The sample was diluted and re-analyzed to quantify the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 10/06/17

AIR

Project Name: SCHMUKLERS**Project Number:** 9851**Lab Number:** L1735150**Report Date:** 10/06/17**SAMPLE RESULTS**

Lab ID: L1735150-01
Client ID: IAQ-092717
Sample Location: NEW ROCHELLE
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 10/05/17 16:57
Analyst: RY

Date Collected: 09/27/17 14:49
Date Received: 09/29/17
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chloromethane	0.599	0.200	--	1.24	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	2840	5.00	--	5350	9.42	--	E	1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	11.6	1.00	--	27.6	2.38	--		1
Trichlorofluoromethane	0.234	0.200	--	1.31	1.12	--		1
iso-Propyl Alcohol	9.13	0.500	--	22.4	1.23	--		1
tert-Butyl Alcohol	3.02	0.500	--	9.16	1.52	--		1
Methylene chloride	0.947	0.500	--	3.29	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1



Project Name: SCHMUKLERS**Project Number:** 9851**Lab Number:** L1735150**Report Date:** 10/06/17**SAMPLE RESULTS**

Lab ID: L1735150-01

Client ID: IAQ-092717

Sample Location: NEW ROCHELLE

Date Collected: 09/27/17 14:49

Date Received: 09/29/17

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Benzene	ND	0.200	--	ND	0.639	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.254	0.200	--	1.04	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.861	0.200	--	3.24	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1



Project Name: SCHMUKLERS**Lab Number:** L1735150**Project Number:** 9851**Report Date:** 10/06/17**SAMPLE RESULTS**

Lab ID: L1735150-01

Date Collected: 09/27/17 14:49

Client ID: IAQ-092717

Date Received: 09/29/17

Sample Location: NEW ROCHELLE

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	84		60-140
Bromochloromethane	85		60-140
chlorobenzene-d5	87		60-140



Project Name: SCHMUKLERS**Project Number:** 9851**Lab Number:** L1735150**Report Date:** 10/06/17**SAMPLE RESULTS**

Lab ID: L1735150-01
Client ID: IAQ-092717
Sample Location: NEW ROCHELLE
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 10/05/17 16:57
Analyst: RY

Date Collected: 09/27/17 14:49
Date Received: 09/29/17
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	0.407	0.200	--	2.01	0.989	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Carbon tetrachloride	0.091	0.020	--	0.572	0.126	--		1
Trichloroethene	0.022	0.020	--	0.118	0.107	--		1
Tetrachloroethene	0.540	0.020	--	3.66	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	84		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	86		60-140



Project Name: SCHMUKLERS**Project Number:** 9851**Lab Number:** L1735150**Report Date:** 10/06/17**SAMPLE RESULTS**

Lab ID: L1735150-01 D
 Client ID: IAQ-092717
 Sample Location: NEW ROCHELLE
 Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 10/06/17 00:47
 Analyst: RY

Date Collected: 09/27/17 14:49
 Date Received: 09/29/17
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Ethyl Alcohol	3860	50.0	--	7270	94.2	--		10

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	77		60-140
Bromochloromethane	84		60-140
chlorobenzene-d5	79		60-140



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG1049361-4								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethyl Alcohol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG1049361-4								
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Isopropyl Ether	ND	0.200	--	ND	0.836	--		1
Ethyl-Tert-Butyl-Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
Tertiary-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG1049361-4								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl Acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG1049361-4								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane (C9)	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
o-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
p-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane (C10)	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane (C12)	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1



Project Name: SCHMUKLERS**Lab Number:** L1735150**Project Number:** 9851**Report Date:** 10/06/17**Method Blank Analysis**
Batch Quality Control**Analytical Method:** 48,TO-15**Analytical Date:** 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab for sample(s): 01 Batch: WG1049361-4								
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG1049364-4								
Propylene	ND	0.500	--	ND	0.861	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Ethyl Alcohol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
tert-Butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.404	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG1049364-4								
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG1049364-4								
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
1,2,3-Trichloropropane	ND	0.020	--	ND	0.121	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1



Project Name: SCHMUKLERS

Lab Number: L1735150

Project Number: 9851

Report Date: 10/06/17

Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 10/05/17 15:17

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG1049364-4								
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1



Lab Control Sample Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG1049361-3								
Chlorodifluoromethane	86		-		70-130	-		
Propylene	106		-		70-130	-		
Propane	94		-		70-130	-		
Chloromethane	100		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	94		-		70-130	-		
Methanol	98		-		70-130	-		
Vinyl chloride	96		-		70-130	-		
1,3-Butadiene	109		-		70-130	-		
Butane	101		-		70-130	-		
Bromomethane	91		-		70-130	-		
Chloroethane	99		-		70-130	-		
Ethyl Alcohol	100		-		70-130	-		
Dichlorofluoromethane	88		-		70-130	-		
Vinyl bromide	90		-		70-130	-		
Acrolein	86		-		70-130	-		
Acetone	105		-		70-130	-		
Acetonitrile	97		-		70-130	-		
Trichlorofluoromethane	96		-		70-130	-		
iso-Propyl Alcohol	107		-		70-130	-		
Acrylonitrile	97		-		70-130	-		
Pentane	92		-		70-130	-		
Ethyl ether	98		-		70-130	-		
1,1-Dichloroethene	98		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG1049361-3								
tert-Butyl Alcohol	88		-		70-130	-		
Methylene chloride	107		-		70-130	-		
3-Chloropropene	108		-		70-130	-		
Carbon disulfide	92		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	92		-		70-130	-		
trans-1,2-Dichloroethene	87		-		70-130	-		
1,1-Dichloroethane	85		-		70-130	-		
Methyl tert butyl ether	81		-		70-130	-		
Vinyl acetate	85		-		70-130	-		
2-Butanone	93		-		70-130	-		
cis-1,2-Dichloroethene	86		-		70-130	-		
Ethyl Acetate	99		-		70-130	-		
Chloroform	91		-		70-130	-		
Tetrahydrofuran	90		-		70-130	-		
2,2-Dichloropropane	82		-		70-130	-		
1,2-Dichloroethane	91		-		70-130	-		
n-Hexane	115		-		70-130	-		
Isopropyl Ether	97		-		70-130	-		
Ethyl-Tert-Butyl-Ether	100		-		70-130	-		
1,1,1-Trichloroethane	109		-		70-130	-		
1,1-Dichloropropene	100		-		70-130	-		
Benzene	106		-		70-130	-		
Carbon tetrachloride	111		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG1049361-3								
Cyclohexane	110		-		70-130	-		
Tertiary-Amyl Methyl Ether	92		-		70-130	-		
Dibromomethane	105		-		70-130	-		
1,2-Dichloropropane	114		-		70-130	-		
Bromodichloromethane	115		-		70-130	-		
1,4-Dioxane	106		-		70-130	-		
Trichloroethene	105		-		70-130	-		
2,2,4-Trimethylpentane	115		-		70-130	-		
Methyl Methacrylate	140	Q	-		70-130	-		
Heptane	124		-		70-130	-		
cis-1,3-Dichloropropene	112		-		70-130	-		
4-Methyl-2-pentanone	126		-		70-130	-		
trans-1,3-Dichloropropene	98		-		70-130	-		
1,1,2-Trichloroethane	108		-		70-130	-		
Toluene	91		-		70-130	-		
1,3-Dichloropropane	88		-		70-130	-		
2-Hexanone	112		-		70-130	-		
Dibromochloromethane	96		-		70-130	-		
1,2-Dibromoethane	93		-		70-130	-		
Butyl Acetate	88		-		70-130	-		
Octane	84		-		70-130	-		
Tetrachloroethene	83		-		70-130	-		
1,1,1,2-Tetrachloroethane	86		-		70-130	-		

Lab Control Sample Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG1049361-3								
Chlorobenzene	90		-		70-130	-		
Ethylbenzene	93		-		70-130	-		
p/m-Xylene	95		-		70-130	-		
Bromoform	101		-		70-130	-		
Styrene	87		-		70-130	-		
1,1,2,2-Tetrachloroethane	102		-		70-130	-		
o-Xylene	100		-		70-130	-		
1,2,3-Trichloropropane	89		-		70-130	-		
Nonane (C9)	103		-		70-130	-		
Isopropylbenzene	89		-		70-130	-		
Bromobenzene	89		-		70-130	-		
o-Chlorotoluene	82		-		70-130	-		
n-Propylbenzene	83		-		70-130	-		
p-Chlorotoluene	88		-		70-130	-		
4-Ethyltoluene	90		-		70-130	-		
1,3,5-Trimethylbenzene	94		-		70-130	-		
tert-Butylbenzene	88		-		70-130	-		
1,2,4-Trimethylbenzene	100		-		70-130	-		
Decane (C10)	97		-		70-130	-		
Benzyl chloride	102		-		70-130	-		
1,3-Dichlorobenzene	90		-		70-130	-		
1,4-Dichlorobenzene	88		-		70-130	-		
sec-Butylbenzene	88		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 Batch: WG1049361-3								
p-Isopropyltoluene	80		-		70-130	-		
1,2-Dichlorobenzene	88		-		70-130	-		
n-Butylbenzene	92		-		70-130	-		
1,2-Dibromo-3-chloropropane	94		-		70-130	-		
Undecane	105		-		70-130	-		
Dodecane (C12)	123		-		70-130	-		
1,2,4-Trichlorobenzene	93		-		70-130	-		
Naphthalene	86		-		70-130	-		
1,2,3-Trichlorobenzene	81		-		70-130	-		
Hexachlorobutadiene	84		-		70-130	-		

Lab Control Sample Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG1049364-3								
Propylene	102		-		70-130	-		25
Dichlorodifluoromethane	81		-		70-130	-		25
Chloromethane	102		-		70-130	-		25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	94		-		70-130	-		25
Vinyl chloride	99		-		70-130	-		25
1,3-Butadiene	101		-		70-130	-		25
Bromomethane	93		-		70-130	-		25
Chloroethane	96		-		70-130	-		25
Ethyl Alcohol	98		-		70-130	-		25
Vinyl bromide	88		-		70-130	-		25
Acetone	111		-		70-130	-		25
Trichlorofluoromethane	96		-		70-130	-		25
iso-Propyl Alcohol	110		-		70-130	-		25
Acrylonitrile	94		-		70-130	-		25
1,1-Dichloroethene	97		-		70-130	-		25
tert-Butyl Alcohol ¹	83		-		70-130	-		25
Methylene chloride	107		-		70-130	-		25
3-Chloropropene	110		-		70-130	-		25
Carbon disulfide	90		-		70-130	-		25
1,1,2-Trichloro-1,2,2-Trifluoroethane	92		-		70-130	-		25
Halothane	100		-		70-130	-		25
trans-1,2-Dichloroethene	90		-		70-130	-		25
1,1-Dichloroethane	90		-		70-130	-		25

Lab Control Sample Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG1049364-3								
Methyl tert butyl ether	79		-		70-130	-		25
Vinyl acetate	78		-		70-130	-		25
2-Butanone	94		-		70-130	-		25
cis-1,2-Dichloroethene	88		-		70-130	-		25
Ethyl Acetate	96		-		70-130	-		25
Chloroform	92		-		70-130	-		25
Tetrahydrofuran	89		-		70-130	-		25
1,2-Dichloroethane	93		-		70-130	-		25
n-Hexane	101		-		70-130	-		25
1,1,1-Trichloroethane	106		-		70-130	-		25
Benzene	96		-		70-130	-		25
Carbon tetrachloride	106		-		70-130	-		25
Cyclohexane	99		-		70-130	-		25
Dibromomethane ¹	86		-		70-130	-		25
1,2-Dichloropropane	105		-		70-130	-		25
Bromodichloromethane	113		-		70-130	-		25
1,4-Dioxane	98		-		70-130	-		25
Trichloroethene	94		-		70-130	-		25
2,2,4-Trimethylpentane	109		-		70-130	-		25
cis-1,3-Dichloropropene	104		-		70-130	-		25
4-Methyl-2-pentanone	120		-		70-130	-		25
trans-1,3-Dichloropropene	92		-		70-130	-		25
1,1,2-Trichloroethane	103		-		70-130	-		25

Lab Control Sample Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG1049364-3								
Toluene	82		-		70-130	-		25
2-Hexanone	103		-		70-130	-		25
Dibromochloromethane	94		-		70-130	-		25
1,2-Dibromoethane	88		-		70-130	-		25
Tetrachloroethene	79		-		70-130	-		25
1,1,1,2-Tetrachloroethane	81		-		70-130	-		25
Chlorobenzene	84		-		70-130	-		25
Ethylbenzene	83		-		70-130	-		25
p/m-Xylene	87		-		70-130	-		25
Bromoform	92		-		70-130	-		25
Styrene	81		-		70-130	-		25
1,1,2,2-Tetrachloroethane	95		-		70-130	-		25
o-Xylene	88		-		70-130	-		25
1,2,3-Trichloropropane ¹	85		-		70-130	-		25
Isopropylbenzene	79		-		70-130	-		25
Bromobenzene ¹	83		-		70-130	-		25
4-Ethyltoluene	87		-		70-130	-		25
1,3,5-Trimethylbenzene	85		-		70-130	-		25
1,2,4-Trimethylbenzene	90		-		70-130	-		25
Benzyl chloride	95		-		70-130	-		25
1,3-Dichlorobenzene	87		-		70-130	-		25
1,4-Dichlorobenzene	84		-		70-130	-		25
sec-Butylbenzene	81		-		70-130	-		25

Lab Control Sample Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG1049364-3								
p-Isopropyltoluene	72		-		70-130	-		25
1,2-Dichlorobenzene	83		-		70-130	-		25
n-Butylbenzene	87		-		70-130	-		25
1,2,4-Trichlorobenzene	85		-		70-130	-		25
Naphthalene	79		-		70-130	-		25
1,2,3-Trichlorobenzene	75		-		70-130	-		25
Hexachlorobutadiene	76		-		70-130	-		25

Project Name: SCHMUKLERS
Project Number: 9851

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L1735150
Report Date: 10/06/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1049361-5 QC Sample: L1735152-01 Client ID: DUP Sample						
Chloromethane	0.557	0.595	ppbV	7		25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethyl Alcohol	231	226	ppbV	2		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	ND	ND	ppbV	NC		25
Trichlorofluoromethane	0.286	0.295	ppbV	3		25
iso-Propyl Alcohol	ND	ND	ppbV	NC		25
tert-Butyl Alcohol	ND	ND	ppbV	NC		25
Methylene chloride	ND	ND	ppbV	NC		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	ND	ND	ppbV	NC		25
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25
2-Butanone	0.693	0.758	ppbV	9		25
Ethyl Acetate	ND	0.545	ppbV	NC		25
Chloroform	ND	0.212	ppbV	NC		25

Lab Duplicate Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1049361-5 QC Sample: L1735152-01 Client ID: DUP Sample						
Tetrahydrofuran	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
n-Hexane	32.9	32.7	ppbV	1		25
Benzene	6.30	6.39	ppbV	1		25
Cyclohexane	9.66	9.70	ppbV	0		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	ND	ND	ppbV	NC		25
1,4-Dioxane	ND	ND	ppbV	NC		25
2,2,4-Trimethylpentane	16.7	16.6	ppbV	1		25
Heptane	8.18	8.07	ppbV	1		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	ND	ND	ppbV	NC		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25
Toluene	17.2	16.7	ppbV	3		25
2-Hexanone	ND	ND	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Chlorobenzene	ND	ND	ppbV	NC		25
Ethylbenzene	1.84	1.79	ppbV	3		25
p/m-Xylene	6.47	6.28	ppbV	3		25

Lab Duplicate Analysis Batch Quality Control

Project Name: SCHMUKLERS

Project Number: 9851

Lab Number: L1735150

Report Date: 10/06/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1049361-5 QC Sample: L1735152-01 Client ID: DUP Sample						
Bromoform	ND	ND	ppbV	NC		25
Styrene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	2.02	1.98	ppbV	2		25
4-Ethyltoluene	0.488	0.472	ppbV	3		25
1,3,5-Trimethylbenzene	0.481	0.474	ppbV	1		25
1,2,4-Trimethylbenzene	2.00	1.95	ppbV	3		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1049364-5 QC Sample: L1735152-01 Client ID: DUP Sample						
Dichlorodifluoromethane	0.298	0.310	ppbV	4		25
Vinyl chloride	0.033	0.034	ppbV	3		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Carbon tetrachloride	0.084	0.082	ppbV	2		25
Trichloroethene	4.39	4.38	ppbV	0		25
Tetrachloroethene	0.201	0.193	ppbV	4		25

Project Name: SCHMUKLERS

Project Number: 9851

Serial_No:10061714:44
Lab Number: L1735150

Report Date: 10/06/17

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1735150-01	IAQ-092717	0760	Flow 2	09/25/17	250060		-	-	-	Pass	10.0	11.1	10
L1735150-01	IAQ-092717	2255	6.0L Can	09/25/17	250060	L1733122-03	Pass	-29.8	-4.3	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1733122
Report Date: 10/06/17

Air Canister Certification Results

Lab ID: L1733122-03
Client ID: CAN 951 SHELF 51
Sample Location:
Matrix: Air
Analytical Method: 48,TO-15
Analytical Date: 09/19/17 15:36
Analyst: RY

Date Collected: 09/18/17 16:00
Date Received: 09/19/17
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1733122**Project Number:** CANISTER QC BAT**Report Date:** 10/06/17**Air Canister Certification Results**

Lab ID: L1733122-03

Date Collected: 09/18/17 16:00

Client ID: CAN 951 SHELF 51

Date Received: 09/19/17

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1733122**Project Number:** CANISTER QC BAT**Report Date:** 10/06/17**Air Canister Certification Results**

Lab ID: L1733122-03

Date Collected: 09/18/17 16:00

Client ID: CAN 951 SHELF 51

Date Received: 09/19/17

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1733122**Project Number:** CANISTER QC BAT**Report Date:** 10/06/17**Air Canister Certification Results**

Lab ID: L1733122-03
 Client ID: CAN 951 SHELF 51
 Sample Location:

Date Collected: 09/18/17 16:00
 Date Received: 09/19/17
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1733122**Project Number:** CANISTER QC BAT**Report Date:** 10/06/17**Air Canister Certification Results**

Lab ID: L1733122-03

Date Collected: 09/18/17 16:00

Client ID: CAN 951 SHELF 51

Date Received: 09/19/17

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	82		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	89		60-140



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1733122
Report Date: 10/06/17

Air Canister Certification Results

Lab ID: L1733122-03
Client ID: CAN 951 SHELF 51
Sample Location:
Matrix: Air
Analytical Method: 48,TO-15-SIM
Analytical Date: 09/19/17 15:36
Analyst: RY

Date Collected: 09/18/17 16:00
Date Received: 09/19/17
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.404	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1733122
Report Date: 10/06/17

Air Canister Certification Results

Lab ID: L1733122-03
Client ID: CAN 951 SHELF 51
Sample Location:

Date Collected: 09/18/17 16:00
Date Received: 09/19/17
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1733122**Project Number:** CANISTER QC BAT**Report Date:** 10/06/17**Air Canister Certification Results**

Lab ID: L1733122-03

Date Collected: 09/18/17 16:00

Client ID: CAN 951 SHELF 51

Date Received: 09/19/17

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	83		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	88		60-140



Project Name: SCHMUKLERS

Project Number: 9851

Serial_No:10061714:44

Lab Number: L1735150

Report Date: 10/06/17

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**

N/A Absent

Container Information

Container ID **Container Type**

L1735150-01A Canister - 6 Liter

Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
N/A	NA			Y	Absent		TO15-LL(30),TO15-SIM(30)

Project Name: SCHMUKLERS
Project Number: 9851

Lab Number: L1735150
Report Date: 10/06/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report



Project Name: SCHMUKLERS**Lab Number:** L1735150**Project Number:** 9851**Report Date:** 10/06/17**Data Qualifiers**

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: SCHMUKLERS
Project Number: 9851

Lab Number: L1735150
Report Date: 10/06/17

REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 300:** DW: Bromide**EPA 6860:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.****EPA 624:** Volatile Halocarbons & Aromatics,**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



AIR ANALYSIS

PAGE 1 OF 1

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Berninger Env. (BEI)
Address: 17 Old Dock Rd.
Yapank, NY 11980
Phone: 631-589-6521

Fax: _____

Email: jhalpindwrses.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

Project Information

Project Name:	Schmukler S
Project Location:	New Rochelle
Project #:	9851
Project Manager:	Justin H
ALPHA Quote #:	

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: _____ Time: _____

Date Rec'd in Lab: 9/30/17

Report Information - Data Deliverables

☐ FAX
☐ ADE_x

Criteria Checker:

(Default based on Regulatory Criteria Indicated)

Other Formats:

☒ EMAIL (standard pdf report)

☒ Additional Deliverables:

Report to: (if different than Project Manager)

ALPHA Job #: 473550

Billing Information

☐ Same as Client info PO #: **21113**

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm
-----------	---------	------------

ANALYSIS

All Columns Below Must Be Filled Out

[illegible]

***SAMPLE MATRIX CODES**

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:

Date/Time

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Appendix-P
Historic SVS/SDS Readings

Schmukler's Cleaners, New Rochelle NY**PID Readings For Inf./Eff. Carbon Drum Sample Points ppm**

Before Drum Replaced

Date	INF.	Middle	EFF.	INF.	Middle	EFF.
6-Nov-09	4.50	0.00	0.00			
13-Nov-09	7.30	0.00	0.00			
20-Nov-09	3.50	0.00	0.00			
30-Nov-09	3.90	0.00	0.00			
22-Dec-09	5.30	0.00	0.00			
18-Jan-10	3.50	0.00	0.00			
5-Mar-10	5.10	2.30	0.00			
20-Apr-10	2.60	0.30	0.00			
12-May-10	21.70	1.20	0.00			
16-Jun-10	20.80	1.80	0.00			
6-Jul-10	20.40	4.70	0.00			
13-Aug-10	32.50	2.00	0.00			
17-Sep-10	89.00	0.70	0.00			
11-Oct-10	156.00	0.80	0.00			
3-Nov-10	98.60	1.75	0.00			
3-Dec-10	145.10	2.30	0.00			
3-Jan-11	87.42	2.60	0.00			
4-Feb-11	38.70	4.20	0.00			
1-Mar-11	92.60	7.30	0.00			
4-Apr-11	165.00	3.30	0.00	166.00	3.30	0.10
9-May-11	18.04	0.00	0.00			
24-Jun-11	12.10	2.90	0.00			
21-Jul-11	34.00	0.70	0.00			
2-Aug-11	40.70	0.70	0.00			
13-Sep-11	18.10	1.40	0.00			
3-Oct-11	16.90	0.00	0.00			
11-Nov-11	42.34	0.00	0.00	50.00	5.60	0.20
5-Dec-11	37.40	2.30	0.00			
18-Jan-12	38.50	1.90	0.00			
9-Feb-12	40.23	0.50	0.00			
22-Mar-12	46.80	0.90	0.00			
30-Apr-12	54.60	1.30	0.00			
22-May-12	51.30	1.70	0.00			
13-Jul-12	59.93	4.20	0.20			
8-Aug-12	61.5	1.2	0.2			
6-Sep-12	74.3	4.5	1.1			
3-Oct-12	60.00	1.00	0.00	33.2	18.6	3.3
13-Nov-12	51.20	6.30	0.00			
6-Dec-12	45.60	5.30	0.00			
10-Jan-13	77.90	4.60	0.00			
6-Feb-13	28.70	2.60	0.00	32.20	5.60	2.40
11-Mar-13	30.00	1.10	0.00			
13-Apr-13	0.00	0.00	0.00			
1-May-13	0.00	0.00	0.00			
28-Jun-13	18.90	2.30	0.90			
17-Jul-13	49.20	2.10	0.00			
8-Aug-13	44.90	1.50	0.00			
28-Oct-13	46.80	2.00	0.00			
13-Jan-14	111.00	1.25	0.00	116.00	2.10	1.90
10-Apr-14	39.00	1.50	0.00			
10-Jul-14	32.30	1.50	0.00			
1-Oct-14	2.90	1.00	0.00	2.90	1.40	0.90
30-Jan-15	3.20	0.40	0.00			
1-Apr-15	40.20	2.50	0.00			
15-Jul-15	37.60	1.50	0.00	*carbon change Oct. 2015		
12-Oct-15	35.50	5.10	0.30	35.00	0.00	0.00
26-Jan-16	37.20	2.20	0.00			
18-Apr-16	32.23	2.00	0.00			
27-Jul-16	12.90	1.00	0.00			
21-Oct-16	18.40	6.20	0.00	*carbon change Nov. 2016		
31-Jan-17	2.70	0.00	0.00			
25-Apr-17	2.00	0.00	0.00			
25-Jul-17	1.70	2.00	0.00			
2-Nov-17	0.60	0.60	0.00			
21-Dec-17	12.50	0.00	0.00	*3 Bags of carbon Installed		
12-Apr-18	0.30	0.20	0.00			
8-May-18	0.20	0.20	0.00			
30-Jul-18	0.00	0.00	0.00			
17-Oct-18	0.00	0.00	0.00	*carbon change Oct. 26, 2018		
31-Jan-19	0.00	0.00	0.00			
22-Apr-19	0.00	0.00	0.00			
23-Jul-19	0.40	0.00	0.00			
31-Oct-19	4.00	0.90	0.00			
27-Nov-19	0.90	0.00	0.00	*carbon change		
13-Jan-20	0.70	0.50	0.00			
23-Apr-20	0.90	0.70	0.00			
15-Jul-20	0.00	0.00	0.00			
28-Oct-20	1.70	0.00	0.00			
19-Jan-21	1.00	0.00	0.00			
16-Apr-21	2.30	0.00	0.00			

Appendix-Q
Decision Document (DD)

DECISION DOCUMENT

Schmuckler's Dry Cleaners
Brownfield Cleanup Program
New Rochelle, Westchester County
Site No. C360088
July 2018



Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

Schmuckler's Dry Cleaners
Brownfield Cleanup Program
New Rochelle, Westchester County
Site No. C360088
July 2018

Statement of Purpose and Basis

This document presents the remedy for the Schmuckler's Dry Cleaners site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Schmuckler's Dry Cleaners site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Green Remediation

Green remediation principles and techniques will be implemented to the extent feasible in the implementation and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste

2. Cover System

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. The site cover may consist of paved surface parking areas, sidewalks, or a soil cover. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover

material for the restricted residential use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

3. Vapor Mitigation

The combination soil vapor extraction and sub-slab depressurization system installed in the on-site building as an interim remedial measure (section 6.2) will continue and is required to be operated continuously, including during the implementation of the nutrient injections associated with the enhanced bioremediation remedial element. If the SVE/SSDS needs to be shut-down during the nutrient injections, then adequate indoor air monitoring will be required for the duration the system is shut down and until restarted and effectively depressurizing the entire building slab.

4. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat volatile organic compounds and semi-volatile organic compounds in groundwater in the location of the former dry cleaning equipment room in the basement of the on-site building. The biological breakdown of contaminants will be enhanced by injecting nutrients into the subsurface to promote microbe growth. The bacteria and the nutrients will be delivered to the groundwater via five injection wells screened at intervals ranging from two to fifteen feet below ground surface. In addition to contaminant monitoring, anaerobic degradation parameters in the groundwater will be monitored in on- and off-site wells throughout the treatment to ensure remedy effectiveness. If sampling data indicates remedy effectiveness is unsatisfactory, or if parameters measured in groundwater does not indicate an anaerobic environment, an additional carbon source will be injected and remedy effectiveness monitoring will continue. Additional injections of the enhanced biological agents may be necessary, in addition to the maintenance of anerobic conditions, should monitoring indicate degradation is not occurring.

5. NAPL Recovery

Collection and disposal of non-aqueous phase liquid (NAPL) from wells on the southeastern portion of the site and immediately off-site in the direction of groundwater flow to remove and prevent potentially mobile petroleum in the subsurface from migrating off-site. It is anticipated that petroleum-based light NAPL will be collected from the shallow groundwater approximately ten to twelve feet below ground surface. NAPL will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of NAPL over extended time periods, the Department will require evaluation and implementation of additional remedial actions, such as but not limited to the installation of additional recovery wells, to address NAPL migration. Additional remedial actions may also be required based on performance of the initial wells, new information, or a documented change in conditions.

6. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum and will include imposition of a site cover, continuation of the vapor mitigation system and an environmental easement, and site management plan as described below.

A. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

B. Site Management Plan

A Site Management Plan is required, which includes the following:

1. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.

Engineering Controls: The site cover system discussed in Paragraph 2 above and the NAPL recovery system discussed in Paragraph 5 above.

This plan includes, but may not be limited to:

- o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- o descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- o a provision for evaluation of the potential for soil vapor intrusion in future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- o a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas

where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)

- o provisions for the management and inspection of the identified engineering controls;
- o maintaining site access controls and Department notification; and
- o the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- o monitoring of NAPL recovery and groundwater bioremediation to assess the performance and effectiveness of the remedy;
- o monitoring of groundwater to assess the effectiveness of the remedy in reducing groundwater contaminant levels;
- o Reports of the NAPL recovery and bioremediation will be provided annually and contingency remedial actions will be proposed if it appears that NAPL collection and bioremediation are not addressing the contamination;
- o a schedule of monitoring and frequency of submittals to the Department;
- o monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

3. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

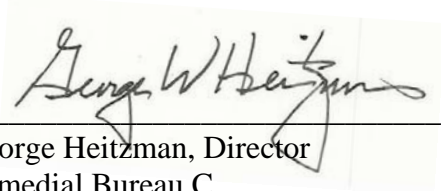
- o procedures for operating and maintaining the system(s); and
- o compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

July 11, 2018

Date



George Heitzman, Director
Remedial Bureau C

DECISION DOCUMENT

Schmuckler's Dry Cleaners
New Rochelle, Westchester County
Site No. C360088
May 2018

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

New Rochelle Public Library
Attn: Tom Geoffino
1 Liberty Plaza
New Rochelle, NY 10801
Phone: 914-632-7878

NYSDEC Region 3
Attn: Sarah Shepard
21 S. Putt Corners Rd
New Paltz, NY 12561

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at <http://www.dec.ny.gov/chemical/61092.html>

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Schmuckler's Dry Cleaners site is located in an urban area located at 358-364 North Avenue in New Rochelle, Westchester County. The site is 0.21 acres, most of which is covered by a two-story row building with a full basement.

Site Features: In addition to the former dry cleaners, historically located on the first floor, the site also includes an enclosed backyard area to the immediate west of the building. The backyard consists of lawn, elevated planting beds, concrete pad, and a paved walkway. The building is currently occupied by six commercial tenants on both the first and second floors including a neighborhood charitable services office, a property management office, a spa/salon, a music studio, a taxi cab service office, and the Volunteer/property owner's office.

Current Zoning/Use(s): The site is commercially zoned. Properties along North Avenue are predominantly zoned for commercial or mixed use, some maintaining residential apartments above. Commercial uses dominate the areas within one block east and west of North Avenue, with the exception of a multi-unit residential building immediately to the west of the site. Drinking water on-site is provided from a municipal source.

Past Uses of the Site: The building on-site was built in 1891, and operated by Schmuckler's Cleaners from 1914 to 2006 on the first floor and basement of the building. Additions were added to the building in 1937, and two in 1987. The site was acquired by the Volunteer, HNJ Realty, LLC, in August 2005, and entered into the Brownfield Cleanup program in June 2006.

Site Geology and Hydrogeology: The site is underlain by fill which is underlain by poorly sorted glacial material (silty-clay with sand and gravel). The highly weathered bedrock surface is between 9 and 13 feet below ground surface at site. Groundwater was encountered between 9 to 12 feet below site. Bedrock groundwater flows to the southeast. Only two overburden wells onsite have produced water, therefore a groundwater flow direction in overburden cannot be determined. It is assumed that it flows in the same basic southeast direction as the bedrock groundwater.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Department and HNJ Realty, LLC entered into a Brownfield Cleanup Agreement in 2006. HNJ Realty, LLC is a Volunteer and does not have an obligation to address off-site contamination.

The Department will seek to identify any parties (other than the Volunteer(s)) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought, or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for

review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- air
- groundwater
- soil
- soil vapor
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: <http://www.dec.ny.gov/regulations/61794.html>

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

tetrachloroethene (PCE)	1,1,2-TCA
trichloroethene (TCE)	1,1-dichloroethane
cis-1,2-dichloroethene	1,1-dichloroethene
vinyl chloride	1,2,4-trimethylbenzene
benzene	1,2-dichlorobenzene
toluene	cymene
isopropylbenzene	trans-1,2-dichloroethene
1,3,5-trimethylbenzene	1,4-dichlorobenzene
xylene (mixed)	acenaphthene
ethylbenzene	anthracene
naphthalene	bis(2-ethylhexyl)phthalate
n-propylbenzene	diethyl phthalate
butylbenzene	fluorine
1,1,2,2-TCA	phenanthrene

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion
- indoor air

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

IRM - soil vapor mitigation system

Based on elevated concentrations of PCE (787,000 ug/m³), TCE (15,200 ug/m³), cis-1,2 DCE (46,000 ug/m³) and vinyl chloride (34 ug/m³) detected in sub-slab soil vapor, a soil vapor mitigation system was installed under the poured concrete slab of the on-site building's basement. The system is a combination sub-slab depressurization system (SSDS) and a soil vapor extraction (SVE) system which addresses both soil vapor intrusion and remediation of contaminated media. The installation, testing, and replacement of the blower for the IRM SVE/SSDS system occurred between late 2008 and 2012. The IRM Construction Completion Report was approved in October 2013.

The SVE/SSDS system consists of horizontal PVC slotted pipes which were installed by trenching one foot below the concrete slab in a gravel-based bed. In addition, three vertical SVE wells were installed within the floor slab of the former dry cleaning equipment room. One exterior SVE well was installed in the footprint of the drywell adjacent to the rear building wall. A vacuum blower is used to draw vapors from the soil beneath the slab and into an air treatment system using vapor phase carbon canisters. The SVE/SSDS operates under a permit issued by the Westchester County Department of Health which requires monthly monitoring, maintenance, and reporting. Monitoring involves collecting a stack emission sample, field instrument readings at all carbon drum unit ports and at each vapor point location, and air flow (vacuum) monitoring at each vapor point location to indicate ongoing slab depressurization and system efficacy. Because this monitoring was required under the County Permit, the Volunteer opted to not perform post-mitigation indoor air monitoring. Maintenance of the system has been ongoing, including several carbon canister change-outs and the repair/replacement of blowers.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Based on the investigations conducted to date, which included the analysis for volatile organic and semi-volatile organic compounds (VOCs and SVOCs), inorganics, polychlorinated biphenols (PCBs) and pesticides in soil and groundwater and VOCs in soil vapor, the primary contaminants of concern at the site are chlorinated volatile organic compounds (VOCs), primarily tetrachloroethylene (PCE) and its breakdown compounds, in soils, groundwater, sub-slab vapor, and soil gas; petroleum-related VOCs in soils, groundwater, sub-slab vapor, and soil gas; and semi-volatile organic compounds (SVOCs) in groundwater.

In August 2015 an in situ pilot test was performed to assess potential remedial effectiveness of an enhanced biological product. Prior to the pilot injection, the test well contained 27,000 parts per billion (ppb) of PCE, 960 ppb of trichloroethylene (TCE), 2,100 ppb of cis-1,2-dichloroethylene (DCE) and 49 ppb of vinyl chloride (VC). Post injection levels after two months were 8,100 ppb of PCE, 11,000 ppb of TCE, 1,500 ppb of cis-1,2-DCE, and 53 ppb of VC. The decrease in PCE concentrations, coupled with the increase in degradation products, indicate that the breakdown of contaminants (dechlorination) is occurring. SVOC concentrations also decreased in the test well after the pilot. For example phenanthrene levels dropped from 78 ppb to 3.7 ppb two months after the pilot injection.

An expansion of the pilot test using the same enhanced biological product was performed in October 2017. This time, the injections occurred in five wells in the basement and outside the building, while monitoring occurred in six wells located around the site. In July 2017, prior to the expansion of the expanded test, the highest concentration of PCE was 17,000 ppb, TCE was 2,100 ppb, cis-1,2-DCE was 1,600 ppb, and VC was 73. Two months after the injections, in December 2017, the concentrations of contaminants in the same well were: 1,300 ppb PCE, 17,000 ppb TCE, 1,900 ppb cis-1,2-DCE, and 61 ppb VC. The highest concentration of SVOCs during the pilot expansion was phenanthrene which dropped from 2,000 ppb to 540 ppb two months after the injection event. In addition, approximately 40-gallons of LNAPL have been collected to date just off-site in the southeast, downgradient direction using both bailers and a sorbent recovery socks left in the well in between monitoring/bailing events.

Soils: Tetrachloroethylene (PCE), trichloroethene (TCE), and several petroleum related VOCs were detected in on-site soils underneath the building slab. The highest concentration of PCE at 210 parts per million (ppm), which exceeds the 19 ppm restricted residential soil cleanup objectives (SCO), was located underneath the building slab of the former dry cleaning equipment room. Other contaminants detected in soils only exceeded the protection of groundwater SCOs. These exceedances were largely in soils located downgradient of the dry cleaning equipment room and consisted of: TCE at 1.3 ppm, cis-1,2 dichloroethene (cis-1,2-DCE) at 3 ppm, n-propylbenzene at 16 ppm, xylenes at 15 ppm, ethylbenzene at 6.6 ppm, 1,3,5-trimethylbenzene at 63 ppm, and 1,2,4-trimethylbenzene at 99 ppm. There is no indication that this soil contamination has migrated off-site. Surface soils were collected from the small area of exposed soils from the back yard of the building. Surface soils, largely consisting of fill, exceeded the restricted residential SCOs for several constituents, including five SVOCs (benzo(a) anthracene,

benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene) and two metals (lead and mercury).

Groundwater: Petroleum-based floating product (light non-aqueous phase liquid or LNAPL) was observed in groundwater under much of the on-site building slab, a maximum of 6 inches thick under the former dry cleaning equipment room. Very high concentrations of several VOCs were also measured in this area. The maximum detected PCE was 830,000 parts per billion (ppb), and TCE at 58,000 ppb. Twenty-five individual VOCs were also detected in site groundwater samples exceeding NYS Class GA groundwater standards. These include PCE, TCE, as well as breakdown products of PCE with the following maximum concentrations: cis-1,2-DCE at 8,700 ppb, and vinyl chloride at 28 ppb. BTEX was detected, with benzene at 62 ppb, toluene at 130 ppb, ethylbenzene at 150 ppb, m+p xylene at 520 ppb, and o-xylene at 290 ppb. Other significant concentrations of petroleum-related VOCs detected in groundwater include 1,3,5-trimethylbenzene at 890 ppb, and 1,2,4-trimethylbenzene at 840 ppb. Eight SVOCs were detected over groundwater standards in groundwater under the building slab, including naphthalene at a concentration of 1300 ppb, phenanthrene at 2400 ppb, acenaphthene at 710 ppb, and anthracene at 280 ppb.

Bedrock wells were installed off-site in the downgradient, sidegradient, and upgradient directions. Petroleum-based VOCs and SVOCs were detected in the bedrock aquifer at concentrations above groundwater standards. For VOCs, a total maximum BTEX concentration of 722 ppb was detected in a downgradient bedrock well. Eleven individual SVOC contaminants were detected over groundwater standards in the same downgradient off-site bedrock well, including naphthalene at 4100 ppb, phenanthrene at 2800 ppb, acenaphthene at 710 ppb, and anthracene at 300 ppb.

The extent of groundwater contamination is concentrated underneath the on-site building slab, with petroleum-based VOC and SVOC contaminants and LNAPL extending off-site in the bedrock downgradient or southeast direction.

Soil Gas/Soil Vapor: The high concentrations of PCE (787,000 micrograms per cubic meter, ug/m3), TCE (15,200 ug/m3), cis-1,2-DCE (46,000 ug/m3), and vinyl chloride (34 ug/m3) in soil vapor under the slab of the on-site building required the installation and continuing operation of a combined soil vapor extraction and sub-slab mitigation system during a 2008-2013 Interim Remedial Measure (IRM). PCE (at 91 ug/m3) and TCE (13.4 ug/m3) were also detected in soil gas outside of the building near the location of a former drywell. Benzene (37 ug/m3), toluene (126 ug/m3), ethylbenzene (85 ug/m3), xylene (555 ug/m3), 1,3,5-trimethylbenzene (3 ug/m3), and 1,2,4-trimethylbenzene (14 ug/m3) were also detected in sub-slab vapor and soil gas. Because VOC concentrations were so high in sub-slab vapors, the Volunteer agreed to soil vapor intrusion mitigation, and indoor air sampling did not occur at that time. Post mitigation testing was not completed and additional investigations are needed to verify further actions are not needed. Soil vapor contamination may extend off-site and may affect off-site buildings.

Special Resources Impacted/Threatened: The site is located in an urban area of the City of New Rochelle. There are no special resources identified near the site.

Based on high levels of VOCs and SVOCs found in groundwater, and high levels of VOCs in soil vapor that may extend off-site, the Department has determined that the site poses a significant threat to human health and the environment.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

People may contact contaminants in soil or groundwater if they dig below the surface or contact contaminated groundwater. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of the buildings, is referred to as soil vapor intrusion. A combination soil vapor extraction and sub-slab depressurization system was installed in the on-site building to prevent vapors beneath the slab from entering the building, however additional testing is needed to verify further actions are not needed. There is a potential for inhalation of site contaminants due to soil vapor intrusion at this building when the sub-slab depressurization system is turned off for a period of time during groundwater bioremediation injection treatments. Sampling indicates soil vapor intrusion is a potential concern for off-site buildings and sampling was offered to several owners of off-site buildings on the same city block to start. Only one building owner agreed to the sampling which indicates soil vapor intrusion is not a concern and no further action is recommended for that building. Soil vapor intrusion remains a potential concern for other off-site buildings and repeat or new offers of sampling are recommended.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted use with site-specific cleanup objectives.

The selected remedy is referred to as “Product Recovery, Enhanced Bioremediation and Site Cover” remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Green Remediation

Green remediation principles and techniques will be implemented to the extent feasible in the implementation and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;

- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste

2. Cover System

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. The site cover may consist of paved surface parking areas, sidewalks, or a soil cover. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the restricted residential use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

3. Vapor Mitigation

The combination soil vapor extraction and sub-slab depressurization system installed in the on-site building as an interim remedial measure (section 6.2) will continue and is required to be operated continuously, including during the implementation of the nutrient injections associated with the enhanced bioremediation remedial element. If the SVE/SSDS needs to be shut-down during the nutrient injections, then adequate indoor air monitoring will be required for the duration the system is shut down and until restarted and effectively depressurizing the entire building slab.

4. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat volatile organic compounds and semi-volatile organic compounds in groundwater in the location of the former dry cleaning equipment room in the basement of the on-site building. The biological breakdown of contaminants will be enhanced by injecting nutrients into the subsurface to promote microbe growth. The bacteria and the nutrients will be delivered to the groundwater via five injection wells screened at intervals ranging from two to fifteen feet below ground surface. In addition to contaminant monitoring, anaerobic degradation parameters in the groundwater will be monitored in on- and off-site wells throughout the treatment to ensure remedy effectiveness. If sampling data indicates remedy effectiveness is unsatisfactory, or if parameters measured in groundwater does not indicate an anaerobic environment, an additional carbon source will be injected and remedy effectiveness monitoring will continue. Additional injections of the enhanced biological agents may be necessary, in addition to the maintenance of anerobic conditionsshould monitoring indicate degradation product concentrations are not increasing.

5. NAPL Recovery

Collection and disposal of non-aqueous phase liquid (NAPL) from wells on the southeastern portion of the site and immediately off-site in the direction of groundwater flow to remove and prevent potentially mobile petroleum in the subsurface from migrating off-site. It is anticipated that petroleum-based light NAPL will be collected from the shallow groundwater approximately ten to twelve feet below ground surface. NAPL will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of NAPL over extended time periods, the Department will require evaluation and implementation of additional remedial actions, such as but not limited to the installation of additional recovery wells, to address NAPL migration. Additional remedial actions may also be required based on performance of the initial wells, new information, or a documented change in conditions.

6. Engineering and Institutional Controls

Imposition of an institutional control in the form of an environmental easement and a Site Management Plan, as described below, will be required. The remedy will achieve a Track 4 restricted residential cleanup at a minimum and will include imposition of a site cover, continuation of the vapor mitigation system and an environmental easement, and site management plan as described below.

C. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

D. Site Management Plan

A Site Management Plan is required, which includes the following:

1. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.

Engineering Controls: The site cover system discussed in Paragraph 2 above and the NAPL recovery system discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

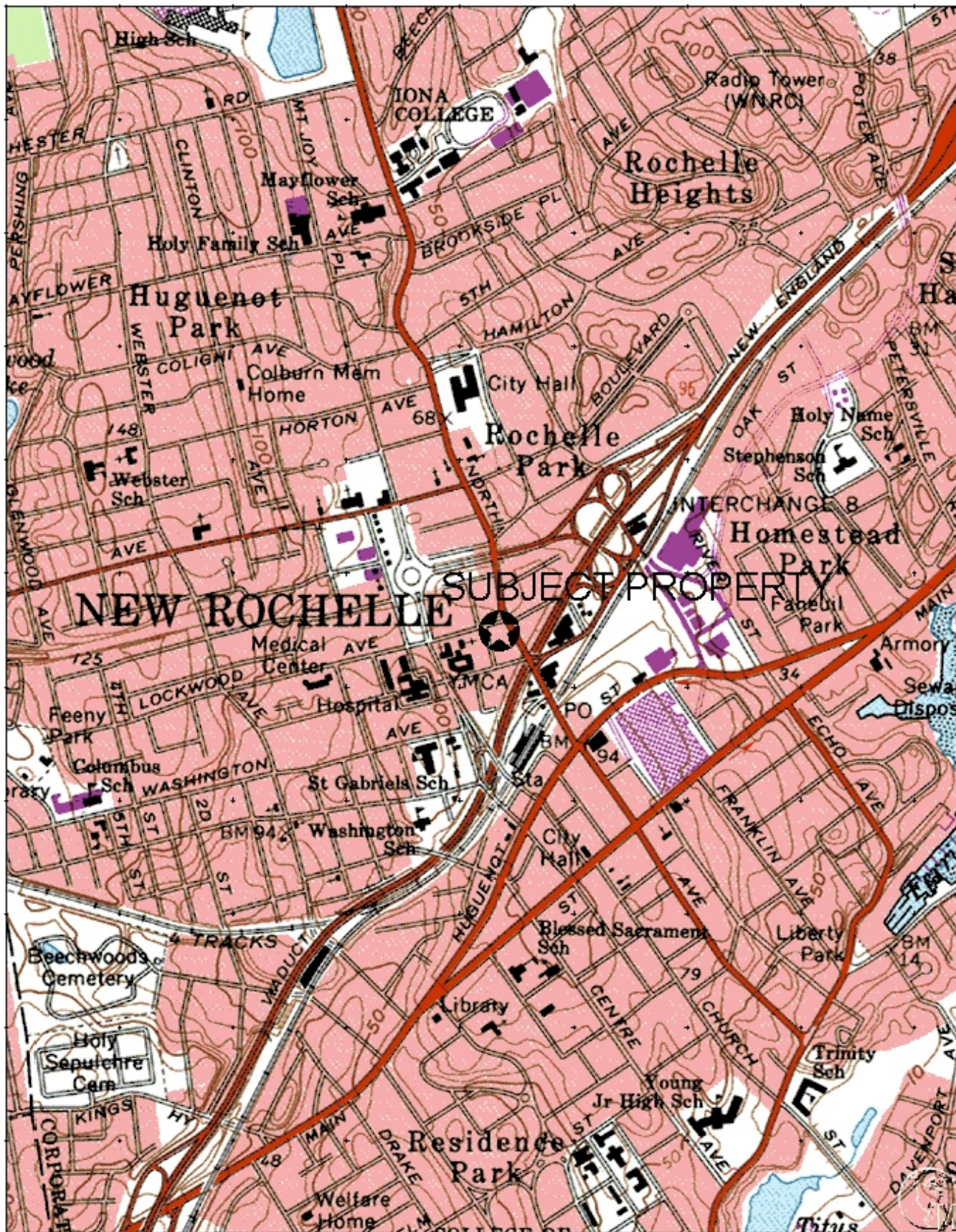
- o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- o descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- o a provision for evaluation of the potential for soil vapor intrusion in future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- o a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 3 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- o provisions for the management and inspection of the identified engineering controls;
- o maintaining site access controls and Department notification; and
- o the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- o monitoring of NAPL recovery and groundwater bioremediation to assess the performance and effectiveness of the remedy;
- o monitoring of groundwater to assess the effectiveness of the remedy in reducing groundwater contaminant levels;
- o Reports of the NAPL recovery and bioremediation will be provided annually and contingency remedial actions will be proposed if it appears that NAPL collection and bioremediation are not addressing the contamination;
- o a schedule of monitoring and frequency of submittals to the Department;
- o monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

3. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:

- o procedures for operating and maintaining the system(s); and
- o compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.



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Remedial Investigation Report November 2007

Figure 1- Site Location

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg P.E
PO BOX 263
Stony Brook, NY

Property Line

Site
Boundary
(green
border)



Scale

0 25 ft.

Remedial Investigation Report November 2007

Figure 2 - Site Survey
Site Boundary

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg P.E.
PO BOX 263
Stony Brook, NY

Scale:

0 25 ft.

NORTH

AVENUE



	GW-1
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	ND
Hexachlor	ND
PCE	ND
trans-1,2-DCE	1
TCE	ND
VC	ND

	GW-3
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	16
Hexachlor	ND
PCE	ND
trans-1,2-DCE	ND
TCE	26,000
VC	ND

	GW-2
1,1,2,2-PCA	2
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	1
1,2-Dichl	1
Chlor	ND
cis-1,2-DCE	2,100
Hexachlor	ND
PCE	4,500
trans-1,2-DCE	56
TCE	11,000
VC	ND

	GW-11
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	ND
Hexachlor	ND
PCE	34
trans-1,2-DCE	ND
TCE	2
VC	ND

	GW-6
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	18
1,2-Dichl	1
Chlor	ND
cis-1,2-DCE	8,700
Hexachlor	ND
PCE	310
trans-1,2-DCE	44
TCE	170
VC	2

	GW-4
1,1,2,2-PCA	700
1,1,2-TCE	170
1,1-DCA	7
1,1-DCE	27
1,2-Dichl	58
Chlor	ND
cis-1,2-DCE	1,000
Hexachlor	2
PCE	830,000
trans-1,2-DCE	14
TCE	58,000
VC	28

	GW-5
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	3
Hexachlor	ND
PCE	150
trans-1,2-DCE	ND
TCE	29
VC	ND

	GW-7
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	11
cis-1,2-DCE	44
Hexachlor	ND
PCE	25
trans-1,2-DCE	ND
TCE	ND
VC	3

	GW-8
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	2
cis-1,2-DCE	2
Hexachlor	ND
PCE	31
trans-1,2-DCE	ND
TCE	4
VC	ND

	GW-9
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	2
Chlor	ND
cis-1,2-DCE	690
Hexachlor	ND
PCE	25,000
trans-1,2-DCE	3
TCE	250
VC	ND

	GW-10
1,1,2,2-PCA	ND
1,1,2-TCE	ND
1,1-DCA	ND
1,1-DCE	ND
1,2-Dichl	ND
Chlor	ND
cis-1,2-DCE	ND
Hexachlor	ND
PCE	140
trans-1,2-DCE	ND
TCE	3
VC	ND

1,1,2,2-PCA - 1,1,2,2-Tetrachloroethane; 1,1,2-TCE - 1,1,2-Trichloroethene; 1,1 - DCA - 1,1-Dichloroethane; 1,1-DCE - 1,1-Dichloroethene; 1,2-Dichl - 1,2-Dichlorobenzene; Chlor - Chloroethene; cis-1,2-DCE - cis-1,2-Dichloroethene; Hexachlor - Hexachlorobutadiene; PCE - Tetrachloroethene; TCE - Trichloroethene; VC - Vinyl chloride

Bolded and highlighted concentrations are indicative of VOC detected at concentration exceeding applicable NYSDEC Class GA Groundwater Standards and/or Guidance Values

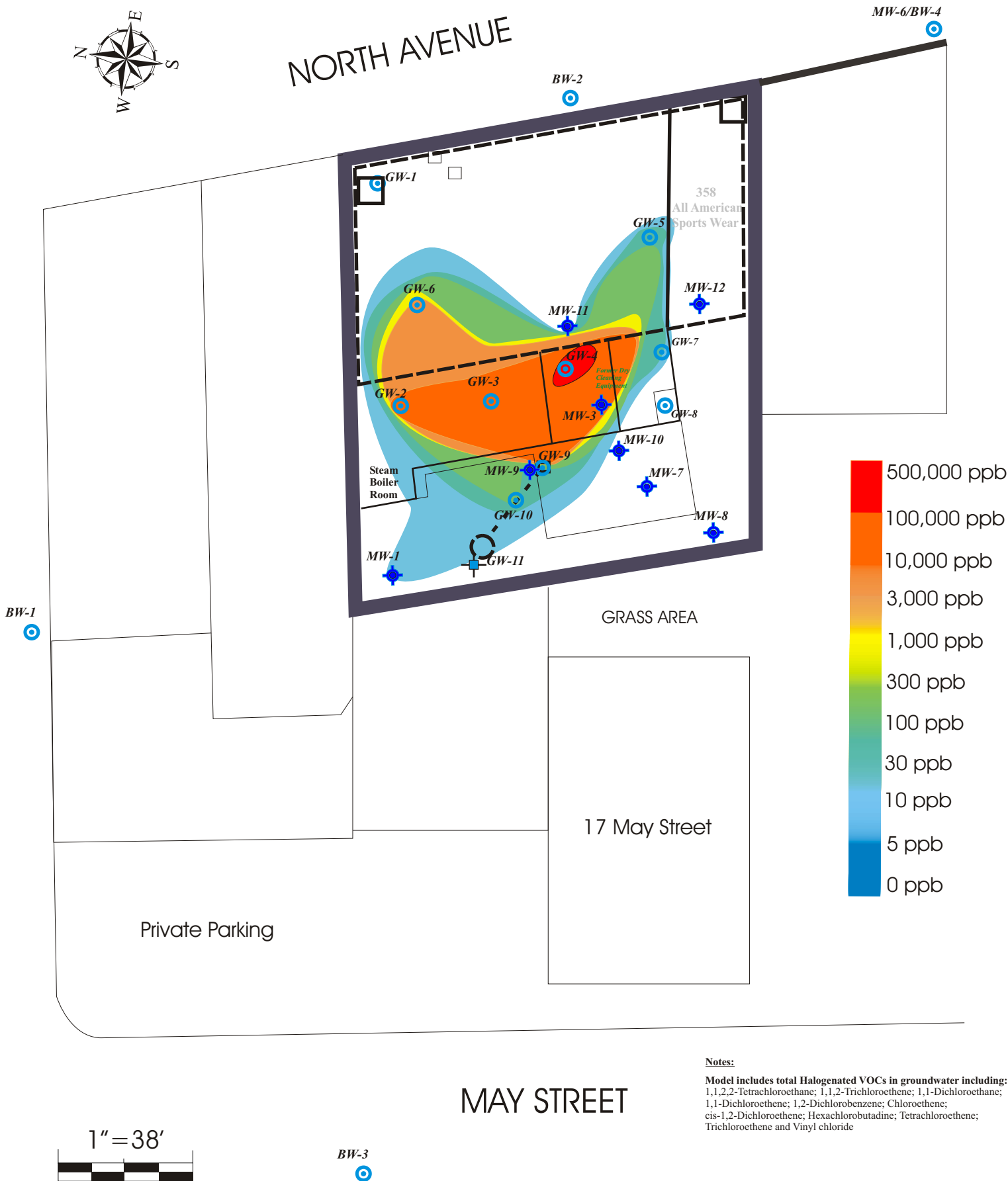
--- Basement Portion of the Building ○ - Soil Only Sampling Location ● - Soil and groundwater sampling locations + - Groundwater Only Sample Location

Figure 3 - Halogenated VOCs detected in Groundwater Samples in micrograms per liter (ug/L)

Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306

John V. Soderberg P.E.
P.O. Box 263
Stony Brook, NY

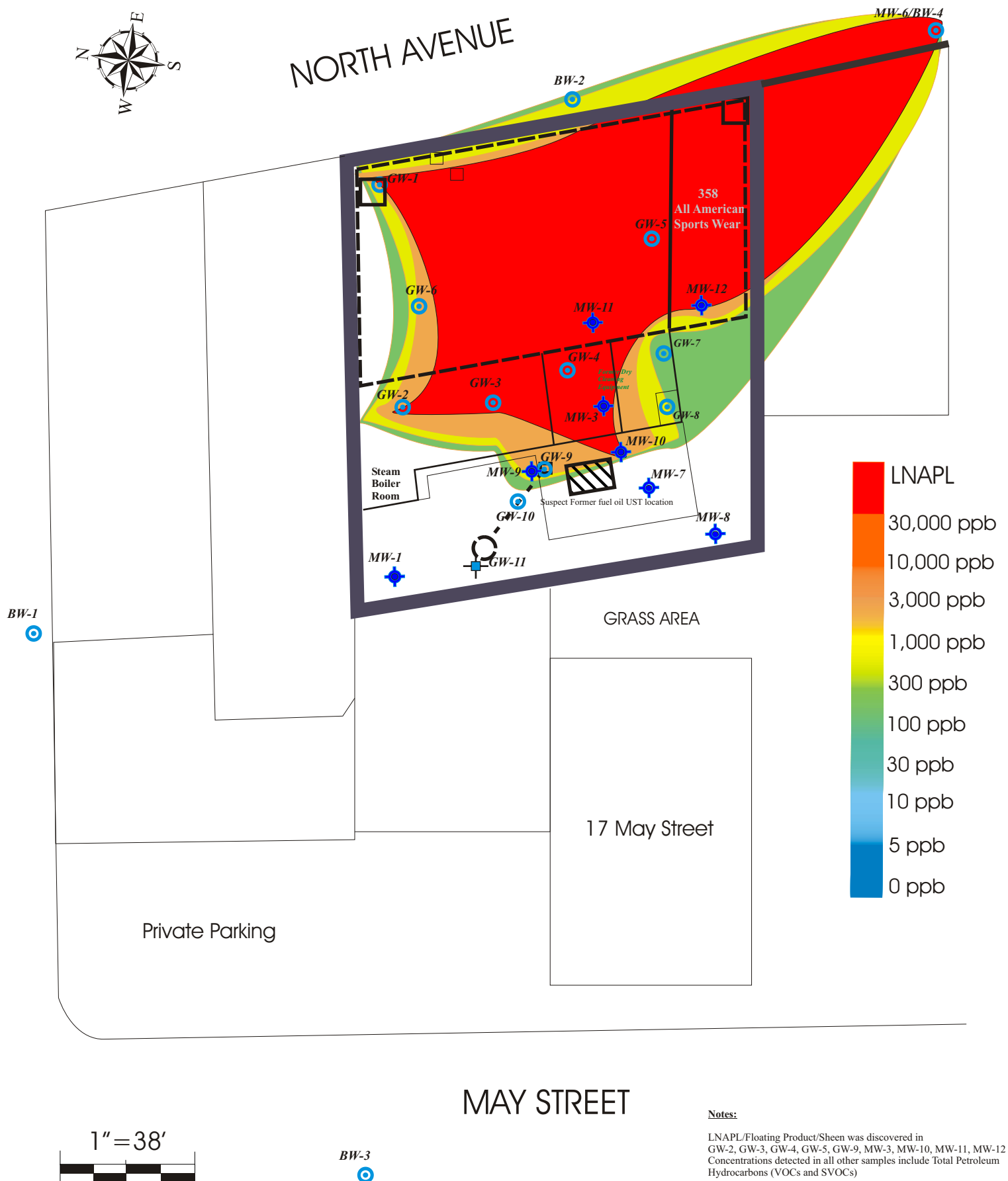
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**Total Halogenated VOCs
in Groundwater
FIGURE-3a**

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

**John V. Soderberg P.E
PO BOX 263
Stony Brook, NY**



**Total Petroleum Related
(VOCs and SVOCs)
in Groundwater
FIGURE-3b**

**Schmuklers Cleaners
358 - 364 North Avenue
New Rochelle, NY
Site #C360088
Index# A3-0542-0306**

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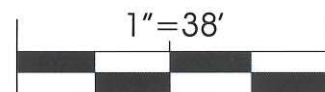
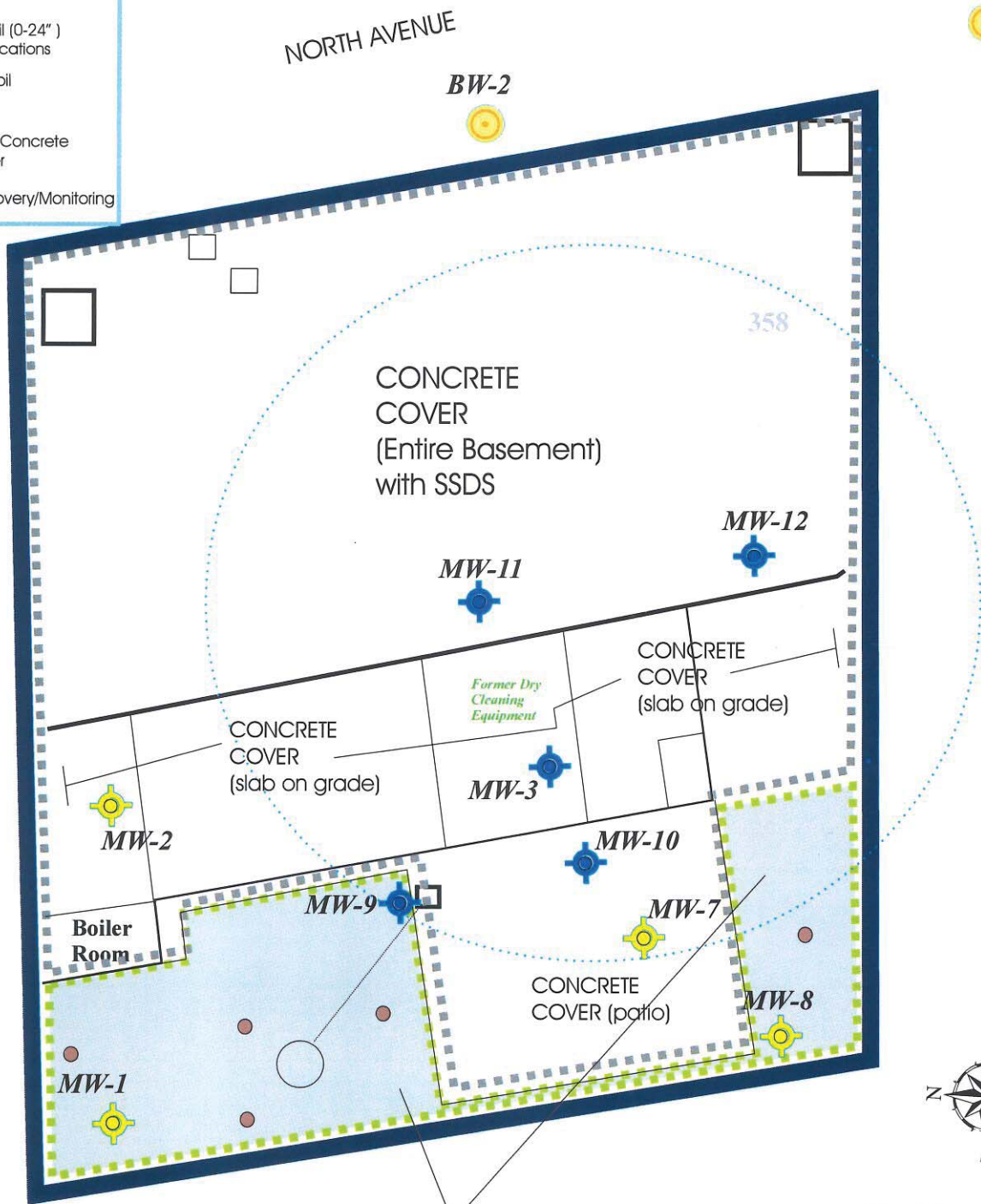
John V. Soderberg P.E.
PO BOX 263
Stony Brook, NY

KEY:

-  -Application Well
-  -Monitoring Well
-  -Proposed Treatment Area
-  - Surface soil (0-24") sample locations
-  - Exposed Soil area
-  - proposed Concrete cap/cover
-  -LNAPL Recovery/Monitoring

Located ~110 feet south of BW-2

BW-4



Proposed Remedy

Figure-4

Drawn: JGH

Schmuklers Cleaners
 358 - 364 North Avenue
 New Rochelle, NY
 Site #C360088
 Index# A3-0542-0306

John V. Soderberg P.E
 P.O Box 263
 Stony Brook, NY