
INTERIM REMEDIAL MEASURE WORK PLAN

**1609 DEKALB AVENUE
BROOKLYN
KINGS COUNTY, NEW YORK
NYSDEC SITE No. 224438**

PREPARED FOR:

DeKalb Avenue Lofts Apts, LLC
1609 Dekalb Avenue
Brooklyn, New York 11237

PREPARED BY:



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June 2026
PVEDI File #20240432

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CERTIFICATION

I, Erik Draijer, certify that I am currently a registered professional engineer licensed by the State of New York and that this Site Characterization and Interim Remedial Measure Work Plan 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) and Green Remediation (DER-31).

 Erik J Draijer PE
6/16/2026 Date



1.0 INTRODUCTION

Dekalb Avenue Lofts Apts, LLC (the “Remedial Party”) signed an Order on Consent and Administrative Settlement (the “Order”) with the New York State Department of Environmental Conservation (NYSDEC) in December 2025, to investigate and remediate a 0.184-acre property located at 1609 Dekalb Avenue in the Bushwick section of Brooklyn, NY (the “Site”). See **Figure 1** for a site location map. The site is identified as Block 3237 and Lot 41 on the NYC Tax Map. The Site is located in a commercial and residential area, consisting of 8,000 square feet and is bounded by a one-story U.S. postal service facility building at 88 Wyckoff Avenue to the northeast, a new 9-story residential building currently under construction at 950 Hart Street to the northwest, a 4-story commercial building at 1601 Dekalb Avenue to the southwest, and Dekalb Avenue to the southeast. A copy of the Order is included in **Appendix C**.

The Site has been improved with structures originally constructed prior to the 1968 Building Code and is currently seeking rehabilitation in accordance with Loft Law/DOB requirements. The current zoning designation is R6A - high lot coverage, six- to eight-story apartment buildings set at or near the street line designed to be compatible with older buildings in medium-density neighborhoods. The proposed use is consistent with existing zoning for the property. The owners have filed alteration plans with a change of Certificate of Occupancy in accordance with DOB and Loft Board requirements to coordinate the legal conversion to safe, rent-stabilized residential units. A Revised Negative Declaration was issued by NYC Planning Commission (CEQR 18DCP061K) on August 20, 2018, established requirements to be satisfied for potential adverse impacts related to air quality, noise, and hazardous materials. E-Designation requirements commenced with NYC Office of Environmental Remediation (OER), which briefed NYSDEC on March 5, 2025. During that briefing, NYSDEC determined that the Site contamination indicated potential on-Site hazardous waste disposal, and the Site was referred to NYSDEC on March 14, 2025. NYSDEC subsequently assigned site code 224438. The previous investigations and SSDS field study activities are further described below. A copy of the Negative Declaration and OER’s referral letter are included in **Appendix C**.

The purpose of this Interim Remedial Measures Work Plan (IRM WP) is to further characterize contaminants originating from the past operation and to implement interim remedial measures to address existing soil vapor intrusion in the on-Site building.

2.0 SITE HISTORY AND DESCRIPTION

2.1 Site Description and Surrounding Land Use

The Site is located at 1609 DeKalb Avenue in the Bushwick section in Brooklyn, New York and is identified as Block 3237 and Lot 41 on the New York City Tax Map. **Figure 1** shows the Site location. The Site is 0.184-acres (approximately 8,000 square feet) and is bounded by a one-story U.S. postal service facility building at 88 Wyckoff Avenue to the northeast, a new 9-story residential building currently under construction at 950 Hart Street to the northwest, a 4-story commercial building at 1601 Dekalb Avenue to the southwest, and Dekalb Avenue to the southeast. A map of the site boundary is shown in Figure 1. Currently, the Site is used for residential purposes and contains a three-story residential building totaling 7,212 square feet in building footprint and 21,390 square feet in total building area with 21 units. The surrounding property use consists of residential and commercial buildings. The adjoining property to the northeast is utilized as a US Postal Service office. The property to the southwest is currently under construction and is a future residential building. The property to the northeast is currently constructed as a multifamily residential building. The southeastern adjoining use is DeKalb Avenue followed by Wyckoff Heights Medical Center, which is considered a healthcare sensitive receptor within 500 feet. One (1) other sensitive receptor is located within 500 feet of the Site, identified as Women's Health Center Clinic at 110 Wyckoff Avenue 200 feet to the east-southeast.

2.2 Site History

PVEDI utilized online resources and Sanborn fire insurance maps to review the site history. The Site was unimproved in 1907. By 1933 the Site was first identified as a three-story commercial building labeled as Morris Knitting Mills Inc. with steel columns and girder construction, and one boiler room depicted on the Sanborn. By the 1951 Sanborn map, the Site was identified as a 3-story loft building. Between 1965 and 2007, the Site was identified as a knitting mill on Sanborn fire insurance maps. The structure and use of the Site observed in the aerial photographs from 1954 to 2022 are consistent with the Sanborn maps. The Site was most recently purchased in 1987 by Burhan Mela from Alan Goldsamt and has been utilized as a loft building since at least 1990. Sanborn fire insurance maps are included as **Appendix C**.

A partial cellar containing boiler systems and office space is located along the entire lot frontage of the building, approximately 30 feet in length. Residential units are located on Floors 1 through 3. No former knitting mill features were observed in site inspections performed by PVEDI between 2024 and 2025. PVEDI performed a search for more information regarding the former operations on site. The 1928 Davison's Silk Trade "The Silk Guide" produced a directory and technical compendium of the Silk Industry in the US and Canada. The Silk Guide provided a Kings County List which included Morris Knitting Mills, Inc. located at 1609 Dekalb Avenue and incorporated in 1923. The facility was listed as manufacturing rayon and silk sweaters and was equipped with 20 sewing machines, 3 winders, 7 warpers, and one electric boiler. Copies of the directory are included as **Appendix C**.

2.3 Previous Investigations

Relevant reports are summarized below, by address, in chronological order. These reports were prepared for NYC Office of Environmental Remediation to satisfy E-Designation requirements established by CEQR 18DCP061K.

Remedial Investigation Report, dated February 2025 (see **Appendix E**).

PVEDI completed a site inspection on October 12, 2024, to evaluate current site conditions. The site inspection was performed by Erik Draijer, PE, QEP. No on-site Areas of Concern were identified during the site inspection. The Site elevation from sidewalk grade is approximately 50.8 to 52.2 feet (vertical datum). The adjoining property located to the southwest of the Site (1601 DeKalb Avenue) completed a Remedial Investigation for NYC OER in a report dated November 2019 by HydroTech Environmental. According to this report, the adjoining property is located at approximately 47 to 52 feet above mean sea level, and depth to groundwater ranges from 23.55 to 37.65 feet below grade, assumed to be flowing from southeast to northwest. Site stratigraphy at the adjoining property includes historic fill material in the top 6 feet, and fine sand with pebbles, stone, and quartz between 6 and 17 feet below grade.

On November 20, 2024, four (4) 6-L Summa canisters (SV-1 20241120, SV-2 20241120, SV-3 20241120, and SV-4 20241120) were deployed in the basement and the first floor of the structure (**Figure 2**). Sub-slab vapor samples were collected in 6-liter summa canisters with flow controllers set collect the samples over a 24-hour period. Each of the four (4) soil vapor points were installed through the lowest level building slab (either the basement or the first floor depending on the sample location) and were installed in accordance with NYSDOH procedures to depths of 1.0 feet below bottom of slab. A helium-vapor test was conducted to demonstrate a proper seal around the sampling ports and confirm sample integrity. Prior to sample collection, the sample port was purged of three volumes at a rate not to exceed 0.2 L/min.

An additional four (4) co-located ambient air samples (AI-1 20241120, AI-2 20241120, AI-3 20241120, and AI-4 20241120) were collected on November 20, 2024. The indoor ambient air samples were also collected in 6-liter summa canisters with flow controllers set collect the samples over a 24-hour period simultaneously with the sub-slab soil vapor sampling. No outdoor ambient air sample was collected due to high winds and over an inch of precipitation on November 21, 2024.

All samples were submitted to York Analytical Labs Inc. for analysis of Volatile Organic Compounds (VOCs) via USEPA Method TO-15.

The following NYSDOH compounds with guidance values were detected at concentrations in ambient indoor air and soil vapor samples that warrant mitigation:

	Indoor Air Concentration ($\mu\text{g}/\text{m}^3$)	Soil Vapor Concentration ($\mu\text{g}/\text{m}^3$)	NYSDOH Matrix Determination
<u>Trichloroethylene (TCE)</u>	≥ 1.0 Upper Level	≥ 60 Upper Level	
AI-1 & SV-1	1.9	76	Mitigate
AI-2 & SV-2	0.75	330	Mitigate
AI-3 & SV-3	0.50	290	Mitigate
AI-4 & SV-4	32	74	Mitigate
<u>Tetrachloroethylene (PCE)</u>	≥ 10.0 Upper Level	$\geq 1,000$ Upper Level	
AI-4 & SV-4	32	74	Mitigate

TCE were detected in all sub-slab vapor samples at concentrations that require mitigation, regardless of the indoor air concentration. PCE were detected in SV-4/AI-4 at a concentration that requires identifying possible source of indoor air contamination and resampling, or mitigation.

Diagnostic Evaluation and Communication Testing

PVEDI conducted communication and vacuum testing within the building to evaluate the potential for air to flow beneath the slab and extract vapors from proposed vacuum extraction points. Suction/vacuum pits were constructed through the street-grade foundation slab of the building and through the cellar foundation.

- On June 26, 2025 a total of five (5) sub-slab sampling ports were installed throughout the interior of the building by creating a borehole using a hammer drill and 5/8-inch drill bit, followed by installation of a field-fabricated vapor pin. Three (3) sampling points (MP-1, MP-2, and MP-3) were installed in 10', 20', and 30' radius around the basement-level extraction point (TP-1), and two sampling points (MP-4 and MP-5) were installed in a 10' and 20' radius around the first-floor extraction point (TP-2). Four (4) monitoring points (MP-1 through MP-4) remain on site for future sampling use (see **Figures 2 and 3**).
- Vapor pins were installed for purposes of conducting radius of influence testing (communication testing using pressure meters).
- Temporary vapor extraction points were cored through the building: one located in the basement slab (TP-1) and one located in the first-floor slab (TP-2). The TP-1 location was selected for its proximity to a future proposed trash room with an opportunity to chase the piping to the roof with future alterations. The TP-2 location was selected for its proximity to a future proposed make-up air duct to chase the piping to the roof with future alterations. Each suction pit was constructed in the concrete slab using a coring bit and other hammer drill attachments. Each pit was excavated to approximately 1.5-feet below slab-grade using hand tools. A 2-foot-long section of Schedule 40, 4"- diameter, PVC riser was installed above the elevation of the surrounding slab and backfilled with clean ¾"-washed stone below slab elevation. The remaining space was backfilled with concrete/grout mixture to seal the pipe at the slab-elevation.
- RadonAway RP265 blower with an optimal air flow of 320 cubic feet per minute (CFM) was applied to the PVC riser to determine the area of influence provided by each fan series at each vacuum extraction location.
- A digital Fluke-922 micromanometer was used to measure the pressure differential between the sub-slab environment and indoor air at each monitoring location.
- Prior to starting the test, a flexible hose was routed from the first extraction zone header to the mobile test blower, which was staged in the side yard on the exterior of the building.

Results

The vacuum fans were operated at each extraction point for a period of approximately 60 minutes. Manometer readings were collected every 10 minutes from the sub-slab sampling ports until the sub-slab pressure stabilized (i.e. remained constant for three measurements). Pressure readings were collected from each of the three (3) monitoring points.

For TP-1, located in the basement, readings of -0.010 to -0.014 in. H₂O were identified at the 10' radius point (MP-3) over the course of 60 minutes. Readings of -0.002 to -0.004 in. H₂O were identified at the 30' radius point (MP-2) over the course of 60 minutes. Readings of 0.000 to -0.001 in. H₂O were identified at the 20' radius point (MP-1) over the course of 60 minutes. Two (2) sections of the cellar slab contained pits and open holes within the immediate vicinity of the testing, approximately 4 square feet in size, each. PVEDI attempted to temporarily cover each pit within the slab, however we estimate these open pits may have influenced our findings during the study. The pits identified during this investigation remain exposed and are proposed to be backfilled and sealed as described in the IRM scope described in Section 5.0.

For TP-2, located on the first floor, pressure readings of -0.010 to -0.014 [units] were identified at the 10' radius point (MP-5) over the course of 60 minutes. Readings of -0.008 to -0.004 were identified at the 20' radius point (MP-4) over the course of 60 minutes.

PVEDI concluded that the results of the pilot test were sufficient to design full scale SSDS. However, NYSDEC does not agree with the conclusions since they do not clearly indicate that the entire site footprint can be depressurized using only two suction pits. Therefore, additional site characterization and interim remedial measures are proposed to further assess the vapor intrusion condition, indoor air quality, to provide data sufficient to support final SSDS design.

2.4 Areas of Concern (AOC)

Based on the findings and conclusions of the previous environmental investigations, the following supplemental AOCs have been established.

AOC – 1 Knitting Mill Site History and cVOC in soil vapors.

The following is a brief description of the findings in each AOC.

The subject property has been improved with structures originally constructed prior to the 1968 Building Code and is currently seeking rehabilitation in accordance with Loft Law/DOB requirements. The property has an E-Designation (E-465) for hazardous materials, noise and air quality, and an approved Noise/Air Quality Remedial Action Plan (RAP) and certain hazmat requirements must be satisfied and implemented during site activities. Although the site history of a knitting mill operated since at least 1933, operations ceased at an unknown date and the property was utilized as a loft for residential purposes. Knitting mill operations included the use and storage of chemicals to dye, treat, clean, or manufacture fibers and textiles used in the knitting process. Elevated concentrations of chlorinated VOCs, specifically PCE and TCE, were detected in sub-slab vapor samples and indoor air samples collected during the remedial investigation for OER.

3.0 PURPOSE

Interim Remedial Measures are planned to mitigate indoor air quality impacts and to expand the sub-slab communication testing for SSDS design. Specific tasks include the following:

- Seal the slab in the cellar to facilitate proper operation of an SSDS.
- Conduct communication testing by installing vapor monitoring points and an additional test pit (suction pit) in the basement and on the first floor.
- Collection and analysis of supplemental soil vapor, indoor air, and subsurface soil samples.
- Provide indoor air filtration.

Supplemental soil vapor, indoor air, and soil samples are proposed within this IRM Work Plan, however the proposed sampling scope of work is not intended to satisfy the minimum requirements for a Site Characterization. A Site Characterization Work Plan will be provided under separate cover.

4.0 SITE CHARACTERIZATION SCOPE OF WORK

Supplemental soil vapor, indoor air, and soil samples are proposed within this IRM Work Plan, however the proposed sampling scope of work is not intended to satisfy the minimum requirements for a Site Characterization. A Site Characterization Work Plan will be provided under separate cover.

The Sample Summary Table (**Table 1**) describes the location and depth of each sample, the laboratory analyses and laboratory method number planned for each sample, and the rationale for collecting each sample.

All supplemental investigation field work will be conducted in accordance with the Community Air Monitoring Plan (see **Appendix A**) and a Health and Safety Plan (HASP), provided in **Appendix B**.

4.1 Mobilization and Utilities Investigation

Seven (7) days prior to initiating any field activities, PVEDI will notify NYSDEC and NYSDOH personnel of the anticipated field schedule. A draft schedule is presented in Section 11.0.

A geophysical survey will be performed prior to drilling and installation of soil borings. The geophysical survey will employ ground-penetrating radar (GPR) and magnetic/electromagnetic equipment to locate anomalies that could be representative of buried infrastructure, such as fuel storage tanks, sewer lines, drain pipes, utilities, and conduits that could provide potential pathways for contaminants, or obstructions to be avoided during drilling.

4.2 Supplemental Soil Vapor and Indoor Air Quality Sampling

Following the completion of slab repairs proposed in Section 5.1 below, four (4) sub-slab monitoring points installed during investigation activities and SSDS testing (MP-1, MP-2, MP-3, and MP-4) will be re-used for supplemental sampling and SSDS testing activities. An additional five (5) monitoring points (MP-5, MP-6, MP-7, MP-8, and MP-9) will be installed for supplemental sampling as part of site characterization, as well as testing locations for SSDS field testing. Locations of existing monitoring points, monitoring points to be installed, soil vapor sampling locations, and indoor air sampling locations are depicted in **Figures 2 and 3**.

Nine (9) supplemental sub-slab soil vapor samples will be collected throughout the Site during site characterization activities to further understand the extent of soil vapor intrusion.

Sub-slab soil vapor probes will be installed in accordance with NYSDOH guidance procedures. A helium-vapor test will be conducted to demonstrate a proper seal around the sampling port and to confirm sample integrity. Prior to sample collection, the sample port will be purged up to three volumes at a rate not exceeding 0.2 L/minute. Samples will be collected in certified clean Summa

canisters (batch certification) with a regulator set to collect samples over a 24-hour period. All samples will be submitted to a NYSDOH ELAP-certified laboratory for analysis of VOCs via USEPA Method TO-15. Vapor probes will remain installed for supplemental SSDS field studies following sample collection.

An additional nine (9) indoor air samples will be collected throughout the basement and first floor, all co-located with sub-slab vapor sampling ports (IA-1 through IA-9). Samples will be collected in certified clean Summa canisters (batch certification) with a regulator set to collect samples over a 24-hour period. All samples will be submitted to a NYSDOH ELAP-certified laboratory for analysis of VOCs via USEPA Method TO-15.

An additional nine (9) indoor air samples will be collected throughout the basement and first floor, all co-located with sub-slab vapor sampling ports (IA-1 through IA-9). Samples will be collected in certified clean Summa canisters (batch certification) with a regulator set to collect samples over a 24-hour period. All samples will be submitted to a NYSDOH ELAP-certified laboratory for analysis of VOCs via USEPA Method TO-15.

4.3 Soil Sampling

Up to one (1) discrete/grab soil sample will be collected from each soil vapor/monitoring point to be installed. Soil will be collected from approximately 2-3' below grade from the bottom of the soil vapor probe. A total of five soil vapor/monitoring points are proposed to be installed in this work plan. Soil samples will be screened for VOCs using a PID. Each discrete/grab soil sample interval will be transferred into laboratory provided container. See Appendix A for more information related to sampling procedure and approved sample containers.

Soil samples will be analyzed for the following parameters, as specified in Table 1:

- TCL VOCs by USEPA Method 8260C;
- TCL SVOCs by USEPA Method 8270D;
- Target Analyte List (TAL) Metals by USEPA Method 6010C & 7471;
 - Including cyanide and hexavalent chromium.
- TCL PCBs by USEPA Method 8082A;
- TCL Pesticides by USEPA Method 8081B;
- TCL Herbicides by USEPA Method 8151A.

A total of one (1) soil samples will be analyzed for emerging contaminants (USEPA Method 1633) and will be collected in accordance with NYSDEC Guidelines for Sampling, Analysis, and Assessment of PFAS, dated April 2023.

All samples will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory providing Analytical Services Protocol (ASP) Category B deliverables. Field duplicates and matrix spike/matrix spike duplicates (MS/MSD) will be collected for quality control/quality assurance (QA/QC) purposes and analyzed for sample parameters described above, in accordance with Table 1. In addition,

aqueous equipment field blanks will be collected in the field and laboratory-supplied aqueous trip blanks will accompany the sample shipment (trip blanks analyzed for VOCs only). QA/QC blanks and duplicates will be completed at a frequency of one sample for every 20 field-samples, as required in DER-10. QA/QC blanks and duplicates are included in Table 1.

4.4 Data Review

All samples undergoing laboratory analysis will be subject to a third-party data review process to ensure the usability of the data collected. Data usability summary reports (DUSRs) documenting any issues with QA/QC will be prepared and included in the IRM Report.

4.5 Slab Repair and Sealing

On June 26, 2025, PVEDI conducted communication and vacuum testing within the building to evaluate the potential for air to flow beneath the slab and extract vapors from proposed vacuum extraction points. The static pressure readings collected from each of the monitoring points indicated that no connectivity with the temporary ventilation points exists, and that air flow beneath the basement slab and slab on grade is minimal.

Three (3) sections of the cellar slab contained pits and open holes within the immediate vicinity of the testing, approximately 4 square feet in size, each. PVEDI determined that the open pits, cracks, and holes in the concrete slab negatively influenced the findings during the study. PVEDI will backfill and seal all pits, pipe penetrations, and cracks prior to further testing. Locations of open pits in the basement foundation are depicted on Figure 2, and photos of each pit are included in the photo log (Appendix G).

4.6 SSDS Communication Pilot Testing

PVEDI will conduct communication and vacuum testing within the building to evaluate the effectiveness of the SSDS and extract vapors from proposed vacuum extraction points.

Following completion of nine (9) monitoring points, soil vapor and indoor sample collection, PVEDI will complete construction of an approximate 2' by 2' by 2' suction pit. Three test pits (TP-1, TP-2, and TP-3) will be utilized for extraction points to test sub-slab depressurization potential. The basement level pit located in the cellar boiler room will be utilized for the basement extraction point (TP-1). The existing suction pit constructed during previous SSDS studies (TP-2) will be re-used. An additional test pit (TP-3) will be constructed on the first floor (locations depicted on Figure 2). Thin-walled steel or PVC pipe will be placed in the suction pit and backfilled with clean crushed stone (1/2"), routed through the boiler room wall and exhaust into the exterior and outdoor ambient. A carbon filtration damper will be applied to the exhaust points during the pilot study within flexible dryer vents. Three (3) RadonAway RP265 blowers will be temporarily installed in-line of the SSDS pilot test piping approximately 4' above the top of slab.

A total of nine (9) sub-slab sampling ports (MP-1 through MP-9) installed during soil vapor sampling

activities will be utilized following sampling activities located throughout the interior of the building. Sampling points are proposed around the perimeter of the basement and first floor to assess the full radius of influence. These points are located at various intervals from each of the three (3) test pits and suction pits depicted on Figure 2.

Each of the three vacuum fans will be operated for a period of approximately 60 minutes. A digital micro-manometer will be used to measure the pressure differential between the sub-slab. The results of the revised pilot study will be utilized for final SSDS design.

4.7 Sub-Slab Depressurization System (SSDS)

An active sub-slab depressurization system will be designed by a Professional Engineer which will underlie the Site. The SSDS will consist of a network of slotted lateral PVE piping placed in slab-cut trenches below the foundation slab and placement will be based upon the results of the pilot study and communication testing described above. SSDS risers will terminate at the stairwell bulkhead roof at the highest elevation with a 6-inch extended pipe above parapet or roof ridge and a wind screen cap or goose neck pipe to prevent rain infiltration. The system's exhaust points will be located at least 10 feet away from windows and publicly accessible outdoor areas, and at least 15 feet away from air intakes serving indoor ventilation systems. Monitoring points will be installed to monitor the efficiency of the SSDS. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration. Design drawings will be provided to NYSDEC and NYSDOH prior to filing with NYC DOB and installation.

4.8 Indoor Air Filtration

Air ventilation systems will be placed in the basement in the vicinity of formerly exposed sub-base to improve air quality in the basement and first floor. Appendix D includes specification cut sheets for the filtration equipment.

Two (2) Amaircare Airwash MultiPRO air treatment systems will be installed in the indoor air space. The provides approximately 250 cubic feet per minute (CFM) to 800 CFM of airflow through a HEPA filter and activated carbon canister. The carbon canister will provide approximately 22 pounds of carbon media for VOC adsorption. The units include a 12-inch diameter round inlet and outlet port, and a control panel that measures pressure differential exceeding 2 inches of water column indicating carbon filter breakthrough capacity and filter replacement needed. Units will be operated continuously during building occupancy until permanent mitigation (SSDS) is implemented.

5.0 PROJECT ORGANIZATION

The Remedial Engineer for this project will be Erik Draijer. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will certify in the Site Characterization Report that the activities were observed by qualified environmental professionals under his or her supervision. The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of the work outlined in this IRM WP, including waste characterization, air monitoring, import of back fill material (if any), and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The following table includes the names and contact information for the Remedial Party and all other personnel involved in the implementation of this IRM WP.

Name	Project Role	Contact information
Mandy Yau	NYSDEC Project Manager	Mandy.yau@dec.ny.gov (718) 482-7778
Scarlett McLaughlin	NYSDOH Project Manager	scarlett.mclaughlin@health.ny.gov
Valerie Mela	Remedial Party	vmela81@gmail.com
Erik Draijer*	Remedial Engineer/QEP	edraijer@pvedi-ae.com (973) 975-7135
Mariana Verri	Project Manager	mverri@pvedi-ae.com (646) 602-4999
Christopher Brown*	Quality Assurance Officer	cbrown@pvedi-ae.com (646) 602-4999
ALS USA	Analytical Lab	rachel.driesen@alsglobal.com
Labella Associates	DUSR preparer	Tracey Evans, tevans@labellapc.com

Note: Resumes for individuals marked with *are included in **Appendix H within the QAPP**.

6.0 STANDARDS, CRITERIA, AND GUIDANCE

The following New York State Standards, Criteria, and Guidance (SCGs) are applicable under this IRM WP:

- 6 NYCRR Part 375 – Environmental Remediation Programs
- 6 NYCRR Part 703 and TOGS 1.1.1 – New York State Ambient Water Quality Standards and Guidance Values
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Waste
- NYSDEC DER-10 – Technical Guidance for Site Investigation and Remediation
- NYSDEC DER-31 – Green and Sustainable Remediation
- NYSDEC Guidelines for Sampling and Analysis of PFAS
- NYSDEC DAR-1 – Guidelines for the Evaluation and Control of Ambient Air Contaminant
- NYSDOH Guidance for Evaluation Soil Vapor Intrusion in New York
- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response

These SCGs will be uniformly applied throughout the project. Additional SCGs not listed above may also be applicable.

7.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

7.1 Analytical Methods

All samples collected during the IRM will be analyzed using EPA-approved analytical methods.

7.2 Laboratory

The subcontracted laboratory will be certified by the New York State Department of Health to perform Contract Laboratory Program (CLP) analysis on all media to be sampled during this investigation. The laboratory will perform the sample analysis in accordance with the most recent NYSDEC ASP.

7.3 Data Submittal

Analytical data will be submitted in complete ASP Category B data packs. Procedures for chain of custody, laboratory instrumentation calibration, laboratory analyses, reporting of data, internal quality control, and corrective actions shall be followed as per SW-846 and as per the laboratory's Quality Assurance Plan. Where appropriate, trip blanks, field blanks, field duplicates, and matrix spike, matrix spike duplicates shall be performed at a rate of 5% and will be used to assess the quality of the data. The laboratory's in-house QA/QC limits will be utilized whenever they are more stringent than those suggested by the EPA methods.

7.4 Data Usability Summary Report

The data package will be sent to a qualified, independent, data validation specialist for evaluation of the accuracy and precision of the analytical results. A DUSR will be prepared for the RI data sets to describe the compliance of the analyses with the analytical method protocols detailed in the NYSDEC ASP. The DUSR will provide a determination of whether the data meets the project-specific criteria for data quality and data use. The validation effort will be completed in accordance with NYSDEC Division of Environmental Remediation DUSR guidelines.

IRM activities described above will be performed in accordance with the Quality Assurance Project Plan (QAPP) included as Appendix H.

8.0 HEALTH AND SAFETY

Field tasks will be performed using industry standard health and safety procedures. A site-specific HASP has been prepared for use by the field team during all field activities. This plan details known and potential hazards of the Site and field tasks as well as air monitoring and emergency procedures. The HASP is presented in Appendix B.

8.1 Community Air Monitoring

Where ground intrusive operations are planned, community air monitoring will be performed to protect the downwind community. This Community Air Monitoring Plan (CAMP) data will be submitted to the NYSDEC and NYSDOH on a daily basis within daily field reports. A PVEDI representative will continually monitor the breathing zone in the vicinity of the immediate work area using PID instrumentation capable of measuring total volatile organic compounds in air at concentrations as low as 1 part per million (PPM). The air in the work zone also will be continually monitored for dust generation using a pDR 1500 hand-held meter or comparable model. Within one (1) business day of any CAMP exceedances detected during monitoring, the NYSDEC and NYSDOH will be notified of actions planned or taken in response to these exceedances. If VOC measurements are detected at 5 ppm above the background for the 15-minute average, or if dust generation is observed at 100 micrograms per cubic meter greater than at background (upwind perimeter) locations, then the intrusive work will be temporarily halted, dust suppression techniques will be implemented and more rigorous monitoring of VOCs and dust will be conducted in accordance with the NYSDOH Generic CAMP. A copy of the CAMP is provided in Appendix A.

For intrusive activities conducted within occupied structures, additional community air monitoring will be performed in accordance with DER-10. Monitoring will be conducted within the work area and at the interface between the work zone and occupied portions of the building to ensure that airborne contaminants are not migrating into occupied spaces. Where warranted, monitoring may also be conducted within adjacent occupied areas and near building ventilation pathways. Engineering controls will be implemented, as necessary, to prevent migration of vapors or particulates into occupied areas. Such controls may include installation of temporary containment barriers. If volatile organic compounds are detected within occupied areas at concentrations exceeding 5 parts per million (ppm) above background as a 15-minute average, or if visible dust migration into occupied areas is observed, work will be immediately halted and corrective actions will be implemented to eliminate the source of contamination prior to resumption of work.

9.0 REPORTING

9.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by noon of each day following the reporting period and will include:

- An update of progress made during the reporting day;
- Locations of work;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- Photographs of site activities;
- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the SC/IRM WP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the SC/IRM WP will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to an alpha-numeric map for the Site that identifies work areas. These reports will include a summary of CAMP results, odor and dust excursions and corrective actions, and all complaints received from the public.

The NYSDEC assigned project number will appear on all reports.

9.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the 10th day of each month following the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed;
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable;
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays;
- Tracking of GSR metrics.

9.3 IRM Construction Completion Report

Upon completion of field activities and receipt of laboratory results, PVEDI will prepare a Construction Completion Report (CCR). All data collected will be summarized in tables and figures, and sample locations will be depicted on sample location maps with corresponding sample numbers and depths.

The report will include ASP Category B laboratory data packages for all samples, sample location maps, and a summary of the SSDS field study with interim remedial measures. SSDS installation will be documented and reported in accordance with DER-10 Section 5.4. Data usability summary reports documenting any issues with QA/QC will be prepared and included in the report. Electronic data deliverables will be submitted to the NYSDEC EQUIS database. The CCR will include an interim Site Management Plan and will be incorporated into the final SMP upon completion of the remedial program.

10.0 SCHEDULE

We anticipate implementation of this Remedial Investigation Work Plan to be conducted according to the following approximate schedule (pending Department-approval) in the sequence described below:

SC/IRM	Estimated Start	Estimated Completion
Mobilization	June 2026	July 2026
Slab Repair and Pit Sealing	July 2026	July 2026
*Soil Vapor and Indoor Air Sampling	October 2026	November 2026
SSDS Pilot Study	July 2026	August 2026
Air Filtration Installation	August 2026	September 2026
Reporting	September 2026	October 2026

*Soil Vapor and Indoor Air Sampling Schedule at the discretion of NYSDOH.

11.0 CERTIFICATION

I, Erik Draijer, certify that I am currently a registered professional engineer licensed by the State of New York and that this Site Characterization and Interim Remedial Measure Work Plan 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) and Green Remediation (DER-31).



Erik J Draijer PE

6/16/2026 Date



12.0 REFERENCES

DER-10 / Technical Guidance for Site Investigation and Remediation, DEC Program Policy; Issued May 3, 2010.

DER-23 / Citizen Participation Handbook for Remedial Programs, DEC Program Policy; Issued January 21, 2010.

Brownfield Cleanup Program Guide; Issued May 2004.

6 NYCRR Part 375 Environmental Remediation Programs; Guidelines for Sampling and Analysis of PFAS; issued November 2022.

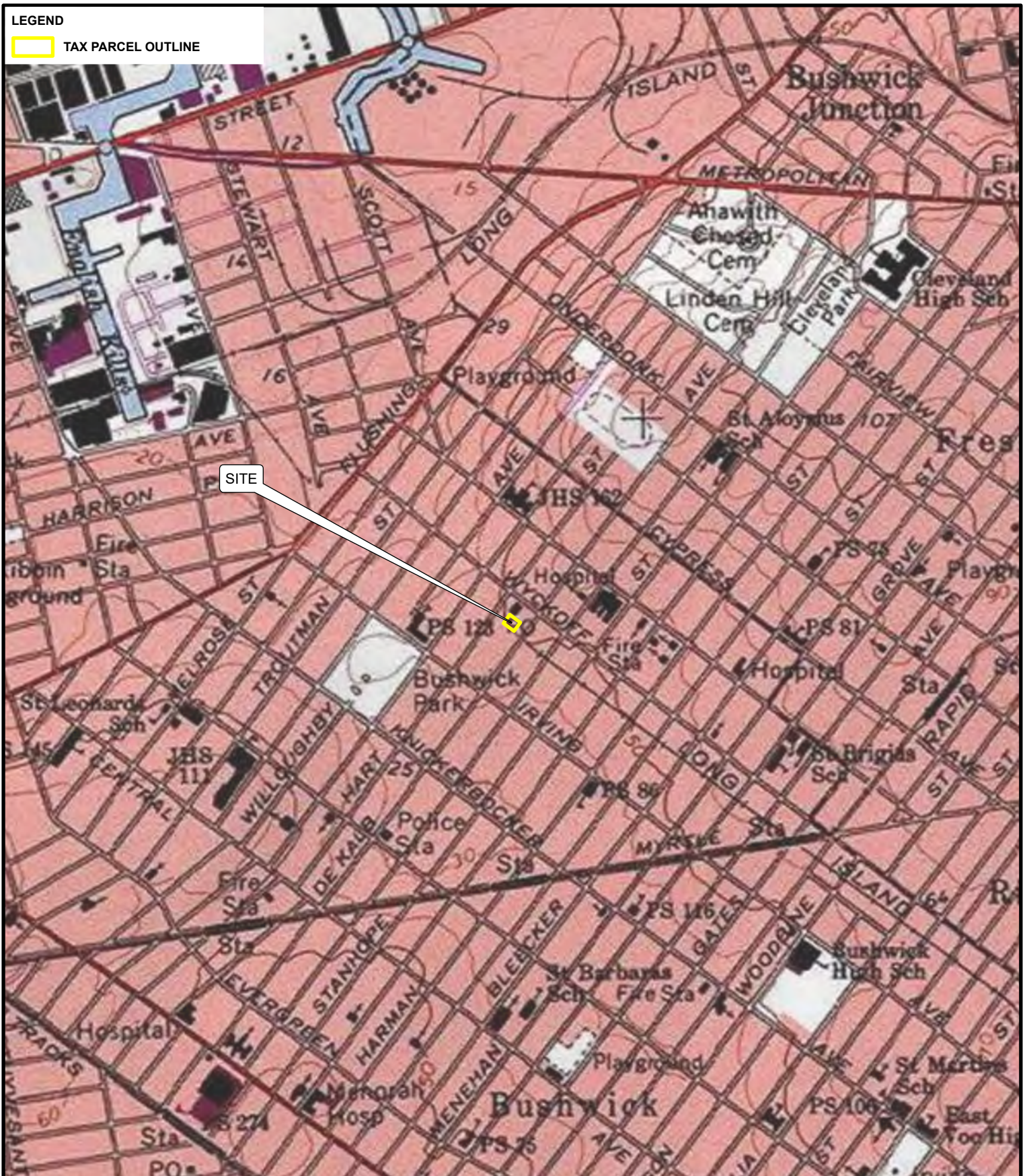
6 NYCRR Part 375 Environmental Remediation Programs; Effective December 14, 2006.

New York State Department of Health Summary of Indoor and Outdoor Levels of Volatile Organic Compounds from Fuel Oil Heated Homes in New York State, 1997-2003.

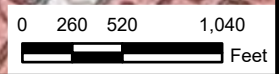
New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York; Issued October 2006 & subsequent amendments.

New York Division of Water Technical and Operations Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

LEGEND
 TAX PARCEL OUTLINE



DATA SOURCES:
 Tax Parcel Outline: NYS GIS Data
 Basemap: Copyright:© 2013 National Geographic Society, i-cubed



PVE
 48 Springside Avenue
 Poughkeepsie, NY 12603
 Office: 845.454.2544
 Fax: 845.454.2655

SITE LOCATION MAP
 1609 DEKALB AVENUE
 BROOKLYN, NEW YORK 11237


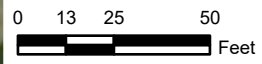
PROJECT NO.
 20240999




FIGURE 1
 DATE: 02/13/2025
 SCALE: AS INDICATED
 PROJECTION: STATE PLANE NAD83 NY EAST
 ALL LOCATIONS APPROXIMATE

LEGEND
 TAX PARCEL OUTLINE



DATA SOURCES:
 Tax Parcel Outline: https://gisservices.its.ny.gov/arcgis/rest/services/NYS_Tax_Parcels_Public/FeatureServer
 Basemap: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, New York State, Microsoft, Vantor, Copyright:© 2013 National Geographic Society, i-cubed

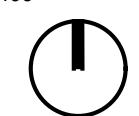


 25 W. 39th St. 12th Floor New York, NY 10018 Phone: (646) 602-4999 Fax: (212) 682-1991	SITE BOUNDARY MAP 1609 DEKALB AVENUE BROOKLYN, NEW YORK 11237	PROJECT NO. 20240432	FIGURE 2
		DATE: 03/24/2026	SCALE: AS INDICATED
			PROJECTION: STATE PLANE NAD83 NY LONG ISLAND
		ALL LOCATIONS APPROXIMATE	

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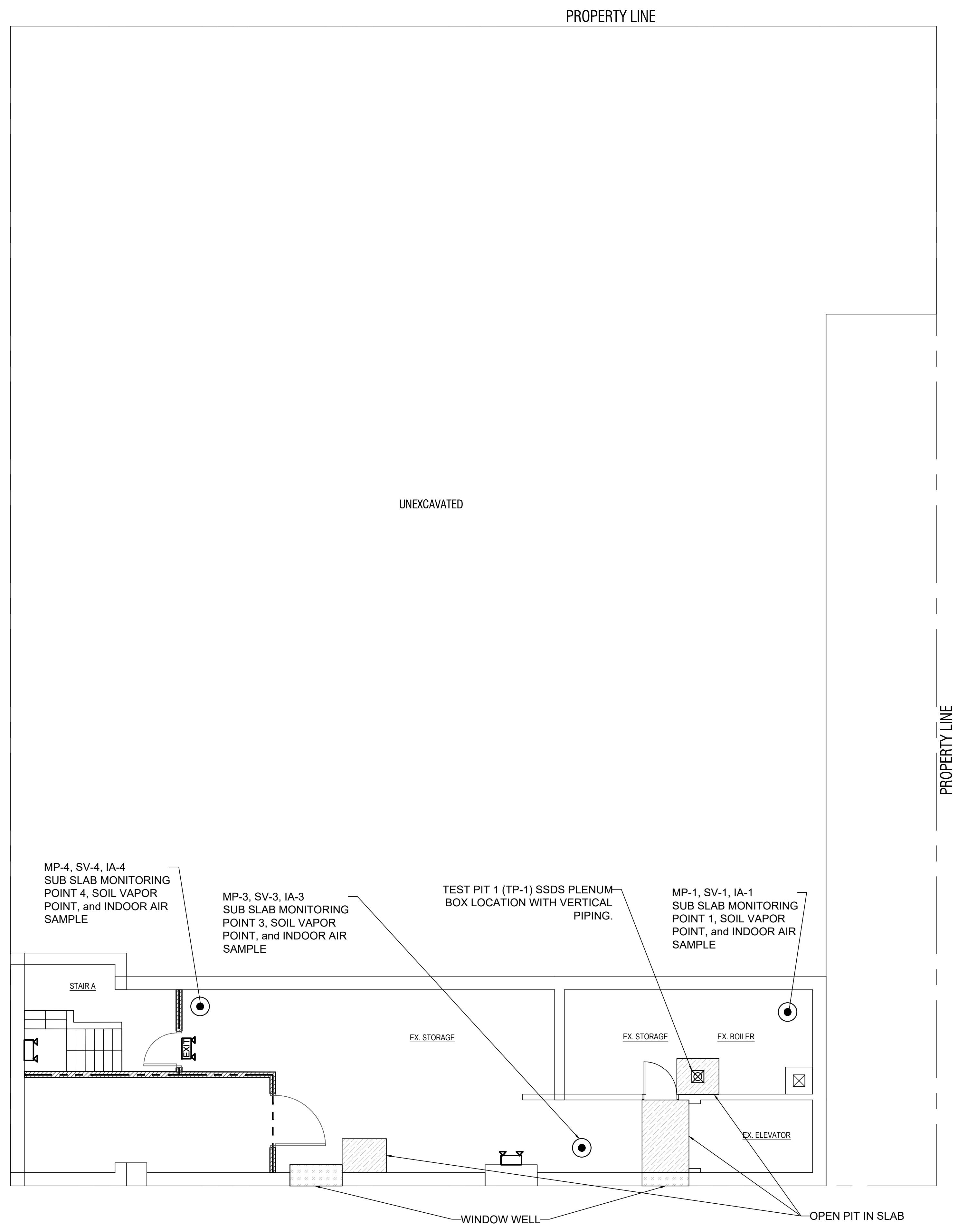
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REVISIONS		
No.	Date	Issue
1.	11/25/2025	DEP SUBMISSION

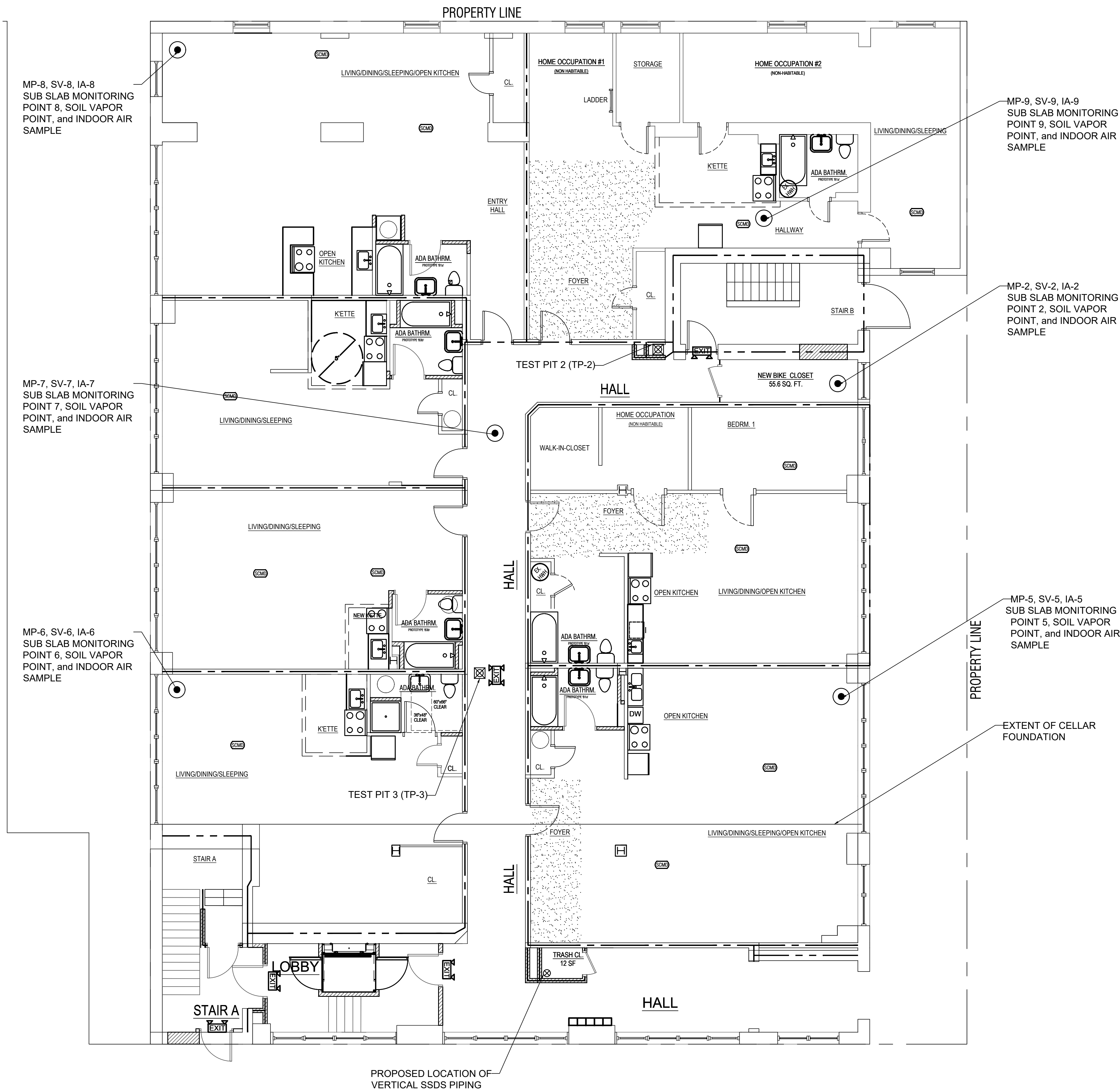
Project No. 20240999
 DEP PROJECT: C224438
 North: 

DRAWING TITLE
 SSDS COMMUNICATION AND MONITORING PLAN

DRAWING NUMBER
 FIGURE 3



CELLAR FLOOR PLAN



FIRST FLOOR PLAN

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REVISIONS

No.	Date	Issue
1.	11/25/2025	DEP SUBMISSION

Project No. 20240999
DEP PROJECT: C224438
North:

DRAWING TITLE
SSDS COMMUNICATION AND MONITORING PLAN

DRAWING NUMBER
FIGURE 4

Table 1: Sample Summary Table, Site Characterization
 1609 Dekalb Avenue, Brooklyn, NY
 Site #224438

PVE #20240432

SDG/Lab Sample ID	Sample Location	Sample ID	Matrix	Date Collected	Sample Depth	VOCs	24-Hour Flow	Metals	Cr+6	Cyanide	PCBs	Pesticides	Herbicides	PFAS	1,4 Dioxane	MS/MD	Number of Samples per Location (Including MS/MSD)	Rationale for Sampling
Remedial Investigation (OER)																		
24K1644	SV 1 of 4	SV-1	SV	11/21/2024	Sub-Slab	1											1	Identify contaminants in soil vapor
24K1644	SV 2 of 4	SV-2	SV	11/21/2024	Sub-Slab	1											1	Identify contaminants in soil vapor
24K1644	SV 3 of 4	SV-3	SV	11/21/2024	Sub-Slab	1											1	Identify contaminants in soil vapor
24K1644	SV 4 of 4	SV-4	SV	11/21/2024	Sub-Slab	1											1	Identify contaminants in soil vapor
24K1644	IA 1 of 4	IA-1	IA	11/21/2024		1											1	Identify vapor intrusion
24K1644	IA 2 of 4	IA-2	IA	11/21/2024		1											1	Identify vapor intrusion
24K1644	IA 3 of 4	IA-3	IA	11/21/2024		1											1	Identify vapor intrusion
24K1644	IA 4 of 4	IA-4	IA	11/21/2024		1											1	Identify vapor intrusion
SITE CHARACTERIZATION																		
	Basement	SV-1	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-1	IA		IA	1	X											1
	1st Floor	SV-2	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-2	IA		IA	1	X											1
	Basement	SV-3	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-3	IA		IA	1	X											1
	Basement	SV-4	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-4	IA		IA	1	X											1
	1st Floor	SV-5	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-5	IA		IA	1	X											1
		SB-5	Soil		1-2'	1		1	1	1	1	1	1	1	1	1	2	Characterize soils within soil vapor probe location
	1st Floor	SV-6	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-6	IA		IA	1	X											1
		SB-6	Soil		1-2'	1		1	1	1	1	1	1	1			1	Characterize soils within soil vapor probe location
	1st Floor	SV-7	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-7	IA		IA	1	X											1
		SB-7	Soil		1-2'	1		1	1	1	1	1	1	1			1	Characterize soils within soil vapor probe location
	1st Floor	SV-8	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-8	IA		IA	1	X											1
		SB-8	Soil		1-2'	1		1	1	1	1	1	1	1			1	Characterize soils within soil vapor probe location
	1st Floor	SV-9	SV		Sub Slab	1	X										1	Identify contaminants in soil vapor
		IA-9	IA		IA	1	X											1
		SB-9	Soil		1-2'	1		1	1	1	1	1	1	1			1	Characterize soils within soil vapor probe location

Notes:
 SDG= Sample Data Group
 MS/MSD= Matrix Spike/Matrix Spike Duplicate to be collected every 20 samples
 S= Soil
 GW=Groundwater
 SV=Soil Vapor
 Analytical*
 TCL VOCs via USEPA Method 8260 and TO-15 for soil vapor samples
 TCL SVOCs via USEPA Method 8270
 TAL Metals via USEPA Method 6010 or 6010C/7473
 Cyanide via USEPA Method 9014 and Hexavalent chromium via USEPA 7196A
 PCBs via USEPA Method 8082
 Pesticides via USEPA Method 8081
 Herbicides via USEPA Method 8151A
 PFAS via USEPA Method 1633
 1,4-Dioxane via USEPA Method 8270 SIM

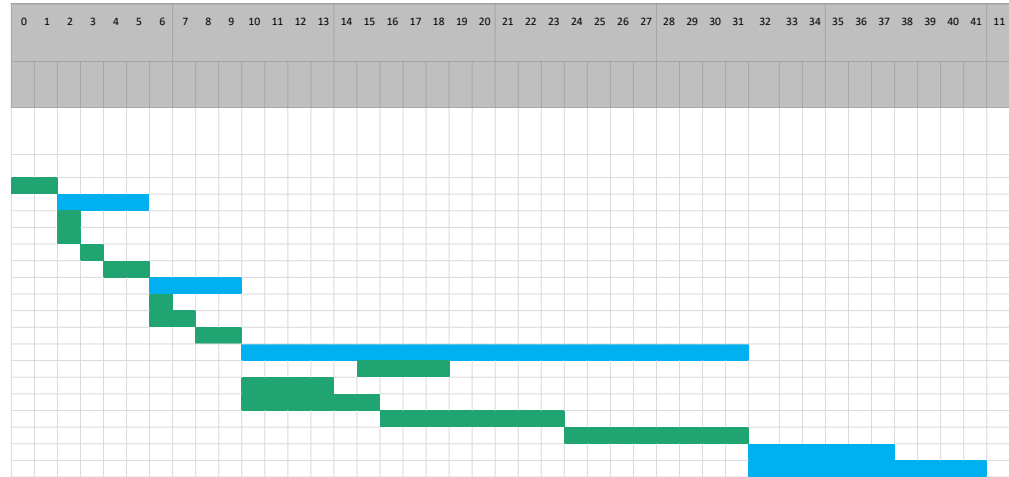
Table 3 - Project Schedule and GAANT Chart

PROJECT: 1609 Dekalb Avenue

IRM Work Plan Implementation

5 Weeks from Start

Milestone description	Category	Start	Weeks
Interim Remedial Measures			
Approval = 0			
Slab Repair	Low Risk		
Backfill, Repair, and Seal Slab	On Track	0	2
Supplemental Sample Collection	Low Risk	2	4
Install five (5) supplemental Soil Vapor Probes (SV-5 through SV-9)	On Track	2	1
Collect Soil Samples from SV probes, submit for laboratory analysis	On Track	2	1
Collect Soil Vapor and Indoor Air Samples (SV-1/AI-1 through SV-9/AI-9), submit to laboratory	On Track	3	1
Process and tabulate laboratory data	On Track	4	2
Perform SSDS Communication and Pilot Study	Low Risk	6	4
Convert Soil Vapor Probes to Monitoring Points	On Track	6	1
Install three (3) suction pits, backfill, prepare for temporary blower installation	On Track	6	2
Perform communication testing across entire building	On Track	8	2
SSDS Design	Low Risk	10	22
Pilot study/communication test findings report to NYSDEC	On Track	15	4
SSDS Design Drawings	On Track	10	4
RDWP Submission to NYSDEC	On Track	10	6
SSDS DOB Filing	On Track	16	8
SSDS Installation	On Track	24	8
Air Filtration Installation	Low Risk	32	6
IRM Construction Completion Report	Low Risk	32	10



APPENDIX A

CAMP

Appendix 1A

New York State Department of Health Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must 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, particularly if wind direction changes. 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.

1. 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.

2. 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.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

APPENDIX B

HASP



Project:
Health and Safety Plan

Location:
**1609 Dekalb Avenue
Brooklyn, NY 11237**

Report Prepared for:
1609 Dekalb Avenue

Prepared by:
PVEDI Architecture, Engineering, and Geology

25 W 39th Street, 12th Floor
New York, NY 10018

Project # 20240432

Date of Issue:
November 2025

MUSTER LOCATION:

Corner of Wycoff Avenue and Dekalb Avenue
Brooklyn, New York 11234
40°48'03.0"N, -73°56'05.9"W

EMERGENCY REFERENCES:

Ambulance: Notify 911

Fire: Notify 911

Police: Notify 911

Hospital: **Wycoff Heights Medical Center**
374 Stockholm Street
Brooklyn, NY 11237
718-963-7272

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Attachment A: HASP Receipt and Acceptance Form

Attachment B: HASP Pre-Entry Briefing Attendance Form

Attachment C: Supervisor’s Accident Investigation Report Form

Attachment D: Chemical Hazard and MSD Sheets

Figure 1: Site Location Map

Figure 2: Site Features Map

Figure 3: Route to Nearest Hospital

1.0 Introduction

1.1 HASP Applicability

This site-specific Health and Safety Plan (HASP) has been written by PVEDI Engineering, Architecture, and Geology D.P.C. (PVEDI) and establishes the health and safety procedures to minimize potential risks to personnel based on the Site Characterization and Interim Remedial Measures Work Plan for 1609 Dekalb Avenue, Brooklyn, New York. This HASP applies to PVEDI personnel potentially exposed to safety and/or health hazards related to the activities described in Section 3.0 of this document.

THIS HASP APPLIES TO PVE PERSONNEL. THIS HASP CAN BE UTILITZED BY SUBCONTRACTORS AND OTHER ENTITIES FOR THIS PROJECT, AT THEIR SOLE RISK, WHICH IS ACKNOWLEDGED ON THE HASP RECEIPT AND ACCEPTANCE FORM (ATTACHMENT A).

PVE IS NOT RESPONSIBLE FOR PROVIDING PERSONAL PROTECTIVE EQUIPMENT, FIT-TESTING OF RESPIRATORS, AND/OR MEDICIAL MONITORING OUTLINED IN THIS DOCUMENT, WHETHER RETAINED BY PVE or NOT. IT IS THE SOLE RESPONSIBILITY OF NON-PVE CONTRACTORS TO IMPLEMENT THEIR HEALTH AND SAFETY PROCEDURES IN ACCORDANCE WITH ALL REQUIREMENTS OUTINED HEREIN.

This HASP has been prepared to comply with the applicable requirements of the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). Activities covered by this HASP must be conducted in complete compliance with this HASP and with all applicable Federal, State, and local health and safety regulations. Personnel covered by this HASP who cannot or will not comply will be excluded from site activities. Currently, no ground intrusive work is proposed. The activities outlined in Section 3.0 do not expect to generate worker exposure to contaminants. However, if ground intrusive activities are performed, the procedures outlined below shall be performed.

This HASP will be distributed to each person involved with investigative activities at the site. Each person must sign a copy of the attached HASP Receipt and Acceptance Form (see Attachment A).

1.2 Organization/Responsibilities

The implementation of health and safety at this project location will be the shared responsibility of the Project Manager (PM), the Health and Safety Manager (HSM), the Project Site Safety Officer (SSO) and all other personnel who conduct activities at the site.

1.2.1 Project Manager (PM)

The PM has the primary responsibility for ensuring the overall health and safety of this project. As such, the PM is responsible for ensuring that the requirements of this HASP are implemented. Some of the PM's specific responsibilities include:

- Ensuring that all personnel to whom this HASP applies have received a copy of it;
- Providing the SSO with updated information regarding environmental conditions at the site and the scope of site work;
- Providing adequate authority and resources to the on-site SSO to allow for the successful implementation of all necessary safety procedures;
- Supporting the decisions made by the SSO;
- Maintaining regular communications with the SSO; and
- Coordinating the activities of all subcontractors and ensuring that they are aware of the pertinent health and safety requirements for this project.

1.2.2 Health and Safety Manager (HSM)

The HSM is responsible for the preparation, interpretation and modification of this HASP. Modifications to this HASP which may result in less stringent precautions cannot be undertaken by the SSO without the approval of the HSM. Specific duties of the HSM include:

- Writing, approving and amending the HASP for this project;
- Advising the SSO on matters relating to health and safety on this site;
- Recommending appropriate personal protective equipment (PPE) and air monitoring instrumentation to protect personnel from potential site hazards; and
- Maintaining regular contact with the SSO to evaluate site conditions and new information which might require modifications to the HASP.

1.2.3 Site Safety Officer (SSO)

All field technicians are responsible for implementing the safety requirements specified in this HASP. One (1) technician will be designated to serve as the SSO. The SSO will be appointed by the PM. The SSO will be on-site during all activities covered by this HASP. The SSO is responsible for enforcing the requirements of this HASP once work begins. The SSO has the authority to immediately correct all situations where non-compliance with this HASP is noted and to immediately stop work in cases where an immediate danger is perceived. Some of the SSO's specific responsibilities include:

- Ensuring that all personnel to whom this HASP applies have submitted a completed copy of the HASP Receipt and Acceptance Form (see Attachment A);
- Ensuring that all personnel to whom this HASP applies have attended a pre-entry briefing prior to entering the work zone;

- Maintaining a high level of health and safety consciousness among employees at the work site;
- Procuring and distributing the PPE needed for personnel involved with this project;
- Procuring the air monitoring instrumentation required and performing air monitoring for field activities;
- Verifying that all PPE and health and safety equipment is in good working order;
- Setting up and maintaining the work zones and ensuring proper cleanup of all site personnel;
- Notifying the PM of all non-compliance situations and stopping work in the event that an immediate danger situation is perceived;
- Monitoring and controlling the safety performance of all personnel within established restricted areas to ensure that required safety and health procedures are being followed;
- Conducting accident/incident investigations and preparing accident/incident investigation reports;
- Conducting the pre-entry briefing as required by Section 10.3 of this HASP; and
- Initiating emergency response procedures in accordance with Section 11.0 of this HASP.

1.2.4 Field Personnel and Covered Subcontractor Personnel

All field personnel covered by this HASP are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading this HASP in its entirety prior to the start of on-site work;
- Submitting a completed HASP Receipt and Acceptance Form (see Attachment A) and documentation of medical surveillance and training to the PM prior to the start of work;
- Attending the required pre-entry briefing prior to beginning on-site work;
- Bringing forth any questions or concerns regarding the content of this HASP to the PM or the SSO prior to the start of work;
- Reporting all accidents, injuries and illnesses, regardless of their severity, to the SSO; and
- Complying with the requirements of this HASP and the requests of the SSO.

1.3 Modification of this HASP

The procedures in this HASP have been developed based on general knowledge of potential subsurface conditions, and is not based on proposed tasks or and information from previous investigations at the site. Should additional information become available regarding potential on-site hazards, it may be necessary to modify this HASP. All proposed modifications to this HASP must be reviewed and approved by the HSM before such modifications are implemented.

Any significant modifications must be incorporated into the written document as addenda and the HASP must be re-issued. The PM will ensure that all personnel covered by this HASP receive copies of all issued addenda. Sign-off forms will accompany each addendum and must be signed

by all personnel covered by the addendum. Sign-off forms will be submitted to the PM. The HASP addenda will be distributed during the regularly scheduled meetings so that they can be reviewed and discussed. Attendance forms will be collected during the meeting.

2.0 Site Description and History

The property located at 1609 Dekalb Avenue (the “Site”) is comprised of one (1) property located in the Bushwick section of Brooklyn, New York and is identified as Block 3237 and Lot 41 on the NYC Tax Map. The Site is located in a commercial and residential area, consisting of 8,000 square feet and is bounded by 88 Wyckoff Avenue to the northeast, 950 Hart Street to the northwest, 1601 Dekalb Avenue to the southwest, and Dekalb Avenue to the southeast.

The Site has been improved with structures originally constructed prior to the 1968 Building Code and is currently seeking rehabilitation in accordance with Loft Law/DOB requirements. The current zoning designation is R6A - high lot coverage, six- to eight-story apartment buildings set at or near the street line designed to be compatible with older buildings in medium-density neighborhoods. The proposed use is consistent with existing zoning for the property. The owners have filed alteration plans with a change of Certificate of Occupancy in accordance with DOB and Loft Board requirements to coordinate the legal conversion to safe, rent-stabilized residential units. A Revised Negative Declaration was issued by NYC Planning Commission (CEQR 18DCP061K) on August 20, 2018, established requirements to be satisfied for potential adverse impacts related to air quality, noise, and hazardous materials. E-Designation requirements commenced with NYC Office of Environmental Remediation prior to NYSDEC monthly briefing and determination of potential hazardous waste disposal. These investigation and SSDS field study activities are further described below.

The purpose of the Site Characterization and Interim Remedial Measures Work Plan (SC/IRM WP) is to further characterize and delineate contaminants originating from the past operation and to implement interim remedial measures prior to a Remedial Action Work Plan (RAWP) development. This site has been identified as a potential inactive hazardous waste disposal site (NYSDEC Site ID 224438) and NYSDEC requires the site be characterized to better understand the extent of contamination

3.0 SCOPE OF WORK

Sampling will focus on delineating the extent of contaminants that have been demonstrated to be present to properly design future remedial alternatives. Sample locations have also been selected to identify contaminants in areas that have not been previously investigated, or where a contaminant source is suspected but previous sampling has been insufficient to conclusively establish the presence or absence of contaminants at concentrations requiring remedial action. In this sense, the Site Characterization Scope is presented to provide sufficient detail to develop data to satisfy overall project objectives, but flexibility to adjust for field conditions and observations.

Mobilization and Utilities Investigation

Seven (7) days prior to initiating any field activities, PVEDI will notify NYSDEC and NYSDOH personnel of the anticipated field schedule.

A geophysical survey will be performed prior to drilling and installation of soil borings. The geophysical survey will employ ground-penetrating radar (GPR) and magnetic/electromagnetic equipment to locate anomalies that could be representative of buried infrastructure, such as fuel storage tanks, sewer lines, drain pipes, utilities, and conduits that could provide potential pathways for contaminants, or obstructions to be avoided during drilling.

Supplemental Soil Vapor and Indoor Air Quality Sampling

Four (4) sub-slab monitoring points installed during investigation activities and SSDS testing (MP-1, MP-2, MP-3, and MP-4) will be re-used for supplemental sampling and SSDS testing activities. An additional five (5) monitoring points (MP-5, MP-6, MP-7, MP-8, and MP-9) will be installed for supplemental sampling as part of site characterization, as well as testing locations for SSDS field testing.

Nine (9) supplemental sub-slab soil vapor samples will be collected throughout the Site during site characterization activities to further understand the extent of contamination.

Sub-slab soil vapor probes will be installed in accordance with NYSDOH guidance procedures. A helium-vapor test will be conducted to demonstrate a proper seal around the sampling port and to confirm sample integrity. Prior to sample collection, the sample port will be purged up to three volumes at a rate not exceeding 0.2 L/minute. Samples will be collected in certified clean Summa canisters (batch certification) with a regulator set to collect samples over a 24-hour period. All samples will be submitted to a NYSDOH ELAP-certified laboratory for analysis of VOCs via USEPA Method TO-15. Vapor probes will remain installed for supplemental SSDS field studies following sample collection.

An additional nine (9) indoor air samples will be collected throughout the basement and first floor, all co-located with sub-slab vapor sampling ports (IA-1 through IA-9). Samples will be collected in certified clean Summa canisters (batch certification) with a regulator set to collect samples over a 24-hour period. All samples will be submitted to a NYSDOH ELAP-certified laboratory for analysis of VOCs via USEPA Method TO-15.

INTERIM REMEDIAL MEASURES

Summarized below is the proposed scope of work, field activities, analysis, and reporting.

Slab Repair and Sealing

On June 26, 2025, PVEDI conducted communication and vacuum testing within the building to evaluate the potential for air to flow beneath the slab and extract vapors from proposed vacuum extraction points. The static pressure readings collected from each of the monitoring points indicated that no connectivity with the temporary ventilation points exists, and that air flow beneath the basement slab and slab on grade is minimal.

Three (3) sections of the cellar slab contained pits and open holes within the immediate vicinity of the testing, approximately 4 square feet in size, each. PVEDI determined that the open pits, cracks, and holes in the concrete slab negatively influenced the findings during the study. PVEDI will backfill and seal all pits, pipe penetrations, and cracks prior to further testing.

SSDS Communication Testing

PVEDI will conduct communication and vacuum testing within the building to evaluate the effectiveness of the SSDS and extract vapors from proposed vacuum extraction points.

Following completion of nine (9) monitoring points, soil vapor and indoor sample collection, PVEDI will complete construction of an approximate 2' by 2' by 2' plenum box. Three test pits (TP-1, TP-2, and TP-3) will be utilized for extraction points to test sub-slab depressurization potential. The basement level pit located in the cellar boiler room will be utilized for the basement extraction point (TP-1). The existing plenum box constructed during previous SSDS studies (TP-2) will be re-used. An additional test pit (TP-3) will be constructed on the first floor (locations depicted on Figure 2). Thin-walled steel or PVC pipe will be placed in the plenum box and backfilled with clean crushed stone (1/2"), routed through the boiler room wall and exhaust into the elevator shaft which is exposed to outdoor air. Three (3) RadonAway RP265 blowers will be temporarily installed in-line of the SSDS test piping approximately 4' above the top of slab.

A total of nine (9) sub-slab sampling ports (MP-1 through MP-9) installed during soil vapor sampling activities will be utilized following sampling activities located throughout the interior

of the building. Sampling points are proposed around the perimeter of the basement and first floor to assess the full radius of influence.

Each of the three vacuum fans will be operated for a period of approximately 60 minutes. A digital micro-manometer will be used to measure the pressure differential between the sub-slab environment and indoor air at each of the nine (9) monitoring locations. Readings will be collected every 10 minutes.

Window Well Filtration

Air ventilation systems will be placed in each of the two (2) window wells to improve air flow in the basement.

Two (2) portable VOC air filtration units (Amaircare 4000 VOC Chem Airwash Filtration System or equivalent) will be installed at the existing window wells. Each unit provides approximately 300 cubic feet per minute (CFM) of airflow through a 30-pound granular activated carbon canister specifically designed for heavy VOC removal. The units include a 6-inch round intake port that will be ducted to the window opening to provide localized capture and treatment of indoor air. Treated air will be discharged into the open window wells. Units will be operated continuously during building occupancy until permanent mitigation (SSDS) is implemented.

4.0 Chemical Hazard Assessment and Controls

4.1 Chemical Hazards

The following discussions of chemical hazards, exposure pathways and control measures are for contaminants typical of sites where historic dumping has occurred, ***these chemical hazards have not been identified at the subject property during investigation activities.*** The scope of work outlined above would not normally result in exposure to contaminants. However, if the Scope of Work outlined above is modified, the following contaminants may exist in soils at the Site: volatile and semi-volatile organic compounds (VOCs and SVOCs), inorganic metals, PCBs and Pesticides. Chemical Hazard and MSD Sheets are provided in Attachment D.

4.1.1 Chemical Hazards of VOCs and SVOCs

VOCS								
Name	Skin Absorption	PEL ⁽¹⁾ (PPM)	REL ⁽²⁾ (PPM)	STEL (PPM)	IDLH (PPM)	TLV ⁽³⁾ (PPM)	IP (eV)	Carcinogen
Methyl-tert butyl ether	Yes	NA	NA	NA	NA	50	NA	Suspected
1,2,4-Trimethylbenzene	Yes	NA	25	NA	NA	25	8.27	
1,3,5- Trimethylbenzene	Yes	25	NA	NA	NA	25	NA	
Benzene	Yes	1	0.1	1 ⁽²⁾	500	0.5	9.24	X

Ethylbenzene	Yes	100	100	125 ⁽²⁾	800	20	8.76	
Isopropylbenzene	Yes	NA	NA	NA	NA	50	NA	
n-butylbenzene	Yes	NA	NA	NA	NA	NA	NA	
n-propylbenzene	Yes	NA	NA	NA	NA	NA	NA	
p-isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	
Sec-butylbenzene	Yes	NA	NA	NA	NA	NA	NA	
Tert-butylbenzene	Yes	NA	NA	NA	NA	NA	NA	
m & p-xylene	Yes	100	100	150 ⁽²⁾	900	100	8.56	
Methylene chloride	Yes	25	NA	125 ⁽¹⁾	2300	50	11.32	X
Naphthalene	Yes	10	10	15 ⁽²⁾	250	10	8.12	
o-xylene	Yes	100	100	150 ⁽²⁾	900	100	8.56	
Toluene	Yes	200	100	150 ⁽²⁾	500	20	8.82	
Acetone	Yes	1000	250	NA	2500	500	9.69	
Tetrachloroethylene	Yes	100	NA	NA	150	25	9.32	X
Trichloroethylene	Yes	100	NA	100	1000	10	9.45	X

SVOCs

Name	Skin Absorption	PEL ⁽¹⁾ (PPM)	REL ⁽²⁾ (PPM)	STEL (PPM)	IDLH (PPM)	TLV ⁽³⁾ (PPM)	IP (eV)	Carcinogen
Acenaphthylene (4)	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene (4)	Yes	NA	NA	NA	NA	NA	NA	
Anthracene (4)	Yes	0.2 ⁽⁵⁾ mg/m3	0.1 ⁽⁶⁾ mg/m3	NA	80 mg/m3	NA	NA	
Benzo(a)anthracene (4)	No	NA	NA	NA	NA	L	NA	X
Benzo(a)pyrene (4)	Yes	0.2 ⁽⁵⁾ mg/m3	0.1 ⁽⁶⁾ mg/m3	NA	80 mg/m3	L	NA	X
Benzo(b)fluoranthene (4)	Yes	NA	NA	NA	NA	L	NA	X
Benzo(g,h,i) perylene (4)	Yes	NA	NA	NA	NA	NA	NA	
Benzo(k)fluoranthene (4)	Yes	NA	NA	NA	NA	NA	NA	X
Chrysene (4)	Yes	0.2 ⁽⁵⁾ mg/m3	0.1 ⁽⁶⁾ mg/m3	NA	80 mg/m3	L	NA	X
Coal Tar Pitch Volatiles	NA	0.2 ⁽⁵⁾ mg/m3	0.1 ⁽⁶⁾ mg/m3	NA	80 mg/m3	0.2 ⁽⁷⁾ mg/m3	NA	X
Dibenzo(a,h)Anthracene (4)	Yes	NA	NA	NA	NA	NA	NA	X
Fluoranthene (4)	Yes	NA	NA	NA	NA	NA	NA	Suspected
Fluorene (4)	Yes	NA	NA	NA	NA	NA	NA	Suspected
Indeno(1,2,3-cd)pyrene (4)	Yes	NA	NA	NA	NA	NA	NA	X
Phenanthrene (4)	Yes	0.2 ⁽⁵⁾ mg/m3	0.1 ⁽⁶⁾ mg/m3	NA	80 mg/m3	NA	NA	X
Pyrene (4)	Yes	0.2 ⁽⁵⁾ mg/m3	0.1 ⁽⁶⁾ mg/m3	NA	80 mg/m3	NA	NA	X

1 - OSHA (Occupational Safety and Health Administration)

PEL - Permissible Exposure Limit (OSHA Standard)

STEL -Short Term Exposure Limit

2 - NIOSH (National Institute for Occupational Safety and Health)

REL - Recommended Exposure Limit

IDLH – Immediately Dangerous to Life and Health

STEL -Short Term Exposure Limit

3 - ACGIH (formerly American Conference of Governmental Industrial Hygienists)

TLV - Threshold Limit Value

STEL -Short Term Exposure Limit

L – Exposure by all routes should be as carefully controlled to levels as low as possible

4 - PELs are listed for these items under Coal Tar Pitch Volatiles

5 - Benzene Soluble fraction

6 – Cyclohexane-extractable fraction

7 - Benzene Soluble Aerosol

NA – not applicable

PPM – parts of airborne contaminant per million parts of air (by volume)

mg/m³ – milligrams of airborne contaminant per cubic meter of air

IP – ionization potential

eV – electron volt

OSHA PELs, ACGIH TLVs, and NIOSH RELs are time-weighted averages (TWAs), which are defined as concentrations for a normal 8-hour work day (NIOSH RELS are based on 10 hours) and 40-hour work week to which almost all workers can be exposed repeatedly without suffering adverse health effects.

Per ACGIH, a STEL is defined as the concentration to which “workers can be exposed for short time periods without irritation, chronic or irreversible tissue damage, dose-rate-dependent toxic effects, or narcosis sufficient to be likely to increase the likelihood of accidental injury, impaired self-rescue or materially reduced work efficiency.” The STEL is a 15-minute TWA that should not be exceed more than 4 times per shift.

IP refers to ionization potential which is the amount of energy required to remove an electron from an atom or molecule. Air sampling devices known as photo ionization detectors (PIDs) use ultraviolet (UV) light to ionize gas molecules in order to measure the presence of volatile organic compounds (VOCs). The most common energy source used in PIDs is a 10.6 eV (electron volt) lamp.

4.1.2 Chemical Hazards of Metals of Concern

Potential metals in subsurface soils are presented below.

Barium:

Exposure Routes: Inhalation, skin and/or eye contact.

Symptoms: Irritation of eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse; extrasystoles; hypokalemia.

Target Organs: Eyes, skin, respiratory system, heart, and central nervous system.

OSHA PEL: 0.5 mg/m³ as an 8-hour TWA.

Chromium:

Exposure Routes: Inhalation, skin and/or eye contact.

Symptoms: Irritation eyes, skin; lung fibrosis.

Target Organs: Eyes, skin, and respiratory system.

OSHA PEL: 1 mg/m³ as an 8-hour TWA.

Copper:

Exposure Routes: Inhalation skin and/or eye contact.

Symptoms: Contact can irritate and burn the eyes and skin. Inhalation can irritate the nose and throat causing coughing and wheezing.

Target Organs: Eye, skin and respiratory system.

OSHA PEL: 1 mg/m³ as an 8-hour TWA

Lead:

Exposure Routes: Inhalation, ingestion, skin and/or eye contact.

Symptoms: Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypotension.

Target Organs: Eyes, gastrointestinal tract, central nervous system, kidneys, blood, and gingival tissue.

OSHA PEL: 0.050 mg/m³ as an 8-hour TWA.

Mercury:

Exposure Routes: Inhalation, skin absorption, ingestion, skin and/or eye contact.

Symptoms: Irritation of eyes and skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria.

Target Organs: Eyes, skin, respiratory system, central nervous system, kidneys.

OSHA PEL: 0.1mg/m³ as an 8-hour TWA.

Nickel

Exposure Routes: Inhalation, skin absorption, ingestion, skin and/or eye contact.

Symptoms: Irritation and burning of eyes and skin; skin allergy; irritation of nose, throat

and lungs; headache, dizziness and vomiting; probable lung carcinogen; asthma-like allergy; chronic bronchitis and scarring of the lungs.

Target Organs: Eyes, skin, respiratory system, kidneys and liver.

OSHA PEL: 1.0 mg/m³ as an 8-hour TWA

Zinc:

Exposure Routes: Inhalation, skin and/or eye contact.

Symptoms: The aerosol can irritate the nose and throat resulting in wheezing.

Target Organs: Eyes, skin, nose and throat.

OSHA PEL: 15 mg/m³ as a Ceiling.

4.2 Chemical Exposure and Control

4.2.1 Activities with Chemical Exposure Potential

The primary route of exposure during activities in areas contaminated with VOCs, SVOCs and inorganic metals is via inhalation, direct dermal contact, accidental or incidental ingestion of contaminant laden dust.

4.2.2 Potential Chemical Exposures and Exposure Action Levels

4.2.2.1 Metals

Airborne dust can be an issue during soil excavation and skin contact can be anticipated during handling. Potential worker exposures currently do not exist, however if ground intrusive activities are conducted, exposures could exist through accidental ingestion and direct skin contact, as airborne dusts can be generated. Semi-volatile organic compounds typically adhere to the airborne soil particles while metals are liberated as well. Site specific data are not available for this site. However, assuming a uniform distribution and applying a safety factor, worker exposure can be controlled by establishing **an action level of 0.5 mg/m³ for a sustained period of 10 minutes for total airborne dust**, through engineering controls such as dust control. A direct reading dust monitor (e.g. TSI DustTrak) should be used as a surrogate to obtain real time data to aid in monitoring the effectiveness of dust controls.

The dust monitor should be set to sample for total dust. Exposures above the action level, will require a suspension of work to let the work area to vent and/or the use of a NIOSH approved half-face respirator with P-100 filter.

See section 6.0 for a complete description of Air Monitoring Action Levels.

4.2.2.2 VOCs

PPE will be upgraded to include NIOSH approved half-face respirators with organic vapor cartridges, if airborne concentrations of VOCs, as measured with a direct reading Photo Ionization Detector (PID) exceed **the action level of 10 ppm in the worker's breathing zone for a sustained period of 10 minutes.**

If PID readings in the areas above and surrounding the work area exceed 100 ppm, all on-site activities will be suspended to allow the work area to vent. Future PPE selected will depend on the identity and concentrations of the contaminants encountered. PPE will be discussed in section 7.0.

First aid equipment will be available based on MSD requirements.

VOC levels during invasive activities will be continuously monitored using a PID. Exposure monitoring will be further discussed in Section 4.2.3.

See section 6.0 for a complete description of Air Monitoring Action Levels.

4.2.3 Exposure Control

A combination of PPE and engineering controls will be utilized to control skin contact and airborne exposures. Engineering controls will consist of demarcating areas to be excavated and allow required personnel only in the work areas. Dust suppression will be used whenever possible to keep dust from becoming airborne. PPE will be discussed in Section 7.0.

The following chemical exposure control measures will be implemented during the construction phase of the proposed project:

- The SSO will perform air monitoring (see Section 6.1) in the worker's breathing zone to determine exposure to VOCs during field activities. If exposures exceed the action levels, respiratory protection, as discussed in Section 7.2, will be donned.
- To avoid direct dermal contact with potentially contaminated media, chemical protective clothing, as described in Section 7.1, will be required when collecting samples and decontaminating sampling equipment.
- Although highly unlikely, exposure to all of the contaminants of concern may occur via ingestion (hand-to-mouth transfer). The decontamination procedures described in Section 9.0 address personal hygiene issues that will limit the potential for contaminant ingestion.

5.0 Physical Hazards and Controls

5.1 Utility Hazards

5.1.1 Overhead Utilities

Be particularly aware of utility lines in the work area. Any vehicle or mechanical equipment capable of having parts of its structure elevated (drill rig, crane, etc.) near energized overhead lines shall be operated so that a clearance of at least ten (10) feet is maintained. If the voltage is higher than 50kV, the clearance shall be increased four (4) inches for every 10kV over that voltage.

5.2 Traffic Concerns

Work will be performed within the onsite building where there is no traffic. However, the following precautions should be followed. All are designed to draw attention to the work and to warn other people of the activities.

- Notify the property owner of your work location, dates of work and the anticipated work times. Suggest the possibility of a detour around the work area.
- Wear an neon green safety vest. If work is being performed at dawn, dusk or evening, the vests must have reflective tape.
- Set up traffic cones 50 feet in front of the work area. “Work Zone” signs should also be placed in a conspicuous area to warn others of your presence.

5.3 Noise Exposure

The use of excavation equipment will generate noise levels that will require the use of hearing protection in the immediate vicinity. Appropriate earmuffs or earplugs (i.e., with an NRR greater than 25 dB) should be worn to prevent overexposure. In general, if you have to raise your voice to be understood by someone who is standing 3 to 5 feet away from you, the noise levels are likely to be above 85 dB and therefore require the use of hearing protection.

5.4 Back Safety

Using the proper techniques to lift and move heavy pieces of equipment, such as drums of investigation-derived wastes, are important to reduce the potential for back injury. The following precautions should be implemented when lifting or moving heavy objects.

- Use mechanical devices to move objects, such as drums of investigation derived wastes that are too heavy to be moved manually.
- If mechanical devices are not available, ask another person to assist you.
- Bend at the knees, not the waist. Let your legs do the lifting.
- Do not twist while lifting.
- Bring the load as close to you as possible before lifting.

- Be sure the path you are taking while carrying a heavy object is free of obstructions and slip, trip and fall hazards.

5.5 Electrical Safety

If using portable tools that are electrically powered, follow the safety precautions listed below:

- Check to see that electrical outlets used to supply power during field operations is of the three (3) wire grounding type.
- Extension cords used for field operations should be of the three (3) wire grounding type and designed for hard or extra-hard usage. This type of cord uses insulated wires within an inner insulated sleeve and will be marked S, ST, STO, SJ, SJO or SJTO.
- NEVER remove the ground plug blade to accommodate ungrounded outlets.
- Do not use extension cords as a substitute for fixed or permanent wiring. Do not run extension cords through openings in walls, ceilings or floors.
- Protect the cord from becoming damaged if the cord is run through doorways, windows or across pinch points.
- Examine extension and equipment cords and plugs prior to each use. Damaged cords with frayed insulation or exposed wiring and damaged plugs with missing ground blades must be removed from service immediately.
- All portable or temporary wiring which is used outdoors or in other potentially wet or damp locations must be connected to a circuit that is protected by a ground fault circuit interrupter (GFCI). GFCI's are available as permanently installed outlets, as plug-in adapters and as extension cord outlet boxes. Do not continue to use a piece of equipment or extension cord that causes a GFCI to trip.
- When working in flammable atmospheres, be sure that the electrical equipment being used is approved for use in Class I, Division I atmospheres.
- Do not touch a victim who is still in contact with current. Separate the victim from the source using a dry, non-metallic item such as a broom stick or cardboard box. Be sure your hands are dry and you are standing on a dry surface. Turn off the main electrical power switch and then begin rescue efforts.

5.6 Thermal Stress

The hazards of both heat and cold stress are addressed in this HASP.

5.6.1 Heat Stress

Types of Heat Stress

Heat related problems include heat rash, fainting, heat cramps, heat exhaustion and heat stroke. Heat rash can occur when sweat isn't allowed to evaporate, leaving the skin wet most of the time and making it subject to irritation. Fainting may occur when blood pools to lower parts of the body and as a result, does not return to the heart to be pumped to the brain. Heat related fainting

often occurs during activities that require standing erect and immobile in the heat for long periods of time. Heat cramps are painful spasms of the muscles due to excessive salt loss associated with profuse sweating. Heat exhaustion results from the loss of large amounts of fluid and excessive loss of salt from profuse sweating. The skin will be clammy and moist and the affected individual may exhibit giddiness, nausea and headache.

Heat stroke occurs when the body's temperature regulatory system has failed. The skin is hot, dry, red and spotted. The affected person may be mentally confused and delirious. Convulsions could occur. Early recognition and treatment of heat stroke are the only means of preventing brain damage or death.

A person exhibiting signs of heat stroke should be removed from the work area to a shaded area. The person should be soaked with water to promote evaporation. Fan the person's body to increase cooling. Immediate medical assistance is needed in case of heat stroke. Dial 911 to request an ambulance.

Increased body temperature and physical discomfort also promote irritability and a decreased attention to the performance of hazardous tasks.

Early Symptoms of Heat-Related Health Problems:

- decline in task performance
- incoordination
- decline in alertness
- unsteady walk
- excessive fatigue
- reduced vigilance
- muscle cramps
- dizziness

Susceptibility to Heat Stress Increases due to:

- lack of physical fitness
- lack of acclimation
- increased age
- dehydration
- obesity
- drug or alcohol use
- sunburn
- infection

People not acclimated to heat are particularly susceptible to heat fatigue. First timers in PPE need to gradually adjust to the heat.

The Effect of Personal Protective Equipment

Sweating normally cools the body as moisture is removed from the skin by evaporation. However, the wearing of certain PPE, particularly chemical protective coveralls (e.g., Tyvek), reduces the body's ability to evaporate sweat and thereby regulate heat buildup. The body's efforts to maintain an acceptable temperature can therefore become significantly impaired by the wearing of PPE.

Measures to Avoid Heat Stress:

The following guidelines should be adhered to when working in hot environments:

- Establish work-rest cycles (short and frequent are more beneficial than long and seldom).
- Identify a shaded, cool rest area.
- Rotate personnel, alternate job functions.
- Water intake should be equal to the sweat produced. Most workers exposed to hot conditions drink less fluids than needed because of an insufficient thirst. Do not depend on thirst to signal when and how much to drink. For an 8-hour work day, 50 ounces of fluids should be consumed.
- Eat lightly salted foods or drink salted drinks such as Gatorade to replace lost salt.
- Save most strenuous tasks for non-peak heat hours such as the early morning or at night.
- Avoid alcohol during prolonged periods of heat. Alcohol will cause additional dehydration.
- Avoid double shifts and/or overtime.

The implementation and enforcement of the above-mentioned measures will be the joint responsibility of the PM and SSO. Potable water and fruit juices should be made available each day for the field team.

Heat Stress Monitoring Techniques

Site personnel should regularly monitor their heart rate as an indicator of heat strain by the following method:

Check radial pulse rates by using fore- and middle fingers and applying light pressure to the pulse in the wrist for one (1) minute at the beginning of each rest cycle. If the pulse rate exceeds 110 beats/minute, shorten the next work cycle by one-third and keep the rest period the same. If, after the next rest period, the pulse rate still exceeds 110 beats/minute, shorten the work cycle again by one-third.

5.7.2 Cold Stress

Types of Cold Stress

Cold injury is classified as either localized, as in frostbite, frostnip or chilblain; or generalized, as in hypothermia. The main factors contributing to cold injury are exposure to humidity and high winds, contact with wetness and inadequate clothing.

The likelihood of developing frostbite occurs when the face or extremities are exposed to a cold wind in addition to cold temperatures. The freezing point of the skin is about 30°F. The fluids around the cells of the body tissue freeze, causing the skin to turn white. This freezing is due to exposure to extremely low temperatures. As wind velocity increases, heat loss is greater and frostbite will occur more rapidly.

Symptoms of Cold Stress

The first symptom of frostbite is usually an uncomfortable sensation of coldness, followed by numbness. There may be a tingling, stinging or aching feeling in the affected area. The most vulnerable parts of the body are the nose, cheeks, ears, fingers and toes.

Symptoms of hypothermia, a condition of abnormally low body temperature, include uncontrollable shivering and sensations of cold. The heartbeat slows and may become irregular, the pulse weakens and the blood pressure changes. Pain in the extremities and severe shivering can be the first warning of dangerous exposure to cold.

Maximum severe shivering develops when the body temperature has fallen to 95°F. This must be taken as a sign of danger and exposure to cold must be immediately terminated. Productive physical and mental work is limited when severe shivering occurs.

Methods to Prevent Cold Stress

When the ambient temperature, or a wind chill equivalent, falls to below 40°F, site personnel who must remain outdoors should wear insulated coveralls, insulated boot liners, hard hat helmet liners and insulated hand protection. Wool mittens are more efficient insulators than gloves. Keeping the head covered is very important, since 40% of body heat can be lost when the head is exposed. If it is not necessary to wear a hard hat, a wool knit cap provides the best head protection. A face mask may also be worn.

Persons should dress in several layers rather than one single heavy outer garment. The outer piece of clothing should ideally be wind and water proof. Clothing made of thin cotton fabric or synthetic fabrics such as polypropylene is ideal since it helps to evaporate sweat. Polypropylene is best at wicking away moisture while still retaining its insulating properties. Loosely fitting clothing also aids in sweat evaporation. Denim is not a good protective fabric. It is loosely woven which allows moisture to penetrate. Socks with a high wool content are best. If two pairs of socks are worn, the inner sock should be smaller and made of cotton, polypropylene or a similar type of synthetic material that wicks away moisture. If clothing becomes wet, it should be taken off immediately and a dry set of clothing put on.

If wind conditions become severe, it may become necessary to shield the work area temporarily. The SSO and the PM will determine if this type of action is necessary. Heated break trailers or a designated area that is heated should be available if work is performed continuously in the cold at temperatures, or equivalent wind chill temperatures of 20°F.

Dehydration occurs in the cold environment and may increase the susceptibility of the worker to cold injury due to significant change in blood flow to the extremities. Drink plenty of fluids, but limit the intake of caffeine.

6.0 Air Monitoring

6.1 Monitoring Parameters and Action Levels

Ground intrusive activities are not currently proposed. If ground intrusive activities occur during rehabilitation efforts, air monitoring should be conducted for VOCs and airborne dust. Air monitoring of the worker’s breathing zone should be conducted periodically or continuously during invasive field activities to assure proper health and safety protection.

VOCs will be monitored with a PID with an action level of 10 ppm for a sustained period of 10 minutes based on the presence of TCE. If the action level is exceeded and adequate ventilation cannot be provided, work will cease and the potential affected portion of the work area will be evacuated, until adequate mechanical ventilation can be setup to reduce the VOCs exposure. Level C respiratory protection may be donned if the action level is exceeded.

Fugitive dust generation that could affect Site workers, Site occupants, or the public is not expected because the majority of work will be conducted in moist soil. Particulate monitoring will not be conducted at the perimeter of the Site.

All monitoring instruments must be calibrated and maintained periodically. Calibration and on-site maintenance records will be kept in the field log book. The operator must understand the limitations and possible sources of errors for each instrument. It is important that the operator checks that the instrument responds properly to the substances it was designed to monitor. Portable air quality monitoring equipment that measures total volatile organic compounds present such as the Rae Systems MiniRae 3000 (or equivalent) photo ionization detector (PID) must be calibrated at least once per week. The specific instructions for calibration and maintenance provided for each instrument should be followed.

The following table summarizes **air monitoring action levels** established for the site:

Contaminants	Action level	Actions
<i>Organic Vapor</i>		Measure and record the upwind background concentration.
	Reading less than 10 ppm above background for a sustained period of 15 minutes in WBZ.	Continue work in Level D protection.
	Reading greater than 10 ppm above background for a sustained period of 15 minutes in the WBZ	Discontinue work, allow work area to ventilate, collect additional PID readings. If concentrations remain greater than 10 ppm, work can resume in Level C protection with respiratory protection equipped with organic vapor cartridges.
	Readings greater than 100 ppm above background for a	Discontinue work, allow work area to ventilate, collect additional PID readings until concentrations are below 100 ppm before work can resume.

	sustained period of 15 minutes in the WBZ.	
<i>Dusts</i>		Measure and record the upwind background concentration.
	Reading less than 0.5 mg/m³ or above background for a sustained period of 15 minutes in the WBZ.	Continue work in level D protection.
	Reading greater than 5.0 mg/m³ or above background for a sustained period of 15 minutes in the WBZ	Discontinue work. Employ dust suppression using a water spray, collect additional airborne dust measurements. If concentrations remain greater than 0.5 mg/m ³ , work can resume in Level C protection with respiratory protection equipped with P-100 cartridges.

6.2 Direct Reading Instruments

A PID such as the RAE MiniRAE 3000, equipped with a 10eV lamp, shall be used to monitor total VOCs during soil boring activities. The PID is an appropriate direct-read monitoring instrument given the suspected presence of VOC contamination in on-site soil. A direct reading TSI Dust Trak instrument will be used to monitor dust concentrations in the work zone.

6.3 Personal Air Sampling

OSHA does not require the collection of personal air sampling during the proposed activities. As such, this type of monitoring will not be conducted by personnel during any of the proposed tasks.

7.0 Personal Protective Equipment

Personal protective equipment (PPE) will be worn during any ground intrusive work to prevent on-site personnel from being injured by the hazards posed by the site and/or the activities being performed. In addition, chemical protective clothing will be worn to prevent direct dermal contact with the site’s chemical contaminants.

In general, field activities will be conducted in Level D PPE, as described in the table below. PPE will be upgraded to Level C if ground intrusive work occurs AND air monitoring demonstrates VOCs concentrations in the breathing zone exceeding the action levels outlined in Section 4.2.2, or if Dusts are detected at elevated concentrations as described in section 4.2.1.

If the concentration of volatile organics detected with a PID equals or exceeds the specified action level (100 ppm), all field personnel associated with the project will immediately retreat to a location up-wind of the source of contamination. At this point the SSO must consult with the HSM, who will review the condition with PVE home office staff to discuss appropriate actions.

7.1 Chemical Protective Clothing

The following tables describe the Level D and Level C PPE and chemical protective clothing to be worn for general site activities and for certain specific tasks.

Level D PPE

PPE Item	General Construction	Ground Intrusive Work
Hard Hat	✓	✓
Steel Toed Safety Shoes	✓	✓
Safety Glasses with Side shields	✓	✓
Traffic Vests	*	*
Inner PVC/Outer Nitrile Gloves	✓	✓
Hearing Protection	✓	✓

Level C PPE

PPE Item	Ground Intrusive Work and VOC concentration above action levels
Hard Hat	✓
Steel Toed Safety Shoes	✓
Safety Glasses with Side shields	✓

Traffic Vests	*
Inner PVC/Outer Nitrile Gloves	✓
Hearing Protection	✓
Half-Face Respirator equipped with a combination organic vapor/P-100 cartridges	✓
Tyvek Protective Suit	✓

7.2 Respiratory Protection

Level D PPE: No respiratory protection required. Air monitoring devices will be used to determine when PPE will be upgraded to include respiratory protection (Section 4.2.2 and 6.0) if ground intrusive work is initiated.

Level C PPE: Half-mask, air-purifying respirator equipped with organic vapor/P-100 cartridges.

Respiratory protection will also be worn if odors become objectionable at any time, if respiratory tract irritation is noticed, or if Dusts or VOCs are detected in the breathing zone as discussed in Sections 4.2.1 and 4.2.2, respectively.

All on-site personnel who are expected to wear respiratory protection must have successfully passed a qualitative or quantitative fit-test within the past year for the brand, model and size respirator they plan to wear during the proposed activities.

7.3 Other Safety Equipment

The field team will bring the following additional safety items to the site for use as necessary:

- Portable, hand-held eyewash bottles
- First aid kit
- Portable communications equipment
- Fire Extinguisher

8.0 Site Control

8.1 Work Zones

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with personal protective equipment requirements will be clearly identified. Work areas or zones will be designated as suggested in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, November 1985. They recommend the areas surrounding each of the work areas to be divided into three zones:

- Exclusion or "hot" Zone
- Contamination Reduction Zone (CRZ)
- Support Zone

8.1.1 Exclusion Zone

An exclusion zone (work zone) will be established around each boring location. This zone will move as work progresses to each boring location. This zone should be large enough (i.e. 20-foot radius) to protect unprotected personnel from contact with vapors or dusts that may arise from these operations as well as the physical hazards associated with the operation of heavy equipment. Traffic cones or tape will be used to demarcate the active exclusion zone.

All personnel entering the exclusion zone must be trained in accordance with the requirements defined in Section 10.2 of this HASP and must wear the prescribed level of personal protective equipment.

8.1.2 Contamination Reduction Zone

The decontamination zone will be established adjacent to the exclusion zone. Personnel will remove contaminated gloves and other disposable items in this area and place them in a plastic bag until they can be properly disposed of. Reusable equipment, if any, will be decontaminated with tap water, deionized water, methanol, nitric acid and a liquid detergent solution. A complete description of decontamination procedures is presented in Appendix A to the Remedial Action Work Plan.

8.1.3 Support Zone

At this site, the support zone will include the area outside of the decontamination zone.

8.2 Safety Practices

The following measures are designed to augment the specific health and safety guidelines provided in this plan.

- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in the immediate work area and the decontamination zone.
- Smoking is prohibited in all work areas. Matches and lighters are not allowed in these areas.
- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activities.
- Beards or other facial hair that interfere with respirator fit are prohibited.
- The use of alcohol or illicit drugs is prohibited during the conduct of field operations.
- All equipment must be decontaminated or properly discarded before leaving the site in accordance with the project work plan.

9.0 Decontamination

9.1 Personal Decontamination

If Level C PPE is required, proper decontamination will be required of all personnel before leaving the site. Decontamination will occur within the contamination reduction zone. Disposable PPE will be removed in the decontamination zone and placed in lined garbage bags.

If worn, respirators will be cleaned after each use with respirator wipe pads and will be stored in plastic bags after cleaning.

Regardless of the type of decontamination system required, a container of potable water and liquid soap will be made available so employees can wash their hands before leaving the site for lunch or for the day.

10.0 Medical Monitoring and Training Requirements

10.1 Medical Monitoring

Medical monitoring (29 CFR 1910.1020(f)) is not a requirement of this HASP. However, if site conditions require work be conducted in Level C PPE, personnel must have approval by appropriate medical professionals to wear the required equipment.

10.2 Health and Safety Training

Personnel performing activities covered by this HASP are required to have completed the appropriate training requirements specified in 29 CFR 1910.120(e). Each individual should have completed an annual 8-hour refresher-training course and/or initial 40-hour training course within the last year prior to performing any work on the sites covered by this HASP.

10.3 Pre-Entry Briefing

The SSO will conduct a pre-entry briefing before site activities begin. HASP receipt and acceptance sheets will be collected at this meeting. Short safety refresher meetings will be conducted, as needed, throughout the duration of the project. Attendance of the pre-entry meeting is mandatory and will be documented by the SSO. An attendance form is presented in Attachment B.

11.0 Emergency Response

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." On-site personnel shall not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). Response actions will be limited to evacuation and medical/first aid as described within this section below. As such this section is written to comply with the requirements of 29 CFR 1910.38 (a).

The basic elements of an emergency evacuation plan include:

- employee training,
- alarm systems,
- escape routes,
- escape procedures,
- critical operations or equipment,
- rescue and medical duty assignments,
- designation of responsible parties,
- emergency reporting procedures and
- methods to account for all employees after evacuation.

11.1 Employee Training

Employees must be instructed in the site-specific aspects of emergency evacuation. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed. The SSO must verify the specific evacuation procedures, and muster location, that the facility prefers contractors follow in the event of a facility-related emergency. This information will be communicated to the field team during the pre-entry briefing.

11.2 Alarm Systems/Emergency Signals

An emergency communication system must be in effect at all sites. The most simple and effective emergency communication system in many situations will be direct verbal communication. Each site must be assessed at the time of initial site activity and periodically as the work progresses. Verbal communication must be supplemented anytime voices cannot be clearly perceived above ambient noise levels (i.e., noise from drilling probe) and anytime a clear line-of-sight cannot be easily maintained among all personnel because of distance, terrain or other obstructions.

Verbal communication will be adequate to warn on-site personnel of hazards associated with the immediate work area. However, the two-person sampling team may be split up during the day to expedite sampling. Each team member will be equipped with a cellular phone to ensure immediate communication can occur between each other. These phones can also be used to contact local emergency responders.

11.3 Escape Routes and Procedures

The SSO will verify the escape routes from each work area with a facility representative. Assembly areas must also be identified. The escape routes and assembly areas will be reviewed during the pre-entry briefing. All personnel on site are responsible for knowing the escape route from the site and where to assemble after evacuation. For purposes of this project we have established a muster area at the corner of East 139th Street and Willis Avenue:

Corner of Dekalb Avenue and Wycoff Avenue
Brooklyn, New York 11237
40°48'03.0"N, -73°56'05.9"W

Rescue and Medical Duty Assignments

The phone numbers of the police and fire departments, ambulance service, local hospital, and project representatives are provided in the emergency reference sheet and on the cover of this HASP. This sheet will be posted in the site vehicle.

In the event an injury or illness requires more than first aid treatment, the SSO will accompany the injured person to the medical facility and will remain with the person until release or admittance is determined. The SSO will relay all appropriate medical information to the on-site project manager and the HSM.

If the injured employee can be moved from the accident area, he or she will be brought to the contamination reduction zone where their PPE will be removed. If the person is suffering from a back or neck injury the person will not be moved and the requirements for decontamination do not apply. The SSO must familiarize the responding emergency personnel about the nature of the site and the injury. If the responder feels that the PPE can be cut away from the injured person's body, this will be done on-site. If this not feasible, decontamination will be performed after the injured person has been stabilized.

11.4 Designation of Responsible Parties

The SSO is responsible for initiating emergency response. In the event the SSO cannot fulfill this duty, the PM or HSO will take charge.

11.5 Employee Accounting Method

The SSO is responsible for identifying all personnel on-site at all times. On small, short duration jobs this can be done informally as long as accurate accounting is possible.

11.6 Accident Reporting and Investigation

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage requires an accident investigation and report. The investigation should be conducted as soon as emergency conditions are under control. The purpose of the investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided. An accident investigation form is presented in Attachment C of this HASP. The Supervisor of the injured personnel and the HSM should be notified immediately of the injury.

If a subcontractor personnel is injured, they are required to notify the SSO. Once the incident is under control, the subcontractor will submit a copy of their company's accident investigation report to the SSO.

ATTACHMENT A

Health and Safety Plan Receipt and Acceptance Form

ATTACHMENT B

Health and Safety Plan Pre-Entry Briefing Attendance Form

ATTACHMENT C

Supervisor's Accident Investigation Report Form

SUPERVISOR'S ACCIDENT INVESTIGATION REPORT

Injured Employee _____ Job Title _____

Home Office _____ Division/Department _____

Date/Time of Accident _____

Location of Accident _____

Witnesses to the Accident _____

Injury Incurred? _____ Nature of Injury _____

Engaged in What Task When Injured? _____

Will Lost Time Occur? _____ How Long? _____ Date Lost Time Began _____

Were Other Persons Involved/Injured? _____

How Did the Accident Occur? _____

What Could Be Done to Prevent Recurrence of the Accident? _____

What Actions Have You Taken Thus Far to Prevent Recurrence? _____

Supervisor's Signature _____ Title _____ Date _____

Reviewer's Signature _____ Title _____ Date _____


Note: If the space provided on this form is insufficient, provide additional information on a separate page and attach. The completed accident investigation report must be submitted to the Health and Safety Manager within two days of the occurrence of the accident.

FIGURES

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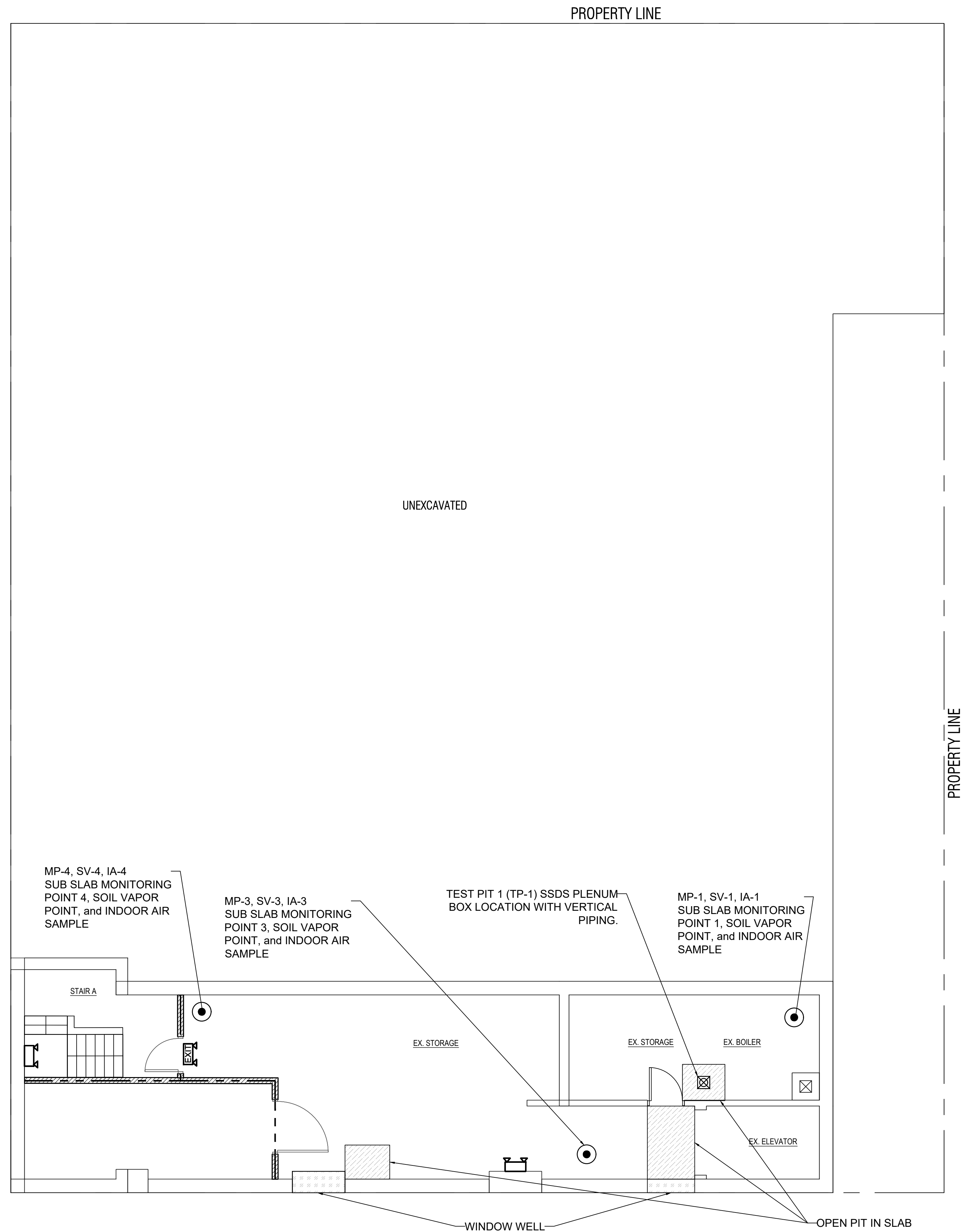
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REVISIONS		
No.	Date	Issue
1.	11/25/2025	DEP SUBMISSION

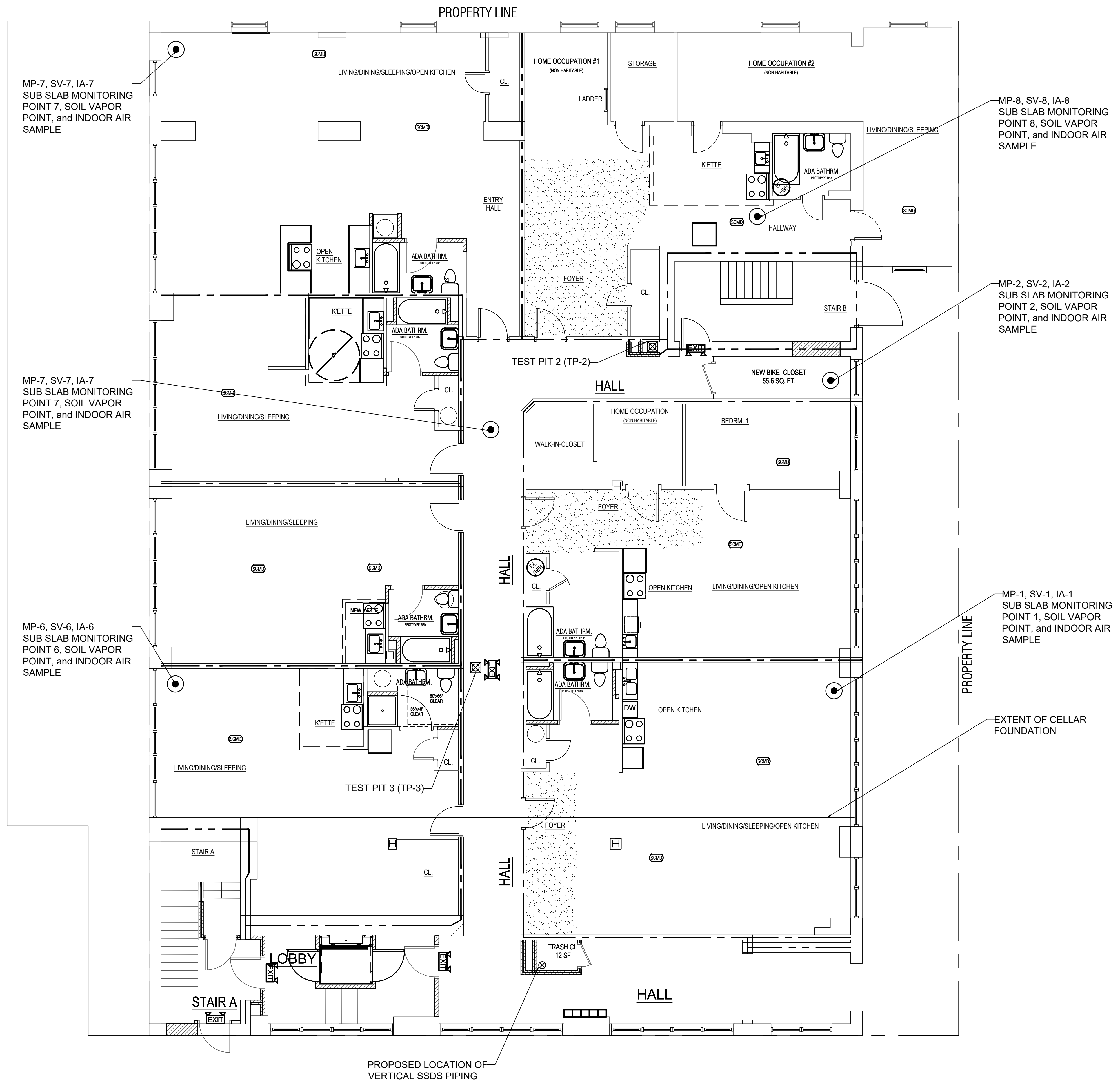
Project No. 20240999
 DEP PROJECT: C224438
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DRAWING TITLE
 SSDS COMMUNICATION AND MONITORING PLAN

DRAWING NUMBER
 FIGURE 2



CELLAR FLOOR PLAN



MP-7, SV-7, IA-7
 SUB SLAB MONITORING
 POINT 7, SOIL VAPOR
 POINT, and INDOOR AIR
 SAMPLE

MP-8, SV-8, IA-8
 SUB SLAB MONITORING
 POINT 8, SOIL VAPOR
 POINT, and INDOOR AIR
 SAMPLE

MP-7, SV-7, IA-7
 SUB SLAB MONITORING
 POINT 7, SOIL VAPOR
 POINT, and INDOOR AIR
 SAMPLE

MP-2, SV-2, IA-2
 SUB SLAB MONITORING
 POINT 2, SOIL VAPOR
 POINT, and INDOOR AIR
 SAMPLE

MP-6, SV-6, IA-6
 SUB SLAB MONITORING
 POINT 6, SOIL VAPOR
 POINT, and INDOOR AIR
 SAMPLE

MP-1, SV-1, IA-1
 SUB SLAB MONITORING
 POINT 1, SOIL VAPOR
 POINT, and INDOOR AIR
 SAMPLE

EXTENT OF CELLAR
 FOUNDATION

PROPOSED LOCATION OF
 VERTICAL SSDS PIPING

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No.	Date	Issue
1.	11/25/2025	DEP SUBMISSION

Project No. 20240999
 DEP PROJECT: C224438
 North:

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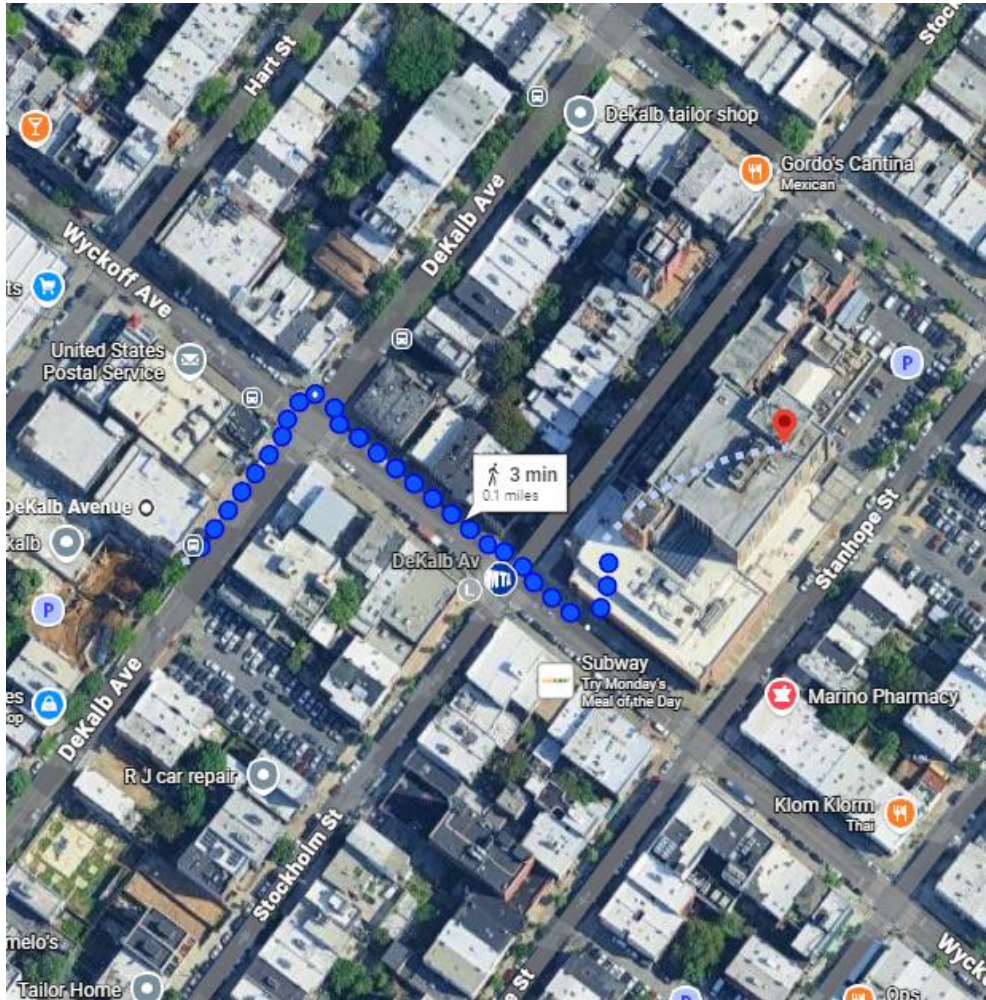
SSDS COMMUNICATION AND
 MONITORING PLAN

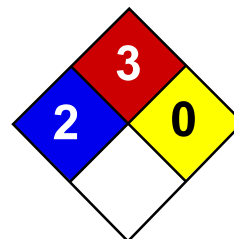
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FIGURE 2

FIRST FLOOR PLAN

Figure 3
Route to Nearest Hospital





Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Methyl tert-butyl ether MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methyl tert-butyl ether

Catalog Codes: SLM2152

CAS#: 1634-04-4

RTECS: KN5250000

TSCA: TSCA 8(b) inventory: Methyl tert-butyl ether

CI#: Not available.

Synonym:

Chemical Name: Methyl tert-Butyl Ether

Chemical Formula: C5-H12-O

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methyl {tert-}butyl ether	1634-04-4	100

Toxicological Data on Ingredients: Methyl tert-butyl ether: ORAL (LD50): Acute: 4000 mg/kg [Rat]. 5960 mg/kg [Mouse]. VAPOR (LC50): Acute: 23576 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Extremely hazardous in case of eye contact (irritant), of ingestion. Very hazardous in case of skin contact (irritant), of inhalation. Hazardous in case of skin contact (permeator). Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Extremely hazardous in case of eye contact (irritant), of ingestion. Very hazardous in case of skin contact (irritant), of inhalation. Hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 224°C (435.2°F)

Flash Points: CLOSED CUP: -28°C (-18.4°F).

Flammable Limits: LOWER: 2.5% UPPER: 15.1%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Characteristic. (Strong.)

Taste: Not available.

Molecular Weight: 88.15 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 55.2°C (131.4°F)

Melting Point: -109°C (-164.2°F)

Critical Temperature: Not available.

Specific Gravity: 0.7405 (Water = 1)

Vapor Pressure: 245 mm of Hg (@ 20°C)

Vapor Density: 3.1 (Air = 1)

Volatility: 100% (v/v).

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:

Soluble in methanol, diethyl ether. Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 4000 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 23576 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: The substance is toxic to lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans:

Extremely hazardous in case of ingestion. Very hazardous in case of skin contact (irritant), of inhalation. Hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Methyl tert-butyl ether : UN2398 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: Methyl tert-butyl ether Massachusetts RTK: Methyl tert-butyl ether TSCA 8(b) inventory: Methyl tert-butyl ether SARA 313 toxic chemical notification and release reporting: Methyl tert-butyl ether CERCLA: Hazardous substances.: Methyl tert-butyl ether

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R11- Highly flammable. R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:23 PM

Last Updated: 05/21/2013 12:00 PM

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Material Safety Data Sheet

1,2,4-Trimethylbenzene

MSDS# 73581

Section 1 - Chemical Product and Company Identification

MSDS Name: 1,2,4-Trimethylbenzene
Catalog Numbers: AC140090000, AC140090010, AC140090025, AC140090100, AC140095000
Synonyms: Pseudocumene.

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium

Company Identification: (USA) Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01

For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99

Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#: 95-63-6
Chemical Name: 1,2,4-Trimethylbenzene
%: 98
EINECS#: 202-436-9

Hazard Symbols:

XN N



Risk Phrases:

10 20 36/37/38 51/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! Flammable liquid and vapor. Harmful if inhaled. Causes eye, skin, and respiratory tract irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Target Organs: Blood, central nervous system, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. Causes redness and pain.

Skin: Causes skin irritation. Causes redness and pain. May be harmful if absorbed through the skin.

Ingestion: May cause irritation of the digestive tract. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May be harmful if swallowed. May cause central nervous system depression.

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. May cause drowsiness, unconsciousness, and central nervous system depression.

Prolonged or repeated skin contact may cause dermatitis. May cause anemia and other blood cell abnormalities.

Chronic: Prolonged exposure may produce a narcotic effect. Prolonged or repeated exposure may cause nausea,

dizziness, and headache.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. Possible aspiration hazard. Get medical aid immediately. Call a poison control center. Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Possible aspiration hazard. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Inhalation: Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician:

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. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: Use water spray to cool fire-exposed containers. Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: 500 deg C (932.00 deg F)

Flash Point: 48 deg C (118.40 deg F)

Explosion Limits: Lower: 0.9 vol %

Explosion Limits: Upper: 6.4 vol %

NFPA Rating: health: 2; flammability: 2; instability: 0;

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. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use only in a chemical fume hood. Keep away from heat, sparks and flame.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,2,4-Trimethylbenzene	25 ppm TWA (listed under Trimethyl benzene)	25 ppm TWA; 125 mg/m3 TWA	none listed

OSHA Vacated PELs: 1,2,4-Trimethylbenzene: 25 ppm TWA; 125 mg/m3 TWA (listed under Trimethyl benzene)

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Personal Protective Equipment

- Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin: Wear appropriate protective gloves to prevent skin exposure.
- Clothing: Wear appropriate protective clothing to prevent skin exposure.
- Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid

Color: colorless

Odor: aromatic odor

pH: Not available

Vapor Pressure: 7 mm Hg @ 44.4 deg C

Vapor Density: 4.15 (air=1)

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: 168 deg C @ 760 mmHg (334.40°F)

Freezing/Melting Point: -44 deg C (-47.20°F)

Decomposition Temperature: Not available

Solubility in water: Insoluble

Specific Gravity/Density: 0.880 g/cm³

Molecular Formula: C₉H₁₂

Molecular Weight: 120.19

Section 10 - Stability and Reactivity

- Chemical Stability: Stable under normal temperatures and pressures.
- Conditions to Avoid: Incompatible materials, ignition sources, excess heat.
- Incompatibilities with Other Materials: Strong oxidizing agents.
- Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
- Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 95-63-6: DC3325000

RTECS:

CAS# 95-63-6: Inhalation, rat: LC50 = 18000 mg/m³/4H;

LD50/LC50: Oral, mouse: LD50 = 6900 mg/kg;

Oral, rat: LD50 = 5 gm/kg;

Carcinogenicity: 1,2,4-Trimethylbenzene - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 77.2 mg/L; 96 Hr; Flow-through at 25 C (pH 7.24)

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: FLAMMABLE LIQUIDS, N.O.S. (1,2,4-Trimethylbenzene)

Hazard Class: 3

UN Number: UN1993

Packing Group: III

Canada TDG

Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN N

Risk Phrases:

R 10 Flammable.

R 20 Harmful by inhalation.

R 36/37/38 Irritating to eyes, respiratory system and skin.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 95-63-6: 3

Canada

CAS# 95-63-6 is listed on Canada's DSL List

Canadian WHMIS Classifications: B3, D1B, D2B

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.

CAS# 95-63-6 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

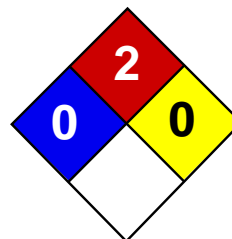
CAS# 95-63-6 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 5/19/1999

Revision #6 Date 7/20/2009

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 the company 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 the company has been advised of the possibility of such damages.



Health	0
Fire	2
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Mesitylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Mesitylene

Catalog Codes: SLM2410

CAS#: 108-67-8

RTECS: OX6825000

TSCA: TSCA 8(b) inventory: Mesitylene

CI#: Not available.

Synonym: 1,3,5-Trimethylbenzene

Chemical Formula: C₉H₁₂

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Mesitylene	108-67-8	100

Toxicological Data on Ingredients: Mesitylene: VAPOR (LC50): Acute: 4881.9 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of eye contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator), .

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 559°C (1038.2°F)

Flash Points: CLOSED CUP: 43°C (109.4°F).

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Avoid contact with eyes. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.

Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 25 CEIL: 35 (ppm) TWA: 125 CEIL: 170 (mg/m³) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Aromatic.

Taste: Not available.

Molecular Weight: 120.2 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 164.7°C (328.5°F)

Melting Point: -44.8°C (-48.6°F)

Critical Temperature: Not available.

Specific Gravity: 0.8637 (Water = 1)

Vapor Pressure: 1.86 mm of Hg (@ 20°C)

Vapor Density: 4.14 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.23 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute toxicity of the vapor (LC50): 4881.9 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:

Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator), .

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : 1,3,5-Trimethylbenzene : UN2325 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:

Florida: Mesitylene New Jersey: Mesitylene TSCA 8(b) inventory: Mesitylene

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:**WHMIS (Canada):**

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

DSCL (EEC):

R10- Flammable. R36/37- Irritating to eyes and respiratory system.

HMIS (U.S.A.):

Health Hazard: 0

Fire Hazard: 2

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

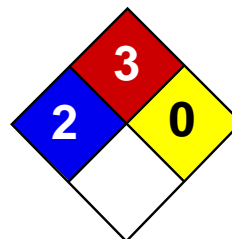
References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 06:06 PM

Last Updated: 05/21/2013 12:00 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Benzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Benzene

Catalog Codes: SLB1564, SLB3055, SLB2881

CAS#: 71-43-2

RTECS: CY1400000

TSCA: TSCA 8(b) inventory: Benzene

CI#: Not available.

Synonym: Benzol; Benzine

Chemical Name: Benzene

Chemical Formula: C6-H6

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Benzene	71-43-2	100

Toxicological Data on Ingredients: Benzene: ORAL (LD50): Acute: 930 mg/kg [Rat]. 4700 mg/kg [Mouse]. DERMAL (LD50): Acute: >9400 mg/kg [Rabbit]. VAPOR (LC50): Acute: 10000 ppm 7 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of eye contact (irritant), of inhalation. Hazardous in case of skin contact (irritant, permeator), of ingestion. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. **MUTAGENIC EFFECTS:** Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female [POSSIBLE]. The substance is toxic to blood, bone marrow, central nervous system (CNS). The substance may be toxic to liver, Urinary System. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 497.78°C (928°F)

Flash Points: CLOSED CUP: -11.1°C (12°F). (Setaflash)

Flammable Limits: LOWER: 1.2% UPPER: 7.8%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of oxidizing materials. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of oxidizing materials, of acids.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:

Extremely flammable liquid and vapor. Vapor may cause flash fire. Reacts on contact with iodine heptafluoride gas. Dioxygenyl tetrafluoroborate is as very powerful oxidant. The addition of a small particle to small samples of benzene, at ambient temperature, causes ignition. Contact with sodium peroxide with benzene causes ignition. Benzene ignites in contact with powdered chromic anhydride. Virgorous or incandescent reaction with hydrogen + Raney nickel (above 210 C) and bromine trifluoride.

Special Remarks on Explosion Hazards:

Benzene vapors + chlorine and light causes explosion. Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate. Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion. Interaction

of nitryl perchlorate with benzene gave a slight explosion and flash. The solution of permanganic acid (or its explosive anhydride, dimanganese heptoxide) produced by interaction of permanganates and sulfuric acid will explode on contact with benzene. Peroxodisulfuric acid is a very powerful oxidant. Uncontrolled contact with benzene may cause explosion. Mixtures of peroxomonsulfuric acid with benzene explodes.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 0.5 STEL: 2.5 (ppm) from ACGIH (TLV) [United States] TWA: 1.6 STEL: 8 (mg/m³) from ACGIH (TLV) [United States] TWA: 0.1 STEL: 1 from NIOSH TWA: 1 STEL: 5 (ppm) from OSHA (PEL) [United States] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 3 (ppm) [United Kingdom (UK)] TWA: 1.6 (mg/m³) [United Kingdom (UK)] TWA: 1 (ppm) [Canada] TWA: 3.2 (mg/m³) [Canada] TWA: 0.5 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor:

Aromatic. Gasoline-like, rather pleasant. (Strong.)

Taste: Not available.

Molecular Weight: 78.11 g/mole

Color: Clear Colorless. Colorless to light yellow.

pH (1% soln/water): Not available.

Boiling Point: 80.1 (176.2°F)

Melting Point: 5.5°C (41.9°F)

Critical Temperature: 288.9°C (552°F)

Specific Gravity: 0.8787 @ 15 C (Water = 1)

Vapor Pressure: 10 kPa (@ 20°C)

Vapor Density: 2.8 (Air = 1)

Volatility: Not available.

Odor Threshold: 4.68 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:

Miscible in alcohol, chloroform, carbon disulfide oils, carbon tetrachloride, glacial acetic acid, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatibles.

Incompatibility with various substances: Highly reactive with oxidizing agents, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Benzene vapors + chlorine and light causes explosion. Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate. Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion. Interaction of nitryl perchlorate with benzene gave a slight explosion and flash. The solution of permanganic acid (or its explosive anhydride, dimanganese heptoxide) produced by interaction of permanganates and sulfuric acid will explode on contact with benzene. Peroxodisulfuric acid is a very powerful oxidant. Uncontrolled contact with benzene may cause explosion. Mixtures of peroxomonsulfuric acid with benzene explodes.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 930 mg/kg [Rat]. Acute dermal toxicity (LD50): >9400 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 10000 7 hours [Rat].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. **MUTAGENIC EFFECTS:** Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female [POSSIBLE]. Causes damage to the following organs: blood, bone marrow, central nervous system (CNS). May cause damage to the following organs: liver, Urinary System.

Other Toxic Effects on Humans:

Very hazardous in case of inhalation. Hazardous in case of skin contact (irritant, permeator), of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (female fertility, Embryotoxic and/or foetotoxic in animal) and birth defects. May affect genetic material (mutagenic). May cause cancer (tumorigenic, leukemia) Human: passes the placental barrier, detected in maternal milk.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation. It can be absorbed through intact skin and affect the liver, blood, metabolism, and urinary system. Eyes: Causes eye irritation. Inhalation: Causes respiratory tract and mucous membrane irritation. Can be absorbed through the lungs. May affect behavior/Central and Peripheral nervous systems (somnolence, muscle weakness, general anesthetic, and other symptoms similar to ingestion), gastrointestinal tract (nausea), blood metabolism, urinary system. Ingestion: May be harmful if swallowed. May cause gastrointestinal tract irritation including vomiting. May affect behavior/Central and Peripheral nervous systems (convulsions, seizures, tremor, irritability, initial CNS stimulation followed by depression, loss of coordination, dizziness, headache, weakness, pallor, flushing), respiration (breathlessness and chest constriction), cardiovascular system, (shallow/rapid pulse), and blood.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Benzene UNNA: 1114 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Benzene California prop. 65 (no significant risk level): Benzene: 0.007 mg/day (value) California prop. 65: This product contains the following ingredients

for which the State of California has found to cause cancer which would require a warning under the statute: Benzene Connecticut carcinogen reporting list.: Benzene Connecticut hazardous material survey.: Benzene Illinois toxic substances disclosure to employee act: Benzene Illinois chemical safety act: Benzene New York release reporting list: Benzene Rhode Island RTK hazardous substances: Benzene Pennsylvania RTK: Benzene Minnesota: Benzene Michigan critical material: Benzene Massachusetts RTK: Benzene Massachusetts spill list: Benzene New Jersey: Benzene New Jersey spill list: Benzene Louisiana spill reporting: Benzene California Director's list of Hazardous Substances: Benzene TSCA 8(b) inventory: Benzene SARA 313 toxic chemical notification and release reporting: Benzene CERCLA: Hazardous substances.: Benzene: 10 lbs. (4.536 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R11- Highly flammable. R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer. R62- Possible risk of impaired fertility. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S46- If swallowed, seek medical advice immediately and show this container or label. S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

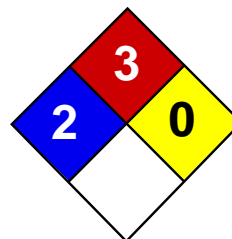
References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:35 PM

Last Updated: 05/21/2013 12:00 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Ethylbenzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ethylbenzene

Catalog Codes: SLE2044

CAS#: 100-41-4

RTECS: DA0700000

TSCA: TSCA 8(b) inventory: Ethylbenzene

CI#: Not available.

Synonym: Ethyl Benzene; Ethylbenzol; Phenylethane

Chemical Name: Ethylbenzene

Chemical Formula: C₈H₁₀

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ethylbenzene	100-41-4	100

Toxicological Data on Ingredients: Ethylbenzene: ORAL (LD50): Acute: 3500 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (irritant, sensitizer). **CARCINOGENIC EFFECTS:** Classified 2B (Possible for human.) by IARC. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 432°C (809.6°F)

Flash Points:

CLOSED CUP: 15°C (59°F). (Tagliabue.) OPEN CUP: 26.667°C (80°F) (Cleveland) (CHRIS, 2001) CLOSED CUP: 12.8 C (55 F) (Bingham et al, 2001; NIOSH, 2001) CLOSED CUP: 21 C (70 F) (NFPA)

Flammable Limits: LOWER: 0.8% - 1.6%UPPER: 6.7% - 7%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:

Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Vapors may form explosive mixtures in air.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 100 STEL: 125 (ppm) from OSHA (PEL) [United States] TWA: 435 STEL: 545 from OSHA (PEL) [United States] TWA: 435 STEL: 545 (mg/m³) from NIOSH [United States] TWA: 100 STEL: 125 (ppm) from NIOSH [United States] TWA: 100 STEL: 125 (ppm) from ACGIH (TLV) [United States] TWA: 100 STEL: 125 (ppm) [United Kingdom (UK)] TWA: 100 STEL: 125 (ppm) [Belgium] TWA: 100 STEL: 125 (ppm) [Finland] TWA: 50 (ppm) [Norway] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweetish. Gasoline-like. Aromatic.

Taste: Not available.

Molecular Weight: 106.16 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 136°C (276.8°F)

Melting Point: -94.9 (-138.8°F)

Critical Temperature: 617.15°C (1142.9°F)

Specific Gravity: 0.867 (Water = 1)

Vapor Pressure: 0.9 kPa (@ 20°C)

Vapor Density: 3.66 (Air = 1)

Volatility: 100% (v/v).

Odor Threshold: 140 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 3.1$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:

Easily soluble in diethyl ether. Very slightly soluble in cold water or practically insoluble in water. Soluble in all proportions in Ethyl alcohol. Soluble in Carbon tetrachloride, Benzene. Insoluble in Ammonia. Slightly soluble in Chloroform. Solubility in Water: 169 mg/l @ 25 deg. C.; 0.014 g/100 ml @ 15 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks, static), incompatible materials, light

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity:

Can react vigorously with oxidizing materials. Sensitive to light.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): 3500 mg/kg [Rat].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals:

Lethal Dose/Conc 50% Kill: LD50 [Rabbit] - Route: Skin; Dose: 17800 ul/kg Lowest Published Lethal Dose/Conc: LDL[Rat] - Route: Inhalation (vapor); Dose: 4000 ppm/4 H

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data. May cause cancer based on animals data. IARC evidence for carcinogenicity in animals is sufficient. IARC evidence of carcinogenicity in humans inadequate. May affect genetic material (mutagenic).

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Can cause mild skin irritation. It can be absorbed through intact skin. Eyes: Contact with vapor or liquid can cause severe eye irritation depending on concentration. It may also cause conjunctivitis. At a vapor exposure level of 85 - 200 ppm, it is mildly and transiently irritating to the eyes; 1000 ppm causes further irritation and tearing; 2000 ppm results in immediate and severe irritation and tearing; 5,000 ppm is intolerable (ACGIH, 1991; Clayton and Clayton, 1994). Standard draize test for eye irritation using 500 mg resulted in severe irritation (RTECS) Inhalation: Exposure to high concentrations can cause nasal, mucous membrane and respiratory tract irritation and can also result in chest constriction and, trouble breathing, respiratory failure, and even death. It can also affect behavior/Central Nervous System. The effective dose for CNS depression in experimental animals was 10,000 ppm (ACGIH, 1991). Symptoms of CNS depression include

headache, nausea, weakness, dizziness, vertigo, irritability, fatigue, lightheadedness, sleepiness, tremor, loss of coordination, judgement and consciousness, coma, and death. It can also cause pulmonary edema. Inhalation of 85 ppm can produce fatigue, insomnia, headache, and mild irritation of the respiratory tract (Haley & Berndt, 1987). Ingestion: Do not drink, pipet or siphon by mouth. May cause gastrointestinal/digestive tract irritation with Abdominal pain, nausea, vomiting. Ethylbenzene is a pulmonary aspiration hazard. Pulmonary aspiration of even small amounts of the liquid may cause fatal pneumonitis. It may also affect behavior/central nervous system with

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 14 mg/l 96 hours [Fish (Trout)] (static). 12.1 mg/l 96 hours [Fish (Fathead Minnow)] (flow-through)]. 150 mg/l 96 hours [Fish (Blue Gill/Sunfish)] (static). 275 mg/l 96 hours [Fish (Sheepshead Minnow)]. 42.3 mg/l 96 hours [Fish (Fathead Minnow)](soft water). 87.6mg/l 96 hours [Shrimp].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Ethylbenzene UNNA: 1175 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Ethylbenzene Illinois toxic substances disclosure to employee act: Ethylbenzene Illinois chemical safety act: Ethylbenzene New York release reporting list: Ethylbenzene Rhode Island RTK hazardous substances: Ethylbenzene Pennsylvania RTK: Ethylbenzene Minnesota: Ethylbenzene Massachusetts RTK: Ethylbenzene Massachusetts spill list: Ethylbenzene New Jersey: Ethylbenzene New Jersey spill list: Ethylbenzene Louisiana spill reporting: Ethylbenzene California Director's List of Hazardous Substances: Ethylbenzene TSCA 8(b) inventory: Ethylbenzene TSCA 4(a) proposed test rules: Ethylbenzene TSCA 8(d) H and S data reporting: Ethylbenzene: Effective Date: 6/19/87; Sunset Date: 6/19/97 SARA 313 toxic chemical notification and release reporting: Ethylbenzene

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASSE D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R11- Highly flammable. R20- Harmful by inhalation. S16- Keep away from sources of ignition - No smoking. S24/25- Avoid contact with skin and eyes. S29- Do not empty into drains.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information**References:**

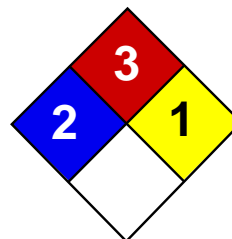
-Manufacturer's Material Safety Data Sheet. -Fire Protection Guide to Hazardous Materials, 13th ed., National Fire Protection Association (NFPA) -Registry of Toxic Effects of Chemical Substances (RTECS) -Chemical Hazard Response Information System (CHRIS) -Hazardous Substance Data Bank (HSDB) -New Jersey Hazardous Substance Fact Sheet -Ariel Global View -Reprotext System

Other Special Considerations: Not available.

Created: 10/09/2005 05:28 PM

Last Updated: 05/21/2013 12:00 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Cumene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Cumene

Catalog Codes: SLC3052

CAS#: 98-82-8

RTECS: GR8575000

TSCA: TSCA 8(b) inventory: Cumene

CI#: Not available.

Synonym: Isopropyl benzene; Cumol; 2-Phenyl propane; (1-Methylethyl)benzene

Chemical Name: Isopropylbenzene

Chemical Formula: C₆H₅CH(CH₃)₂

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cumene	98-82-8	100

Toxicological Data on Ingredients: Cumene: ORAL (LD50): Acute: 1400 mg/kg [Rat]. 12750 mg/kg [Mouse]. DERMAL (LD50): Acute: 12300 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Very hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 424°C (795.2°F)

Flash Points: CLOSED CUP: 36°C (96.8°F). OPEN CUP: 44°C (111.2°F).

Flammable Limits: LOWER: 0.9% UPPER: 6.5%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 50 CEIL: 75 (ppm) TWA: 245 CEIL: 365 (mg/m³) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 120.2 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 152.4°C (306.3°F)

Melting Point: -96°C (-140.8°F)

Critical Temperature: Not available.

Specific Gravity: 0.862 (Water = 1)

Vapor Pressure: 8 mm of Hg (@ 20°C)

Vapor Density: 4.14 (Air = 1)

Volatility: Not available.

Odor Threshold: 1.2 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.7

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 1400 mg/kg [Rat]. Acute dermal toxicity (LD50): 12300 mg/kg [Rabbit].

Chronic Effects on Humans: The substance is toxic to lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans: Very hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Isopropylbenzene : UN1918 PG: III

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: Cumene Massachusetts RTK: Cumene TSCA 8(b) inventory: Cumene SARA 313 toxic chemical notification and release reporting: Cumene CERCLA: Hazardous substances.: Cumene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

DSCL (EEC):

R10- Flammable. R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 11:43 AM

Last Updated: 05/21/2013 12:00 PM

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: BUTYL BENZENE

TRADE NAMES/SYNONYMS:

MTG MSDS 139; BUTYLBENZENE; 1-PHENYLBUTANE; N-BUTYLBENZENE; UN 2709;
MAT03530; RTECS CY9070000

CHEMICAL FAMILY: hydrocarbons, aromatic

CREATION DATE: Jan 24 1989

REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: BUTYL BENZENE
CAS NUMBER: 104-51-8
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=2 REACTIVITY=0



EMERGENCY OVERVIEW:

COLOR: colorless

PHYSICAL FORM: liquid

ODOR: odorless

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Combustible liquid and vapor.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, vomiting, headache, symptoms of drunkenness, coma

LONG TERM EXPOSURE: lung damage

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation, headache, symptoms of drunkenness

LONG TERM EXPOSURE: same as effects reported in short term exposure

EYE CONTACT:

SHORT TERM EXPOSURE: irritation, tearing

LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:

SHORT TERM EXPOSURE: vomiting, headache, symptoms of drunkenness, coma

LONG TERM EXPOSURE: lung damage

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: DO NOT induce vomiting. Never make an unconscious person vomit or drink fluids. If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, consider gastric lavage, catharsis and activated charcoal slurry.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

EXTINGUISHING MEDIA: regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny

entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FLASH POINT: 160 F (71 C) (OC)
LOWER FLAMMABLE LIMIT: 0.8%
UPPER FLAMMABLE LIMIT: 5.8%
AUTOIGNITION: 770 F (410 C)
FLAMMABILITY CLASS (OSHA): IIIA

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

BUTYL BENZENE:

No occupational exposure limits established.

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before

use.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid

COLOR: colorless

ODOR: odorless

MOLECULAR WEIGHT: 134.21

MOLECULAR FORMULA: C₁₀-H₁₄

BOILING POINT: 356 F (180 C)

FREEZING POINT: -116 F (-82 C)

VAPOR PRESSURE: 1 mmHg @ 23 C

VAPOR DENSITY (air=1): 4.6

SPECIFIC GRAVITY (water=1): 0.9

WATER SOLUBILITY: insoluble

PH: Not available

VOLATILITY: Not available

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not available

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Miscible: alcohol, ether, benzene

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.

INCOMPATIBILITIES: oxidizing materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

BUTYL BENZENE:

LOCAL EFFECTS:

Irritant: inhalation, skin, eye

TARGET ORGANS: central nervous system

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

INVERTEBRATE TOXICITY: 340 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Butyl benzenes

ID NUMBER: UN2709

HAZARD CLASS OR DIVISION: 3

PACKING GROUP: III

LABELING REQUIREMENTS: 3

MARINE POLLUTANT: BUTYL BENZENE



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Butylbenzenes

UN NUMBER: UN2709

CLASS: 3

PACKING GROUP/CATEGORY: III

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B

and C):

ACUTE: Yes

CHRONIC: No

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	<u>n-Propylbenzene</u>
Stock number:	B21468, L05530
CAS Number:	103-65-1
EC number:	203-132-9
Index number:	601-024-00-X
1.2 Relevant identified uses of the substance or mixture and uses advised against.	SU24 Scientific research and development
Identified use:	





1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:	Alfa Aesar GmbH & Co.KG A Johnson Matthey Company Zeppelinstr. 7b 76185 Karlsruhe / Germany Tel: +49 (0) 721 84007 280 Fax: +49 (0) 721 84007 300 Email: tech@alfa.com www.alfa.com
Informing department:	Product safety Tel + +049 (0) 7275 988687-0
1.4 Emergency telephone number:	Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number) Poison Information Center Mainz www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240




SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

	GHS02 flame	Flam. Liq. 3	H226	Flammable liquid and vapour.
	GHS08 health hazard	Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
	GHS09 environment	Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects.
	GHS07	STOT SE 3	H335	May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

	Xn; Harmful	R65:	Harmful; may cause lung damage if swallowed.
	Xi; Irritant	R37:	Irritating to respiratory system.
	N; Dangerous for the environment	R51/53:	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R10:	Flammable.	
	Information concerning particular hazards for human and environment:	Not applicable	
	Other hazards that do not result in classification	No information known.	

2.2 Label elements Labelling according to Regulation (EC) No 1272/2008 Hazard pictograms

The substance is classified and labelled according to the CLP regulation.



GHS02 GHS07 GHS08 GHS09

Signal word Hazard statements

Danger
H226 Flammable liquid and vapour.
H335 May cause respiratory irritation.
H304 May be fatal if swallowed and enters airways.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards Results of PBT and vPvB assessment

PBT:	Not applicable.
vPvB:	Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation:	103-65-1 n-Propylbenzene
Identification number(s):	
EC number:	203-132-9

Trade name ***n*-Propylbenzene**

Index number: 601-024-00-X

(Contd. of page 1)

SECTION 4: First aid measures

4.1 Description of first aid measures
After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.
Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents

CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide

5.3 Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

6.2 Environmental precautions:

Keep away from ignition sources.
Do not allow product to reach sewage system or water bodies.
Do not allow to enter the ground/soil.

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to item 13.

6.4 Reference to other sections

Ensure adequate ventilation.
Keep away from ignition sources.
See Section 7 for information on safe handling
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Storage
Requirements to be met by storerooms and containers:

No special requirements.

Information about storage in one common storage facility:

Store away from oxidising agents.

Further information about storage conditions:

Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information:

No data

8.2 Exposure controls

Personal protective equipment
General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use breathing protection with high concentrations.

Protection of hands:

Check protective gloves prior to each use for their proper condition.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves

Impervious gloves

Penetration time of glove material

Not determined

Eye protection:

Safety glasses

Body protection:

Face protection
Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:

Liquid

Smell:

Not determined

(Contd. on page 3)

Trade name <i>n</i> -Propylbenzene	
(Contd. of page 2)	
Odour threshold:	Not determined.
pH-value:	Not determined.
Change in condition Melting point/Melting range: Boiling point/Boiling range: Sublimation temperature / start:	-100 °C 158-160 °C Not determined
Flash point: Inflammability (solid, gaseous) Ignition temperature: Decomposition temperature: Self-inflammability:	47 °C Not determined. Not determined Not determined Not determined.
Danger of explosion: Critical values for explosion: Lower: Upper: Steam pressure: Density at 20 °C Relative density Vapour density Evaporation rate Solubility in / Miscibility with Water: Partition coefficient (n-octanol/water): Viscosity: dynamic: kinematic:	Product is not explosive. However, formation of explosive air/steam mixtures is possible. Not determined Not determined Not determined 0,862 g/cm ³ Not determined. Not determined. Not determined. Not determined. Not determined Not determined. Not determined. Not determined. Not determined. Not determined. Not determined. Not determined. Not determined.
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity	No information known.
10.2 Chemical stability	Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:	No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions	Reacts with strong oxidizing agents
10.5 Incompatible materials:	Oxidising agents
10.6 Hazardous decomposition products:	Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects	The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
Acute toxicity:	
LD/LC50 values that are relevant for classification:	No data
Skin irritation or corrosion:	May cause irritation
Eye irritation or corrosion:	May cause irritation
Sensitization:	No sensitizing effect known.
Germ cell mutagenicity:	No effects known.
Carcinogenicity:	No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Reproductive toxicity:	No effects known.
Specific target organ system toxicity - repeated exposure:	No effects known.
Specific target organ system toxicity - single exposure:	May cause respiratory irritation.
Aspiration hazard:	May be fatal if swallowed and enters airways.
Subacute to chronic toxicity:	The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information:	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity	No further relevant information available.
Aquatic toxicity:	No further relevant information available.
12.2 Persistence and degradability	No further relevant information available.
12.3 Bioaccumulative potential	No further relevant information available.
12.4 Mobility in soil	No further relevant information available.
Additional ecological information:	
General notes:	Do not allow product to reach ground water, water bodies or sewage system. Water hazard class 2 (Self-assessment): hazardous for water. Danger to drinking water if even small quantities leak into soil. Also poisonous for fish and plankton in water bodies. Toxic to aquatic life. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment.
12.5 Results of PBT and vPvB assessment	
PBT:	Not applicable.
vPvB:	Not applicable.
12.6 Other adverse effects	No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods	Hand over to disposers of hazardous waste.
Recommendation	Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
Uncleaned packagings:	
Recommendation:	Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number ADR, IMDG, IATA	UN1993
14.2 UN proper shipping name ADR IMDG, IATA	1993 FLAMMABLE LIQUID, N.O.S. (n-Propylbenzene) FLAMMABLE LIQUID, N.O.S. (n-Propylbenzene)

Trade name *n*-Propylbenzene

(Contd. of page 3)

14.3 Transport hazard class(es)

ADR

Class Label IMDG, IATA 3 (F1) Flammable liquids.
3


Class Label 3 Flammable liquids.
3

Packing group ADR, IMDG, IATA III

14.5 Environmental hazards: Environmentally hazardous substance, liquid

14.6 Special precautions for user Warning: Flammable liquids.
Kemler Number: 30
EMS Number: F-E,S-E

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

ADR
Excepted quantities (EQ): E1
Limited quantities (LQ) 5L
Transport category 3
Tunnel restriction code D/E

UN "Model Regulation": UN1993, FLAMMABLE LIQUID, N.O.S. (n-Propylbenzene), 3, III

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Inventory of Chemical Substances Substance is listed.
Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.
National regulations
Information about limitation of use: Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.

Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

Other regulations, limitations and prohibitive regulations
ELINCS (European List of Notified Chemical Substances) Substance is not listed.

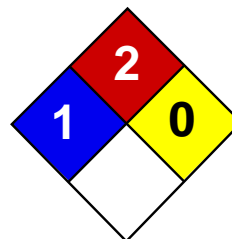
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

REACH - Pre-registered substances Substance is listed.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Health, Safety and Environmental Department.
Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)
Flam. Liq. 3: Flammable liquids, Hazard Category 3
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
Asp. Tox. 1: Aspiration hazard, Hazard Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2



Health	2
Fire	2
Reactivity	0
Personal Protection	J

Material Safety Data Sheet p-Cymene MSDS

Section 1: Chemical Product and Company Identification

Product Name: p-Cymene

Catalog Codes: SLC4330

CAS#: 99-87-6

RTECS: GZ5950000

TSCA: TSCA 8(b) inventory: p-Cymene

CI#: Not available.

Synonym: 1-Methyl-4-isopropylbenzene; 4-Isopropyl-1-methylbenzene; Benzene, 1-isopropyl-4-methyl-; Camphogen; Cumeme, p-methyl-; Cymene; Cymol; Dolcymene; p-Isopropylmethylbenzene; p-Isopropyltoluene; p-Methylisopropyl benzene; Paracymene; Paracymol

Chemical Name: p-Cymene

Chemical Formula: C₁₀H₁₄

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{p-}Cymene	99-87-6	100

Toxicological Data on Ingredients: p-Cymene: ORAL (LD50): Acute: 4750 mg/kg [Rat]. 3669 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 436°C (816.8°F)

Flash Points: CLOSED CUP: 47.222°C (117°F).

Flammable Limits: LOWER: 0.7% UPPER: 5.6%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Explosion hazard is slight in the form of vapor.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid, insoluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweetish. Aromatic. Pleasant.

Taste: Not available.

Molecular Weight: 134.22 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not applicable.

Boiling Point: 177.1°C (350.8°F)

Melting Point: -68.9 (-92°F)

Critical Temperature: Not available.

Specific Gravity: 0.861 (Water = 1)

Vapor Pressure: Not available.

Vapor Density: 4.62 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 4.1$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:

Soluble in diethyl ether, acetone. Insoluble in cold water. Soluble in alcohol (ethanol), benzene.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not available.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation.

Toxicity to Animals: Acute oral toxicity (LD50): 3669 mg/kg [Rat].

Chronic Effects on Humans: May cause damage to the following organs: central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals:

Lethal Dose/Conc 50% Kill: LD50 [Mouse] - Route: Inhalation; Dose: 19500 mg/m³

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation. Symptoms can include erythema, dryness and defatting. It can be absorbed through the skin. Eyes: Contact with liquid causes eye irritation. Vapors are not irritating to the eyes. Inhalation: Vapors are not irritating to the throat. Inhalation of a high concentration of vapors may affect behavior/central nervous system and cause drowsiness, central nervous system depression, unconsciousness. Ingestion: Causes nausea, vomiting, hypermotility, diarrhea. May also affect behavior/central nervous system (somnolence, headache). Aspiration into the lungs may cause chemical pneumonitis. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause defatting of the skin and dermatitis.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Cymene UNNA: 2046 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: p-Cymene Massachusetts RTK: p-Cymene Massachusetts spill list: p-Cymene TSCA 8(b) inventory: p-Cymene

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R10- Flammable. R36/38- Irritating to eyes and skin. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37- Wear suitable protective clothing and gloves.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:03 PM

Last Updated: 05/21/2013 12:00 PM

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Material Safety Data Sheet

sec-Butylbenzene, 99+%

MSDS# 73785

Section 1 - Chemical Product and Company Identification

MSDS Name: sec-Butylbenzene, 99+%
Catalog Numbers: AC107860000, AC107860050, AC107860500, AC107861000, AC107862500, AC107865000
Synonyms: 2-Phenylbutane; Benzene, (1-methylpropyl)-; (1-Methylpropyl)benzene; Benzene, sec-butyl-

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium

Company Identification: (USA) Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01

For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99

Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#: 135-98-8
Chemical Name: sec-Butylbenzene
%: 99+
EINECS#: 205-227-0

Hazard Symbols: XI



Risk Phrases: 10 36/37/38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! Flammable liquid and vapor. May cause central nervous system depression. Causes eye, skin, and respiratory tract irritation. Target Organs: Central nervous system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Ingestion of large amounts may cause CNS depression.

Inhalation: Causes respiratory tract irritation.

Chronic: Prolonged or repeated skin contact may cause dermatitis.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. 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. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Use agent most appropriate to extinguish fire. Do NOT use straight streams of water.

Autoignition Temperature: 415 deg C (779.00 deg F)

Flash Point: 45 deg C (113.00 deg F)

Explosion Limits: Lower: 0.80 vol %

Explosion Limits: Upper: 6.90 vol %

NFPA Rating: health: 2; flammability: 2; instability: 0;

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. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. 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. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
sec-Butylbenzene	none listed	none listed	none listed

OSHA Vacated PELs: sec-Butylbenzene: None listed

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

Exposure Limits

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: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Color: clear colorless

Odor: None reported.

pH: Not available

Vapor Pressure: 4 mm Hg @ 37.7 deg C

Vapor Density: 4.62

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: 173 - 174 deg C @ 760 mm Hg

Freezing/Melting Point: -75 deg C (-103.00°F)

Decomposition Temperature: Not available

Solubility in water: 0.015 g/L water

Specific Gravity/Density: 0.8630 g/cm³

Molecular Formula: C₁₀H₁₄

Molecular Weight: 134.22

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 135-98-8: CY9100000

RTECS:

CAS# 135-98-8: Draize test, rabbit, eye: 500 mg/24H Mild;

Draize test, rabbit, skin: 100 mg/24H Moderate;

LD50/LC50: Oral, mouse: LD50 = 8700 mg/kg;

Oral, rat: LD50 = 2240 uL/kg;

Oral, rat: LD50 = 6300 mg/kg;

Skin, rabbit: LD50 = >16 mL/kg;

Carcinogenicity: sec-Butylbenzene - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: BUTYL BENZENES

Hazard Class: 3

UN Number: UN2709

Packing Group: III

Canada TDG

Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI

Risk Phrases:

R 10 Flammable.

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 9 Keep container in a well-ventilated place.

S 16 Keep away from sources of ignition - No smoking.

S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 135-98-8: 1

Canada

CAS# 135-98-8 is listed on Canada's DSL List

Canadian WHMIS Classifications: B3, D2B

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.

CAS# 135-98-8 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

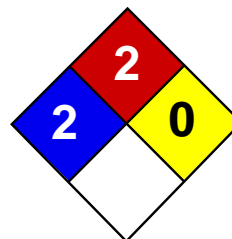
CAS# 135-98-8 is listed on the TSCA
Inventory.

Section 16 - Other Information

MSDS Creation Date: 9/02/1997

Revision #9 Date 7/20/2009

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 the company 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 the company has been advised of the possibility of such damages.



Health	2
Fire	2
Reactivity	0
Personal Protection	A

Material Safety Data Sheet tert-Butylbenzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: tert-Butylbenzene

Catalog Codes: SLB4126

CAS#: 98-06-6

RTECS: CY9120000

TSCA: TSCA 8(b) inventory: tert-Butylbenzene

CI#: Not available.

Synonym: 2-Methyl-2-phenylpropane

Chemical Name: Not available.

Chemical Formula: C₆H₅C(CH₃)₃

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{tert-}Butylbenzene	98-06-6	100

Toxicological Data on Ingredients: tert-Butylbenzene: ORAL (LD50): Acute: 500 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: No specific information is available in our database regarding the acute toxic effects of this material for humans.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 450°C (842°F)

Flash Points: CLOSED CUP: 60°C (140°F).

Flammable Limits: LOWER: 0.8% UPPER: 5.8%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Toxic flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Safety glasses. Lab coat.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Aromatic. Benzene-like.

Taste: Not available.

Molecular Weight: 134.228 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 169°C (336.2°F)

Melting Point: -58°C (-72.4°F)

Critical Temperature: Not available.

Specific Gravity: 0.87 (Water = 1)

Vapor Pressure: 0.2 kPa (@ 20°C)

Vapor Density: 4.62 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Not available.

Toxicity to Animals: Acute oral toxicity (LD50): 500 mg/kg [Rat].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: No specific information is available in our database regarding the other toxic effects of this material for humans.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification:

CLASS 3: Flammable liquid. CLASS 6.1: Poisonous material.

Identification: : FLAMMABLE LIQUIDS, POISONOUS, N.O.S. UNNA: UN1992 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: tert-Butylbenzene Florida: tert-Butylbenzene Massachusetts RTK: tert-Butylbenzene TSCA 8(b) inventory: tert-Butylbenzene TSCA 8(d) H and S data reporting: tert-Butylbenzene: 6/1/85

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:**WHMIS (Canada):**

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).

DSCL (EEC): R22- Harmful if swallowed.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: a

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Not applicable. Lab coat. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

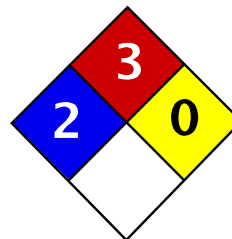
References: Not available.

Other Special Considerations: Not available.

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Xylenes MSDS

Section 1: Chemical Product and Company Identification

Product Name: Xylenes

Catalog Codes: SLX1075, SLX1129, SLX1042, SLX1096

CAS#: 1330-20-7

RTECS: ZE2100000

TSCA: TSCA 8(b) inventory: Xylenes

CI#: Not available.

Synonym: Xylenes; Dimethylbenzene; xylol; methyltoluene

Chemical Name: Xylenes (o-, m-, p- isomers)

Chemical Formula: C₆H₄(CH₃)₂

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Xylenes	1330-20-7	100

Toxicological Data on Ingredients: Xylenes: ORAL (LD50): Acute: 4300 mg/kg [Rat]. 2119 mg/kg [Mouse]. DERMAL (LD50): Acute: >1700 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to blood, kidneys, liver, mucous membranes, bone marrow, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 464°C (867.2°F)

Flash Points: CLOSED CUP: 24°C (75.2°F). (Tagliabue.) OPEN CUP: 37.8°C (100°F).

Flammable Limits: LOWER: 1% UPPER: 7%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, of heat.

Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Slightly explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Vapors may travel to source of ignition and flash back.

Special Remarks on Explosion Hazards:

Vapors may form explosive mixtures with air.

Containers may explode when heated.

May polymerize explosively when heated.
An attempt to chlorinate xylene with 1,3-Dichloro-5,5-dimethyl-2,4-imidazolidindione (dichlorohydrantoin) caused a violent explosion

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid.

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 100 (ppm) [Canada]

TWA: 435 (mg/m³) [Canada]

TWA: 434 STEL: 651 (mg/m³) from ACGIH (TLV) [United States]

TWA: 100 STEL: 150 (ppm) from ACGIH (TLV) [United States]

Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweetish.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 138.5°C (281.3°F)

Melting Point: -47.4°C (-53.3°F)

Critical Temperature: Not available.

Specific Gravity: 0.864 (Water = 1)

Vapor Pressure: 0.9 kPa (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 1 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 3.1$

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:

Insoluble in cold water, hot water.

Miscible with absolute alcohol, ether, and many other organic liquids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatibles

Incompatibility with various substances: Reactive with oxidizing agents, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Store away from acetic acid, nitric acid, chlorine, bromine, and fluorine.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 2119 mg/kg [Mouse].

Acute dermal toxicity (LD50): >1700 mg/kg [Rabbit].
Acute toxicity of the vapor (LC50): 5000 4 hours [Rat].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC.
May cause damage to the following organs: blood, kidneys, liver, mucous membranes, bone marrow, central nervous system (CNS).

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals:

Lowest Lethal Dose:
LDL [Human] - Route: Oral; Dose: 50 mg/kg
LCL [Man] - Route: Oral; Dose: 10000 ppm/6H

Special Remarks on Chronic Effects on Humans:

Detected in maternal milk in human. Passes through the placental barrier in animal. Embryotoxic and/or foetotoxic in animal.
May cause adverse reproductive effects (male and female fertility (spontaneous abortion and fetotoxicity)) and birth defects based animal data.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:
Skin: Causes skin irritation. Can be absorbed through skin.
Eyes: Causes eye irritation.
Inhalation: Vapor causes respiratory tract and mucous membrane irritation. May affect central nervous system and behavior (General anesthetic/CNS depressant with effects including headache, weakness, memory loss, irritability, dizziness, giddiness, loss of coordination and judgement, respiratory depression/arrest or difficulty breathing, loss of appetite, nausea, vomiting, shivering, and possible coma and death). May also affects blood, sense organs, liver, and peripheral nerves.
Ingestion: May cause gastrointestinal irritation including abdominal pain, vomiting, and nausea. May also affect liver and urinary system/kidneys. May cause effects similar to those of acute inhalation.
Chronic Potential Health Effects:
Chronic inhalation may affect the urinary system (kidneys) blood (anemia), bone marrow (hyperplasia of bone marrow) brain/behavior/Central Nervous system. Chronic inhalation may also cause mucosal bleeding.
Chronic ingestion may affect the liver and metabolism (loss of appetite) and may affect urinary system (kidney damage)

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Xylenes UNNA: 1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Xylenes
Illinois chemical safety act: Xylenes
New York acutely hazardous substances: Xylenes
Rhode Island RTK hazardous substances: Xylenes
Pennsylvania RTK: Xylenes
Minnesota: Xylenes
Michigan critical material: Xylenes
Massachusetts RTK: Xylenes
Massachusetts spill list: Xylenes
New Jersey: Xylenes
New Jersey spill list: Xylenes
Louisiana spill reporting: Xylenes
California Director's List of Hazardous Substances: Xylenes
TSCA 8(b) inventory: Xylenes
SARA 302/304/311/312 hazardous chemicals: Xylenes
SARA 313 toxic chemical notification and release reporting: Xylenes
CERCLA: Hazardous substances.: Xylenes: 100 lbs. (45.36 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R10- Flammable.
R21- Harmful in contact with skin.
R36/38- Irritating to eyes and skin.
S2- Keep out of the reach of children.
S36/37- Wear suitable protective clothing and gloves.
S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.

Lab coat.

Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Splash goggles.

Section 16: Other Information

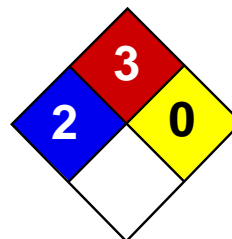
References: Not available.

Other Special Considerations: Not available.

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Health	2
Fire	3
Reactivity	0
Personal Protection	J

Material Safety Data Sheet m-Xylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: m-Xylene

Catalog Codes: SLX1066

CAS#: 108-38-3

RTECS: ZE2275000

TSCA: TSCA 8(b) inventory: m-Xylene

CI#: Not applicable.

Synonym: m-Methyltoluene

Chemical Name: 1,3-Dimethylbenzene

Chemical Formula: C₆H₄(CH₃)₂

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{m-}Xylene	108-38-3	100

Toxicological Data on Ingredients: m-Xylene: ORAL (LD50): Acute: 5000 mg/kg [Rat.]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit.].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to blood, kidneys, the nervous system, liver. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 527°C (980.6°F)

Flash Points: CLOSED CUP: 25°C (77°F). OPEN CUP: 28.9°C (84°F) (Cleveland).

Flammable Limits: LOWER: 1.1% UPPER: 7%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid, insoluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents.

Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 100 STEL: 150 (ppm) from ACGIH (TLV) TWA: 434 STEL: 651 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 139.3°C (282.7°F)

Melting Point: -47.87°C (-54.2°F)

Critical Temperature: Not available.

Specific Gravity: 0.86 (Water = 1)

Vapor Pressure: 6 mm of Hg (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.62 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:

Easily soluble in methanol, diethyl ether. Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact.

Toxicity to Animals:

Acute oral toxicity (LD50): 5000 mg/kg [Rat.]. Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit.].

Chronic Effects on Humans: The substance is toxic to blood, kidneys, the nervous system, liver.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

0347 Animal: embryotoxic, foetotoxic, passes through the placental barrier. 0900 Detected in maternal milk in human. Narcotic effect; may cause nervous system disturbances.

Special Remarks on other Toxic Effects on Humans: Material is irritating to mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Xylene : UN1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: m-Xylene Massachusetts RTK: m-Xylene TSCA 8(b) inventory: m-Xylene SARA 313 toxic chemical notification and release reporting: m-Xylene CERCLA: Hazardous substances.: m-Xylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R10- Flammable. R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:

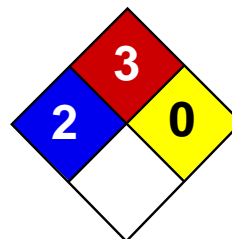
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité internationale. 1986.

Other Special Considerations: Not available.

Created: 10/10/2005 08:33 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet p-Xylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: p-Xylene

Catalog Codes: SLX1120

CAS#: 106-42-3

RTECS: ZE2625000

TSCA: TSCA 8(b) inventory: p-Xylene

CI#: Not applicable.

Synonym: p-Methyltoluene

Chemical Name: 1,4-Dimethylbenzene

Chemical Formula: C₆H₄(CH₃)₂

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{p-}Xylene	106-42-3	100

Toxicological Data on Ingredients: p-Xylene: ORAL (LD50): Acute: 5000 mg/kg [Rat.]. DERMAL (LD50): Acute: 12400 mg/kg [Rabbit.]. VAPOR (LC50): Acute: 4550 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to blood, kidneys, the nervous system, liver. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 527°C (980.6°F)

Flash Points: CLOSED CUP: 25°C (77°F). OPEN CUP: 28.9°C (84°F) (Cleveland).

Flammable Limits: LOWER: 1.1% UPPER: 7%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Toxic flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents.

Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 100 STEL: 150 (ppm) from ACGIH (TLV) TWA: 434 STEL: 651 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Liquid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 138°C (280.4°F)

Melting Point: 12°C (53.6°F)

Critical Temperature: Not available.

Specific Gravity: 0.86 (Water = 1)

Vapor Pressure: 9 mm of Hg (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.62 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility:

Easily soluble in methanol, diethyl ether. Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 5000 mg/kg [Rat.]. Acute dermal toxicity (LD50): 12400 mg/kg [Rabbit.]. Acute toxicity of the vapor (LC50): 4550 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: The substance is toxic to blood, kidneys, the nervous system, liver.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

0347 Animal: embryotoxic, foetotoxic, passes through the placental barrier. 0900 Detected in maternal milk in human. Narcotic effect; may cause nervous system disturbances.

Special Remarks on other Toxic Effects on Humans: Material is irritating to mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Xylene : UN1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Pennsylvania RTK: p-Xylene Florida: p-Xylene Massachusetts RTK: p-Xylene New Jersey: p-Xylene TSCA 8(b) inventory: p-Xylene SARA 313 toxic chemical notification and release reporting: p-Xylene CERCLA: Hazardous substances.: p-Xylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R10- Flammable. R38- Irritating to skin. R41- Risk of serious damage to eyes. R48/20- Harmful: danger of serious damage to health by prolonged exposure through inhalation.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:

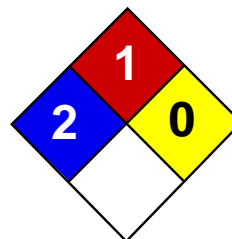
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Other Special Considerations: Not available.

Created: 10/10/2005 08:33 PM

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Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Methylene chloride MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methylene chloride

Catalog Codes: SLM2398, SLM3772, SLM1297, SLM2677, SLM4054

CAS#: 75-09-2

RTECS: PA8050000

TSCA: TSCA 8(b) inventory: Methylene chloride

CI#: Not available.

Synonym: Dichloromethane

Chemical Name: Methylene Chloride

Chemical Formula: C-H₂-Cl₂

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methylene chloride	75-09-2	100

Toxicological Data on Ingredients: Methylene chloride: ORAL (LD50): Acute: 1600 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator). Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

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

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 556°C (1032.8°F)

Flash Points: Not available.

Flammable Limits: LOWER: 12% UPPER: 19%

Products of Combustion: These products are carbon oxides (CO, CO₂), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the workstation location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 50 from ACGIH (TLV) [United States] TWA: 174 from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 84.93g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 39.75°C (103.5°F)

Melting Point: -96.7°C (-142.1°F)

Critical Temperature: Not available.

Specific Gravity: 1.3266 (Water = 1)

Vapor Pressure: 46.5 kPa (@ 20°C)

Vapor Density: 2.93 (Air = 1)

Volatility: Not available.

Odor Threshold: 214 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; $\log(\text{oil/water}) = 0.1$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 1600 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 52000 1 hours [Rat].

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. Causes damage to the following organs: lungs, the nervous system, liver, mucous membranes, central nervous system (CNS).

Other Toxic Effects on Humans: Very hazardous in case of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Dichloromethane UNNA: 1593 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations: California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Methylene chloride California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Methylene chloride Pennsylvania

RTK: Methylene chloride Massachusetts RTK: Methylene chloride TSCA 8(b) inventory: Methylene chloride SARA 313 toxic chemical notification and release reporting: Methylene chloride CERCLA: Hazardous substances.: Methylene chloride

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

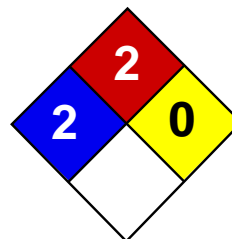
References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 10:43 AM

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Health	2
Fire	2
Reactivity	0
Personal Protection	E

Material Safety Data Sheet Naphthalene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Naphthalene

Catalog Codes: SLN1789, SLN2401

CAS#: 91-20-3

RTECS: QJ0525000

TSCA: TSCA 8(b) inventory: Naphthalene

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: C₁₀H₈

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Naphthalene	91-20-3	100

Toxicological Data on Ingredients: Naphthalene: ORAL (LD50): Acute: 490 mg/kg [Rat]. 533 mg/kg [Mouse]. 1200 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit]. VAPOR (LC50): Acute: 170 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 567°C (1052.6°F)

Flash Points: CLOSED CUP: 88°C (190.4°F). OPEN CUP: 79°C (174.2°F).

Flammable Limits: LOWER: 0.9% UPPER: 5.9%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable solid. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:

Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Israel: TWA: 10 (ppm) STEL: 15 (ppm) from ACGIH (TLV) [1995] TWA: 52 STEL: 79 (mg/m³) from ACGIH [1995]
Australia: STEL: 15 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystalline solid.)

Odor: Aromatic.

Taste: Not available.

Molecular Weight: 128.19 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 218°C (424.4°F)

Melting Point: 80.2°C (176.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.162 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 4.4 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.038 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties:

Partially dispersed in hot water, methanol, n-octanol. Very slightly dispersed in cold water. See solubility in methanol, n-octanol.

Solubility:

Partially soluble in methanol, n-octanol. Very slightly soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Highly reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: May attack some forms of rubber and plastic

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 490 mg/kg [Rat]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 170 ppm 4 hour(s) [Rat].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS).

Other Toxic Effects on Humans:

Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Naphthalene, refined : UN1334 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:

Rhode Island RTK hazardous substances: Naphthalene Pennsylvania RTK: Naphthalene Florida: Naphthalene Minnesota: Naphthalene Massachusetts RTK: Naphthalene TSCA 8(b) inventory: Naphthalene TSCA 8(a) PAIR: Naphthalene TSCA 8(d) H and S data reporting: Naphthalene: 06/01/87 SARA 313 toxic chemical notification and release reporting: Naphthalene: 1% CERCLA: Hazardous substances.: Naphthalene: 100 lbs. (45.36 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-4: Flammable solid. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R36- Irritating to eyes. R40- Possible risks of irreversible effects. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation. R63- Possible risk of harm to the unborn child.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

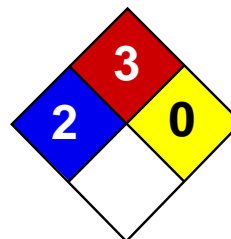
References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet o-Xylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: o-Xylene

Catalog Codes: SLX1012

CAS#: 95-47-6

RTECS: ZE2450000

TSCA: TSCA 8(b) inventory: o-Xylene

CI#: Not applicable.

Synonym: 1,2-Dimethylbenzene

Chemical Name: o-Xylene

Chemical Formula: C₆H₄(CH₃)₂

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{o-}Xylene	95-47-6	100

Toxicological Data on Ingredients: o-Xylene LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.

MUTAGENIC EFFECTS: Not available. **TERATOGENIC EFFECTS:** Classified POSSIBLE for human. **DEVELOPMENTAL**

TOXICITY: Classified Reproductive system/toxin/male [POSSIBLE]. The substance may be toxic to kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 463°C (865.4°F)

Flash Points: CLOSED CUP: 17°C (62.6°F).

Flammable Limits: LOWER: 0.9% UPPER: 6.7%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards:

Vapors are heavier than air and may travel considerable distance to source of ignition and flash back. When heated to decomposition it emits acrid smoke and irritating fumes.

Special Remarks on Explosion Hazards:

Explosive in the form of vapor when exposed to heat or flame. Vapors may form explosive mixtures with air. Containers may explode when heated. Runoff to sewer may create fire or explosion hazard

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Toxic flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 434 STEL: 651 (mg/m³) from ACGIH (TLV) [United States] TWA: 100 STEL: 150 (ppm) from ACGIH (TLV) [United States] STEL: 150 (ppm) from NIOSH STEL: 655 (mg/m³) from NIOSH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Mobile, nonpolar liquid.)

Odor: Aromatic. Sweetish.

Taste: Not available.

Molecular Weight: 106.17 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 144.4°C (291.9°F)

Melting Point: -25°C (-13°F)

Critical Temperature: 359°C (678.2°F)

Specific Gravity: 0.88 (Water = 1)

Vapor Pressure: 0.9 kPa (@ 20°C)

Vapor Density: 3.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.05 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 3.1$

Ionicity (in Water): Not available.

Dispersion Properties:

Dispersed in diethyl ether. Is not dispersed in cold water, hot water. See solubility in diethyl ether, acetone.

Solubility:

Soluble in diethyl ether, acetone. Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, flames, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Photochemically reactive. Incompatible with strong oxidizers(e.g. chlorine, bromine, fluorine), and strong acids (e.g. nitric acid, acetic acid).

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

Lowest Published Lethal Dose - Inhalation (LCL): 6125 ppm 12 hours [Rat]; 6125 ppm 12 hours [Human] Lowest Published Lethal Dose - Oral: 5000 mg/kg [Rat]

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/male [POSSIBLE]. May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (male) and birth defects based on animal data. 0347 Animal: embryotoxic, foetotoxic, passes through the placental barrier. 0900 Detected in maternal milk in human. Narcotic effect; may cause nervous system disturbances.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects Skin: May cause skin irritation. May be absorbed through skin in harmful amounts. Eyes: Causes severe eye irritation. Inhalation: Causes respiratory tract and mucous membranes irritation. May affect sense organs, behavior (Central Nervous system) which may result in dizziness, general weakness, central nervous system depression, confusion, ataxia, disorientation, lethargy, drowsiness, headaches. May also affect respiration, cardiovascular system, liver, blood, and digestive system (nausea, vomiting) Ingestion: Harmful if swallowed. Causes digestive tract irritation with nausea, vomiting

and diarrhea. May also affect metabolism, liver, and urinary system, and central nervous system (excitement followed by headache, dizziness, drowsiness and nausea). Chronic Potential Health Effects: Skin: Prolonged or repeated contact may cause defatting of skin and dermatitis. Eyes: Prolonged or repeated exposure may cause conjunctivitis or permanent eye damage. Inhalation: Chronic inhalation may cause effects similar to those of acute inhalation.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Xylene UNNA: 1307 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: o-Xylene Illinois chemical safety act: o-Xylene New York release reporting list: o-Xylene Pennsylvania RTK: o-Xylene Florida: o-Xylene Massachusetts RTK: o-Xylene Massachusetts spill list: o-Xylene New Jersey: o-Xylene New Jersey spill list: o-Xylene Louisiana spill reporting: o-Xylene California Director's List of Hazardous Substances: o-Xylene TSCA 8(b) inventory: o-Xylene TSCA 8(d) H and S data reporting: o-Xylene: Effective: 10/4/82; Sunset: 10/4/92 SARA 313 toxic chemical notification and release reporting: o-Xylene CERCLA: Hazardous substances.: o-Xylene: 1000 lbs. (453.6 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:

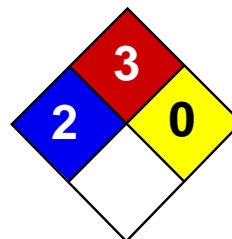
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Material safety data sheet emitted by: la Commission de la Sant  et de la S curit  du Travail du Qu bec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du r glement sur le transport des marchandises dangereuses au canada. Centre de conformit  international Lt e. 1986.

Other Special Considerations: Not available.

Created: 10/11/2005 12:54 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Toluene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Toluene

Catalog Codes: SLT2857, SLT3277

CAS#: 108-88-3

RTECS: XS5250000

TSCA: TSCA 8(b) inventory: Toluene

CI#: Not available.

Synonym: Toluol, Tolu-Sol; Methylbenzene; Methacide; Phenylmethane; Methylbenzol

Chemical Name: Toluene

Chemical Formula: C6-H5-CH3 or C7-H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Toluene	108-88-3	100

Toxicological Data on Ingredients: Toluene: ORAL (LD50): Acute: 636 mg/kg [Rat]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit]. VAPOR (LC50): Acute: 49000 mg/m 4 hours [Rat]. 440 ppm 24 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, the nervous system, liver, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: CLOSED CUP: 4.4444°C (40°F). (Setaflash) OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 1.1% UPPER: 7.1%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:

Toluene forms explosive reaction with 1,3-dichloro-5,5-dimethyl-2,4-imidazolidione; dinitrogen tetroxide; concentrated nitric acid, sulfuric acid + nitric acid; N₂O₄; AgClO₄; BrF₃; Uranium hexafluoride; sulfur dichloride. Also forms an explosive mixture with tetranitromethane.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Toxic flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage**Precautions:**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 200 STEL: 500 CEIL: 300 (ppm) from OSHA (PEL) [United States] TWA: 50 (ppm) from ACGIH (TLV) [United States] SKIN TWA: 100 STEL: 150 from NIOSH [United States] TWA: 375 STEL: 560 (mg/m³) from NIOSH [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweet, pungent, Benzene-like.

Taste: Not available.

Molecular Weight: 92.14 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 110.6°C (231.1°F)

Melting Point: -95°C (-139°F)

Critical Temperature: 318.6°C (605.5°F)

Specific Gravity: 0.8636 (Water = 1)

Vapor Pressure: 3.8 kPa (@ 25°C)

Vapor Density: 3.1 (Air = 1)

Volatility: Not available.

Odor Threshold: 1.6 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 2.7$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:

Soluble in diethyl ether, acetone. Practically insoluble in cold water. Soluble in ethanol, benzene, chloroform, glacial acetic acid, carbon disulfide. Solubility in water: 0.561 g/l @ 25 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks, static), incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Incompatible with strong oxidizers, silver perchlorate, sodium difluoride, Tetranitromethane, Uranium Hexafluoride. Frozen Bromine Trifluoride reacts violently with Toluene at -80 deg. C. Reacts chemically with nitrogen oxides, or halogens to form nitrotoluene, nitrobenzene, and nitrophenol and halogenated products, respectively.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 636 mg/kg [Rat]. Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 440 24 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. May cause damage to the following organs: blood, kidneys, the nervous system, liver, brain, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose: LDL [Human] - Route: Oral; Dose: 50 mg/kg LCL [Rabbit] - Route: Inhalation; Dose: 55000 ppm/40min

Special Remarks on Chronic Effects on Humans:

Detected in maternal milk in human. Passes through the placental barrier in human. Embryotoxic and/or foetotoxic in animal. May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes mild to moderate skin irritation. It can be absorbed to some extent through the skin. Eyes: Causes mild to moderate eye irritation with a burning sensation. Splash contact with eyes also causes conjunctivitis, blepharospasm, corneal edema, corneal abrasions. This usually resolves in 2 days. Inhalation: Inhalation of vapor may cause respiratory tract irritation causing coughing and wheezing, and nasal discharge. Inhalation of high concentrations may affect behavior and cause central nervous system effects characterized by nausea, headache, dizziness, tremors, restlessness, lightheadedness, exhilaration, memory loss, insomnia, impaired reaction time, drowsiness, ataxia, hallucinations, somnolence, muscle contraction or spasticity, unconsciousness and coma. Inhalation of high concentration of vapor may also affect the cardiovascular system (rapid heart beat, heart palpitations, increased or decreased blood pressure, dysrhythmia,), respiration (acute pulmonary edema, respiratory depression, apnea, asphyxia), cause vision disturbances and dilated pupils, and cause loss of appetite. Ingestion: Aspiration hazard. Aspiration of Toluene into the lungs may cause chemical pneumonitis. May cause irritation of the digestive tract with nausea, vomiting, pain. May have effects similar to that of acute inhalation. Chronic Potential Health Effects: Inhalation and Ingestion: Prolonged or repeated exposure via inhalation may cause central nervous system and cardiovascular symptoms similar to that of acute inhalation and ingestion as well liver damage/failure, kidney damage/failure (with hematuria, proteinuria, oliguria, renal tubular acidosis), brain damage, weight loss, blood (pigmented or nucleated red blood cells, changes in white blood cell count), bone marrow changes, electrolyte imbalances (Hypokalemia, Hypophosphatemia), severe, muscle weakness and Rhabdomyolysis. Skin: Repeated or prolonged skin contact may cause defatting dermatitis.

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 313 mg/l 48 hours [Daphnia (daphnia)]. 17 mg/l 24 hours [Fish (Blue Gill)]. 13 mg/l 96 hours [Fish (Blue Gill)]. 56 mg/l 24 hours [Fish (Fathead minnow)]. 34 mg/l 96 hours [Fish (Fathead minnow)]. 56.8 ppm any hours [Fish (Goldfish)].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Toluene UNNA: 1294 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Toluene California prop. 65 (no significant risk level): Toluene: 7 mg/day (value) California prop. 65 (acceptable daily intake level): Toluene: 7 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Toluene Connecticut hazardous material survey.: Toluene Illinois

toxic substances disclosure to employee act: Toluene Illinois chemical safety act: Toluene New York release reporting list: Toluene Rhode Island RTK hazardous substances: Toluene Pennsylvania RTK: Toluene Florida: Toluene Minnesota: Toluene Michigan critical material: Toluene Massachusetts RTK: Toluene Massachusetts spill list: Toluene New Jersey: Toluene New Jersey spill list: Toluene Louisiana spill reporting: Toluene California Director's List of Hazardous Substances.: Toluene TSCA 8(b) inventory: Toluene TSCA 8(d) H and S data reporting: Toluene: Effective date: 10/04/82; Sunset Date: 10/0/92 SARA 313 toxic chemical notification and release reporting: Toluene CERCLA: Hazardous substances.: Toluene: 1000 lbs. (453.6 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R11- Highly flammable. R20- Harmful by inhalation. S16- Keep away from sources of ignition - No smoking. S25- Avoid contact with eyes. S29- Do not empty into drains. S33- Take precautionary measures against static discharges.

HMS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

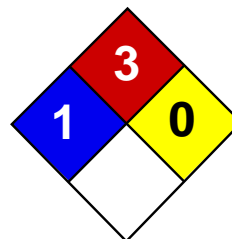
References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:30 PM

Last Updated: 05/21/2013 12:00 PM

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Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Acetone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetone

Catalog Codes: SLA3502, SLA1645, SLA3151, SLA3808

CAS#: 67-64-1

RTECS: AL3150000

TSCA: TSCA 8(b) inventory: Acetone

CI#: Not applicable.

Synonym: 2-propanone; Dimethyl Ketone; Dimethylformaldehyde; Pyroacetic Acid

Chemical Name: Acetone

Chemical Formula: C₃H₆O

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetone	67-64-1	100

Toxicological Data on Ingredients: Acetone: ORAL (LD50): Acute: 5800 mg/kg [Rat]. 3000 mg/kg [Mouse]. 5340 mg/kg [Rabbit]. VAPOR (LC50): Acute: 50100 mg/m 8 hours [Rat]. 44000 mg/m 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. The substance is toxic to central nervous system (CNS). The substance may be toxic to kidneys, the reproductive system, liver, skin. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 465°C (869°F)

Flash Points: CLOSED CUP: -20°C (-4°F). OPEN CUP: -9°C (15.8°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.8%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:

Forms explosive mixtures with hydrogen peroxide, acetic acid, nitric acid, nitric acid + sulfuric acid, chromic anhydride, chromyl chloride, nitrosyl chloride, hexachloromelamine, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, thiodiglycol + hydrogen peroxide, potassium ter-butoxide, sulfur dichloride, 1-methyl-1,3-butadiene, bromoform, carbon, air, chloroform, thitriazylperchlorate.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage**Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.

Storage:

Store in a segregated and approved area (flammables area) . Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Keep away from direct sunlight and heat and avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 500 STEL: 750 (ppm) from ACGIH (TLV) [United States] TWA: 750 STEL: 1000 (ppm) from OSHA (PEL) [United States] TWA: 500 STEL: 1000 [Australia] TWA: 1185 STEL: 2375 (mg/m3) [Australia] TWA: 750 STEL: 1500 (ppm) [United Kingdom (UK)] TWA: 1810 STEL: 3620 (mg/m3) [United Kingdom (UK)] TWA: 1800 STEL: 2400 from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Fruity. Mint-like. Fragrant. Ethereal

Taste: Pungent, Sweetish

Molecular Weight: 58.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 56.2°C (133.2°F)

Melting Point: -95.35 (-139.6°F)

Critical Temperature: 235°C (455°F)

Specific Gravity: 0.79 (Water = 1)

Vapor Pressure: 24 kPa (@ 20°C)

Vapor Density: 2 (Air = 1)

Volatility: Not available.

Odor Threshold: 62 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; $\log(\text{oil/water}) = -0.2$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, exposure to moisture, air, or water, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3000 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 44000 mg/m³ 4 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. Causes damage to the following organs: central nervous system (CNS). May cause damage to the following organs: kidneys, the reproductive system, liver, skin.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May affect genetic material (mutagenicity) based on studies with yeast (*S. cerevisiae*), bacteria, and hamster fibroblast cells. May cause reproductive effects (fertility) based upon animal studies. May contain trace amounts of benzene and formaldehyde which may cancer and birth defects. Human: passes the placental barrier.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: May cause skin irritation. May be harmful if absorbed through the skin. Eyes: Causes eye irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Inhalation: Inhalation at high concentrations affects the sense organs, brain and causes respiratory tract irritation. It also may affect the Central Nervous System (behavior) characterized by dizziness, drowsiness, confusion, headache, muscle weakness, and possibly motor incoordination, speech abnormalities, narcotic effects and coma. Inhalation may also affect the gastrointestinal tract (nausea, vomiting). Ingestion: May cause irritation of the digestive (gastrointestinal) tract (nausea, vomiting). It may also

affect the Central Nervous System (behavior), characterized by depression, fatigue, excitement, stupor, coma, headache, altered sleep time, ataxia, tremors as well as the blood, liver, and urinary system (kidney, bladder, ureter) and endocrine system. May also have musculoskeletal effects. Chronic Potential Health Effects: Skin: May cause dermatitis. Eyes: Eye irritation.

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 5540 mg/l 96 hours [Trout]. 8300 mg/l 96 hours [Bluegill]. 7500 mg/l 96 hours [Fathead Minnow]. 0.1 ppm any hours [Water flea].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetone UNNA: 1090 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene, Formaldehyde Connecticut hazardous material survey.: Acetone Illinois toxic substances disclosure to employee act: Acetone Illinois chemical safety act: Acetone New York release reporting list: Acetone Rhode Island RTK hazardous substances: Acetone Pennsylvania RTK: Acetone Florida: Acetone Minnesota: Acetone Massachusetts RTK: Acetone Massachusetts spill list: Acetone New Jersey: Acetone New Jersey spill list: Acetone Louisiana spill reporting: Acetone California List of Hazardous Substances (8 CCR 339): Acetone TSCA 8(b) inventory: Acetone TSCA 4(a) final test rules: Acetone TSCA 8(a) IUR: Acetone

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R11- Highly flammable. R36- Irritating to eyes. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information**References:**

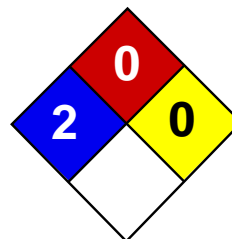
-Material safety data sheet issued by: la Commission de la Santé et de la Sécurité du Travail du Québec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, RTECS, HSDB databases. Other MSDSs

Other Special Considerations: Not available.

Created: 10/10/2005 08:13 PM

Last Updated: 05/21/2013 12:00 PM

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Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolve; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C₂-Cl₄

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. **MUTAGENIC EFFECTS:** Mutagenic for bacteria and/or yeast. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:

Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium, barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symptoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorientation, seizures, emotional instability, stupor, coma). It may cause pulmonary edema. Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver (hepatitis, fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/central nervous system/peripheral nervous system (impaired memory, numbness of extremities, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fathead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

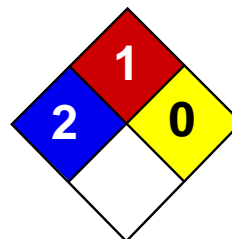
References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:29 PM

Last Updated: 05/21/2013 12:00 PM

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 ScienceLab.com 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 ScienceLab.com has been advised of the possibility of such damages.



Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Trichloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trichloroethylene

Catalog Codes: SLT3310, SLT2590

CAS#: 79-01-6

RTECS: KX4560000

TSCA: TSCA 8(b) inventory: Trichloroethylene

CI#: Not available.

Synonym:

Chemical Formula: C₂HCl₃

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

Toxicological Data on Ingredients: Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.

MUTAGENIC EFFECTS: Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 420°C (788°F)

Flash Points: Not available.

Flammable Limits: LOWER: 8% UPPER: 10.5%

Products of Combustion: These products are carbon oxides (CO, CO₂), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m³) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 131.39 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 86.7°C (188.1°F)

Melting Point: -87.1°C (-124.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.4649 (Water = 1)

Vapor Pressure: 58 mm of Hg (@ 20°C)

Vapor Density: 4.53 (Air = 1)

Volatility: Not available.

Odor Threshold: 20 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:

Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity:

Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in human. Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Trichloroethylene : UN1710 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R36/38- Irritating to eyes and skin. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:54 PM

Last Updated: 05/21/2013 12:00 PM

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APPENDIX C
HISTORICAL DOCUMENTATION



E-465

CITY PLANNING COMMISSION
CITY OF NEW YORK

OFFICE OF THE CHAIRMAN

August 20, 2018

REVISED NEGATIVE DECLARATION
Supersedes the Negative Declaration issued on February 9, 2018*

Project Identification

CEQR No. 18DCP061K
ULURP Nos. C 180148ZMK, N 180149ZRK
SEQRA Classification: Unlisted

Lead Agency

City Planning Commission
120 Broadway, 31st Floor
New York, NY 10271
Contact: Robert Dobruskin
(212) 720-3423

Name, Description and Location of Proposal:

1601 DeKalb Avenue Rezoning

The Applicant, 1601 DeKalb Owner, LLC, is seeking a zoning map amendment to rezone R6 and M1-1 zoning districts to R6B, R6A, and R7A districts, and a zoning text amendment (the "Proposed Actions") to Appendix F of the New York City Zoning Resolution ("ZR") to establish a Mandatory Inclusionary Housing ("MIH") area mapped over a portion of the rezoning area. The Proposed Actions would affect a portion of Brooklyn Block 3237, Lots 23, 27, 41, 47, and 48 (the "Proposed Rezoning Area,") bounded by DeKalb Avenue to the east, Wyckoff Avenue to the north, Hart Street to the west, and Irving Avenue to the south in the Bushwick neighborhood of Brooklyn, Community District 4. The Proposed Actions would facilitate a proposal by the Applicant to redevelop an existing public parking lot located at 1601 DeKalb Avenue (Block 3237, Lots 23, 47, and 48, the "Proposed Development Site") with two nine-story residential buildings totaling approximately 125,252 gross square feet ("gsf").

To avoid the potential for significant adverse impacts related to air quality, noise, and hazardous materials, an (E) designation (E-465) has been incorporated into the Proposed Actions, as described

Marisa Lago, *Chair*
120 Broadway 31st Floor, New York, N.Y. 10271
(212) 720-3200 FAX (212) 720-3219
<http://www.nyc.gov/planning>

*Since Certification of the application on February 12, 2018, the City Council has modified the application. Lots 31, 33, and 38 were effectively removed from the proposed rezoning area; Lots 27 and 41, originally proposed to be mapped with an R7A district, were modified to be mapped with an R6A district; and MIH Option 2 was removed and the MIH "Deep Affordability" Option, together with MIH Option 1, were applied to the sites remaining in the proposal. As described in the supporting statement of this document, the Revised EAS concludes that the Proposed Actions would not result in significant adverse impacts to any impact categories and would not materially alter the conclusions of the February 9, 2018 EAS, with the exception of the removal of (E) Designation requirements for Block 3237, Lot 31.

below. The (E) designation requirements would apply to the following development sites:

**Block 3237, Lots 23, 47, and 48 (Proposed Development Site 1); and
Block 3237, Lot 41 (Projected Development Site 3)**

The (E) designation text related to air quality is as follows:

Block 3237, Lots 23, 47, and 48 (Proposed Development Site 1)

Any new development or enlargement on the above-referenced property must use natural gas as the type of fuel for heating, ventilating, and air conditioning (HVAC) and ensure that the HVAC stack is located at least 51 feet from Wyckoff Avenue, at least 161 feet from the lot line facing DeKalb Avenue, and at least 92.6 feet above the grade to avoid any potential significant adverse air quality impacts.

Block 3237, Lot 41 (Projected Development Site 3)

Any new residential and/or commercial development on the above-referenced property must exclusively use natural gas as the type of fuel for heating, ventilating, and air conditioning (HVAC) and hot water systems and ensure the HVAC stack is located at least 98 feet above grade to avoid potential significant adverse air quality impacts.

The (E) designation text related to noise is as follows:

Block 3237, Lot 23, 47 and 48 (Proposed Development Site 1)

To ensure an acceptable interior noise environment, future residential uses must provide a closed window condition with a minimum of 28 dBA window/wall attenuation on façades facing east (DeKalb Avenue) to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

Block 3237, Lot 41 (Projected Development Site 3)

To ensure an acceptable interior noise environment, future residential uses must provide a closed window condition with a minimum of 28 dBA window/wall attenuation on façades facing east (DeKalb Avenue) to maintain an interior noise level of 45 dBA. To maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning.

The (E) designation text related to hazardous materials is as follows:

Task 1: Sampling Protocol

Prior to construction, the applicant must submit to the New York City Mayor's office of Environmental Remediation (OER), for review and approval, a Phase II Investigation protocol, including a description of the methods and a site map with all sampling location

clearly and precisely represented.

No sampling should begin until written approval of a protocol is received by OER. The number and location of sample sites should be selected to adequately characterize the site, the specific source of suspected contamination (i.e., petroleum based contamination and non-petroleum based contamination), and the remainder of the site's condition. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of the sampling data. Guidelines and criteria for selecting sampling location and collecting samples are provide by OER upon request.

Task 2: Remediation Determination and Protocol

A written report with findings and a summary of the data must be submitted to OER after completion of the testing phase and laboratory analysis for review and approval. After receiving such results, a determination is made by OER if the results indicate that remediation is necessary. If OER determines that no remediation is necessary, written notice shall be given by OER.

If remediation is indicated from the test results, a proposed remediation plan must be submitted to OER for review and approval. The applicant must complete such remediation as determined necessary by OER. The applicant should then provide proper documentation that the work has been satisfactorily completed.

An OER-approved construction-related health and safety plan would be implemented during evacuation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil and/or groundwater. This plan would be submitted to OER for review and approval prior to implementation.

Statement of No Significant Effect:

The Environmental Assessment and Review Divison of the Department of City Planning, on behalf of the City Planning Commission, has completed its technical review of the Environmental Assessment Statement, dated February 9, 2018, and the Revised Environmental Assessment Statement, dated August 17, 2018 prepared in coordination with the ULURP Application (Nos. C 180148 ZMK, N180419 ZRK). The City Planning Commission has determined that the proposed action will have no significant effect on the quality of the environment.

Supporting Statement:

The above determination is based on an environmental assessment which finds that:

1. The Proposed Actions would result in changes to land use within the primary study area. Where manufacturing and commercial uses are now permitted, the Proposed Actions would

introduce residential uses that would not be permitted in the proposed Rezoning Area in the future without the Proposed Actions. However, the EAS concludes residential uses would be consistent with the residential uses adjacent to the Applicant's Proposed Development Site as well as within the rest of the primary and secondary study areas.

2. The EAS includes a detailed analysis that considers the Proposed Actions' effects on open space, since the area affected by the Proposed Actions is located within an underserved open space area, defined in the 2014 CEQR Technical Manual as areas of high population density in the City that are generally the greatest distance from parkland where the amount of open space per 1,000 residents is currently less than 2.5 acres. The existing open space ratio is 0.95 acres of open space per 1,000 residents, below this threshold. The detailed analysis concludes that the useability of nearby open space resources would not be significantly impacted as a result of the Proposed Actions and significant adverse impacts related to open space are not foreseeable in the future with the Proposed Actions.
3. Since the proposal was Certified on February 12, 2018, the Proposed Actions have been modified by the City Council during public review. As discussed in the Revised EAS dated August 17, 2018 to account for the City Council Modifications, the changes to the Proposed Actions are not expected to result in any significant adverse environmental impacts. This is consistent with the conclusions of the original EAS.
4. The (E) designation (E-465) would ensure that the proposed actions would not result in significant adverse impacts related to air quality, noise, and hazardous materials.
5. No other significant effects on the environment which would require an Environmental Impact Statement are foreseeable.

This Negative Declaration has been prepared in accordance with Article 8 of the Environmental Conservation Law 6NYCRR part 617.

Should you have any questions pertaining to this Negative Declaration, you may contact Anthony Howard at (212) 720-3422.



Olga Abinader, Deputy Director
Environmental Assessment & Review Division
Department of City Planning

Date: August 17, 2018



Marisa Lago, Chair
City Planning Commission

Date: August 20, 2018



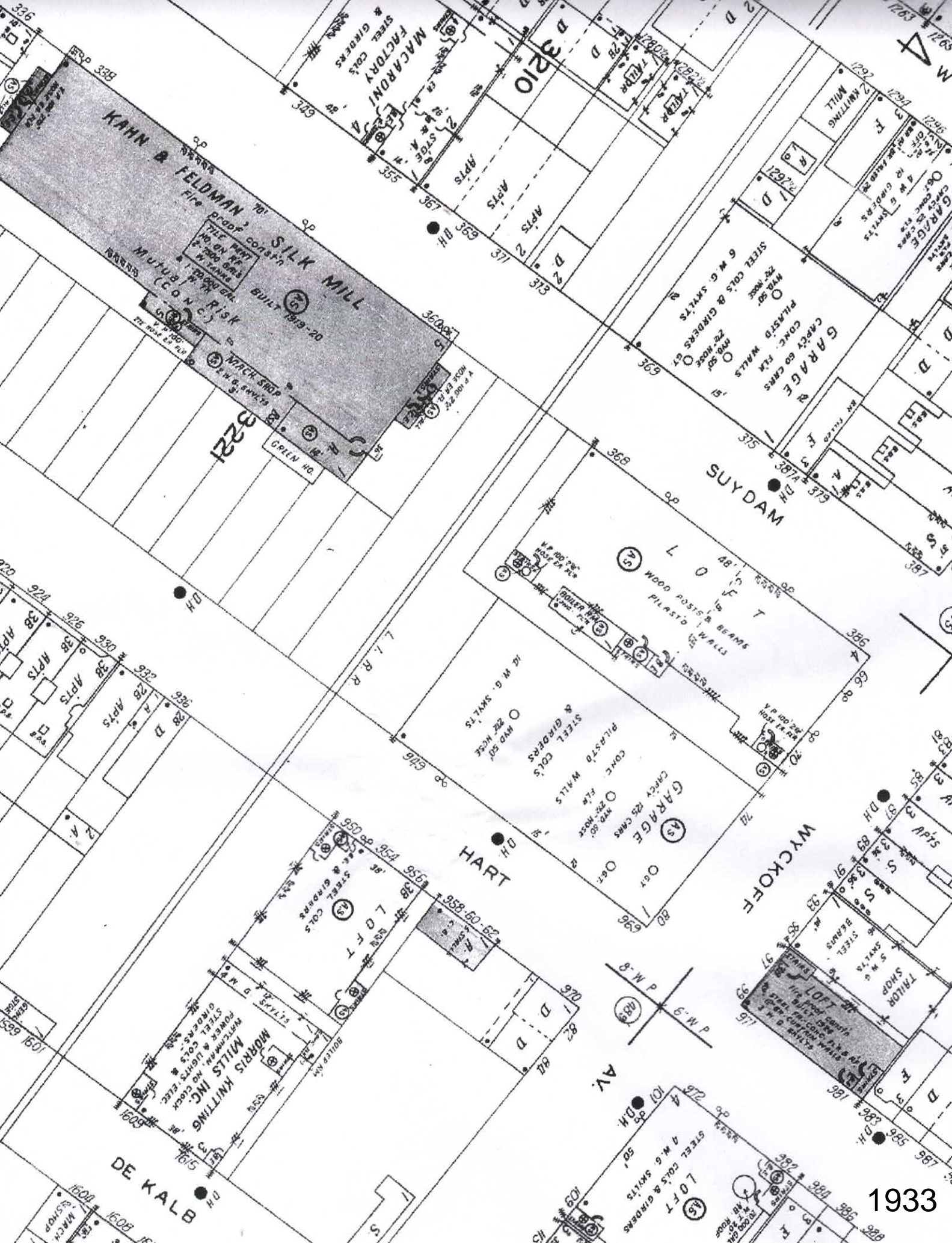
1977



1968







KAHN & FELDMAN
Fire
properly con-
structed
BUILT 1919-20
MUTUAL FIRE
(C O N C.)
MACK SHOP
GREEN HO.

SILK MILL
BUILT 1919-20

SUYDAM

HART

WYCKOFF

DE KALB

MORRIS KNITTING MILLS INC.
POWER & LIGHTS NO CLOCK
STEEL COLS & GIRDERS

1933

enter name and hit return

Find in Page

1928 DAVISON'S SILK TRADE--THE SILK GUIDE

Thirty-Third Edition

(A Directory & Technical Compendium of the Silk Industry of the United States & Canada).

BROOKLYN--KINGS COUNTY LIST (New York)

MANUFACTURERS

(1) A. & L. Knitting Mills.

1 Chester St. Atotsky & Salefski, Props. Braids, Sweaters & Novelties.
16 Ktg., 6 Raschel, 8 Sew. Mchs. 1 Brusher. Buy Wd. & Art.Silk.

(2) Abramson Mills

372 Thatford Ave. Est. 1923. B. Abramson, Prop.; J.Abramson, Buyer.
Fibre Silk Knitted Neckties. 11 Ktg., 10 Sew. Mchs. 2 Boilers. Buy C. & Fibre Silk Yarn.

(3) Acoma Textile Mills, Inc.

113 Ingraham St. Inc. 1920. Cap. \$75,000. F. P. Sieber, Pres., Treas. & Buyer;
Hans Einkenel, Sec. Knitted Jersey Cloth, Neckties, Mufflers, Shawls & Sweaters.
32 Ktg., 15 Sew. Mchs. Employ 80. Buy Wd., Z. & Rayon Yarn.

(4) Alper, N.

963 Myrtle Ave. Ladies' Sweater Coats. 20 Ktg., 10 Sew. Mchs. Buy Wd. & Rayon Yarn.

(5) Alpha Knitting Mills, Inc.

220 Varet St. Inc. 1924. Cap. \$125,000. Nathan Spitzer,
Pres., Sec. & Buyer. Art. Silk & Rayon Knitted Cloth.

(6) American Rayon Products Corp.

Banner Mill. Grandview Ave. & Ralph St. H.A. Leander,
V.-Pres. & Treas.; T. K. Finletter, Sec. Silk & Wool Jersey Cloths, 280
Ktg. Mchs. 150 Winders. Dye. Bleach. Finish. 3 Boilers. Electric. Employ 300. Buy
Pure, Art. Silk & W. Yarn. (Also Union City & West New York, N.J.)

(7) Arcadia Knitting Mills.

473 Kent Ave. Inc. 1919. Isidor Reinhard, Pres. & Buyer;
David Reinhard. Sec. Knitted Rayon Underwear Cloth. 400 Ktg. Mchs. 250
Winders. Dye. 2 Boilers. Electric. Employ. 250. Buy 150 Viscose Yarn. (Also Allentown, Pa.)

(8) Argus Knitting Mills.

57 Hope St. Gold Bros., Props. Scarfs & Jersey Cloth. 100
Ktg., 70 Wind. Mchs. Buy Rayon & Wd. Yarn. (Also Lebanon, Pa.)

(9) Argyle Knitting Mills

142 Stockholme St. Sweater Coats & Novelties. 9 Ktg. 12 Sew. Mchs. Buy Wd., Zephyr & Rayon Yarn.

(10) Assembly Knitting Mills

41 Varick Ave. S. A. Levinsky, Prop. Ladies' & Misses'
Sweater Coats & Novelties. 30 Ktg., 22 Sew. Mchs. Buy Wd., Z. & Rayon Yarn.

(11) Astor Knitwear Co., Inc.

109 Ingraham St., Inc. 1924. David Lubasch, Pres.; A. H. Korris, Sec. & Treas.
Sweaters & Novelties. 92 Ktg., 62 Sew. Mchs. Buy Wd., Z. & Art. Silk Yarn.

(12) Barth, Louis

515 Woodward Ave. Sweaters, Novelties, Golf Hose, Flat & Links & Links Knit Goods,
22 Ktg., 12 Sew. Mchs. 1 Winder. Buy Wd., Heathers, Twists & Rayon Yarn.

(13) Barthels Mfg. Co.

(Glendale, L.I.) Cap. \$500,000. Silk, Art. Silk &
Merc. Cotton Shoe & Corset Laces, Braids, etc. Buy Merc. Yarn, Japan & Art. Silk.

(14) Bedford Knitting Mills

347 Lorimer St. S. & M. Goldenstein, Props. Ladies', Misses' & Infants' Sweater
Coats & Novelties. 35 Ktg., 15 Sew. Mchs. Buy Wd., Art Silk & Z. Yarn.

(15) Berman Bros. Mills, Inc.

70 Wyckoff Ave. Inc. 1921. Cap. \$30,000. Israel Berman, Pres. & Buyer;
Michael Berman, Sec. & Treas. Sweaters, Novelties, Ties & Bathing Suits.
98 Ktg., 30 Sew. Mchs. 8 Winders. Buy C., Wd. & Rayon Yarns.

(16) Bethlehem Knitting Mills

294 Graham Ave. Benj. & A.M. Friedl&er, Props. Sweater
Coats, Jersey Cloth, Ties & Mufflers. 150 Ktg. 42 Sew. Mchs. 35 Winders.

Finish. 3 Boilers, Electric. Employ 200. Buy Rayon & Wd. Yarn.

(17) Bo Sho Mills, Inc.

352 Classon Ave. Inc. 1914. J.R. Boepple, Pres. Sweater
Coats & Juvenile Angora Sets. 50 Ktg., 35 Sew. Mchs. Buy Silk Yarn.

(18) Brooklyn Hosiery Mills, Inc.

35 Broadway, Inc. 1920. Harry Lewis, Pres. & Treas.; B.Lewis, V.-Pres. & Sec.;
Ladies' Silk Hosiery. 76 Ktg., 12 Sew. Mchs. 5 Winders. Buy C. Yarn & Pure Silks.

(19) Buschner, A., Co.

1253 Nostr& Ave. Fringes, Cords & Tassels, 4 Ktg.
Mchs. 8 Narrow Looms. 36 Braiders. Electric. Buy Yarn, Sell Direct.

(20) C. & C. Knitting Mills

66 Whipple St. M. Cohen, Prop. & Buyer. Sweater Coats & Novelties, 14 Ktg.,
8 Sew. Mchs. 1 Winder. 1 Braider. Finish. Electric. Buy Art. Silk.

(21) Canadian Knitting Mills.

86 Meserole St. Isidore Kaplan, Prop. Silk Jersey Cloth.
20 Ktg. Mchs. 18 Winders. Electric. Buy Art. Silk Yarn.

(22) Canton Knitting Mills

47 Watkins St. Est. 1920. B. Weintraub, Prop. Sweater
Coats & Novelties, 15 Ktg. 18 Sew. Mchs. 1 Winder. Buy Wd. & Art. Silk Yarn.

(23) Capitol Knitting Mills

6 Varet St. L. Braverman, Prop. Ladies', Children's & Misses' Sweaters & Novelties
25 Ktg., 10 Sew. Mchs. Electric. Buy Wd. & Rayon Yarn.

(24) Castle Braid Co.

116 Troutman St. Henry W. Schloss, Pres. & Buyer; Wm. H.
Schloss, Treas. & Supt.; Alfred H. Schloss, Sec. Silk Briads, Lacings &
Trimmings. Finish 2 Boilers. Electric. Employ 450. Salesrooms, 328 Fourth
Ave., N.Y.; 49 Geary St., San Francisco; 708 S. Los Angeles St., Los
Angeles; Corbett Bldg., Portl&, Ore.; 35 S. Dearborn St., Chicago.

(25) Charles Knitting Mills

232 Throop Ave. Chas. C. Eisenstein, Prop. Sweaters & Novelties. 2 Winders.
8 Ktg., 9 Sew. Mchs. Buy Wd., Mohair & Rayon Yarn.

(26) Classon Knitting Mills

216 Taaffe Pl. Inc. 1921. Cap. \$5,000. Harry Schwartz, Pres. & Buyer;
Anne Rosenbaum, Sec. & Treas. Neckties, Mufflers & Ladies Underwear. 14 Ktg.,
6 Sew., 2 Crochet Mchs. 4 Winders. Buy Silk & Art. Silk Yarn.

(27) Clifton Knitting Mills

Jefferson & Stanwix Sts. Inc. 1920. Cap. \$50,000.
Mitchell Wofsy, Pres. & Buyer; Louis Pearl, Sec. & Treas. Rayon Cloth
for Ladies' Underwear. 25 Winders. 60 Ktg. Mchs. Electric. Buy Rayon Yarn.

(28) Continental Knitting Mills

587 Hendrix St. H. Lewis, S. Paretzky, Props. Rayon Knitted Cloth. Buy Rayon.

(29) Crescent Knitting Mills

97 Wyckoff Ave. Lippman & Vursky, Props. Ladies', Misses',
Men's & Boys' Novelties & Sweater Coats. 1 Winder. 16 Ktg., 10
Sew. Mchs. Electric. Buy Wd., Mohair & Fibre Silk Yarn.

(30) Crotex Knitting Mills, Inc.

678 Hart St., Inc. 1925. M. Natter, Pres. & Treas. Crochet
Knitted Ties. 3 Ktg., 5 Sew. Mchs. Buy Pure Silk & Rayon Yarn.

(31) David Company

134 Suydam St. Braids, Trimmings & Shoe Laces. 60 Braiders.
Electric. Buy C., Pure & Art. Silk.

(32) Davis Knitting Mills

225 Powell St. Louis Davis, Prop. Sweaters, Golf Hose & Novelties. 25 Ktg.,
11 Sew., 2 Braiding Mchs. 1 Winder. Electric. Employ 30. Buy Wd. & Silk Yarn.

(33) Diana Underwear Mills, Inc.

1660 E. New York Ave. M. Rottenberg, Pres.; H. Kallman,
Sec. & Treas. Rayon Knitted Cloth & Ladies' Rayon Underwear. 75 Ktg., 100 Sew. Mchs.

(34) Dorfman, Meyer

226 Bedford Ave. Est. 1910. Novelty Knitted Outerwear. 14 Winders. 12 Warpings.
28 Ktg., 60 Sew. Mchs. Finish. Electric. Employ 150. Buy Wd. & Art. Silk Yarn.

(35) Duchon Knitwear Mills

2402 Atlantic Ave. Est. 1924. Chas. Duchon, Prop. Knitted

Neckties, Sweater Coats & Novelties. 30 Circular, 15 Raschel Ktg., 30 Sew. Mchs. 5 Warpings. 10 Winders. 2 Coners. 2 Boilers. Electric. Employ 75. Buy Wd. & Art. Silk Yarn.

(36) Echo Knitting Mills

123 Smith St. John Troynar, Sec. & Treas. Knit Fabrics, Ladies' Suits, Dresses, Sweaters & Novelties. 16 Ktg., 5 Sew. Mchs. 2 Winders. Buy Wd. & Rayon Yarn.

(37) Einstein Mfg. Co.

387 Leonard St. Inc. 1908. Cap. \$50,000. M. Einstein, Pres. Shoe Bindings, Laces, Winding, Warping & Ribbons. 50 Looms.

(38) Elgin Knitting Mills, Inc.

109 Ingraham St. Inc. 1920. Cap. \$40,000. L. Finkelstein, Pres. & Supt.; J. Finkelstein, Sec.; D. Rubinstein, Treas. Knitted Suits, Dresses, Sweaters & Scarfs. 76 Ktg., 50 Sew. Mchs. 22 Winders. 2 Boilers. Electric. Employ 125. Buy 40-22, 3, 6-3 Twist, 150, 300 Den. Art. Silk.

(39) Elmo Knitting Mills

1182 Flushing Ave. Morris & Ellis, Props. Raschel & Jacquard Worsted Sweater Coats & Novelties. 35 Ktg., 20 Sew. Mchs. Buy Wd. & Rayon Yarn.

(40) Elton Knitting Mills

1423 East New York Ave., H.M. Tetervin, Prop. Ladies' Novelties, Men's & Children's Golf Hose & Sets. 23 Ktg., 14 Sew. Mchs. 1 Winder. Electric. Buy Wd. & Art. Silk Yarn.

(41) Empire Knitting Works, Inc.

8-10 Varet St. Sweater Coats, Brushed Goods & Novelties. 8 Raschelle, 18 Sew. Mchs. 2 Winders. 3 Warpings. Electric. Employ 30. Buy Wd. & Art. Silk Yarn.

(42) Epstein & Hammer

Office, 1144 Halsey St. Mill, 1694 Gates Ave. Inc. 1924. Epstein, Pres.; G. Hammer, Treas. Infants' Sweaters. 25 Ktg., 9 Sew. Mchs. 2 Winders. Buy Wd. & Fibre Silk Yarn.

(43) Eureka Knitting Mills

1004 Fresh Pond Rd. M. Fischer, Prop. Sweaters. 16 Ktg., 10 Sew. Mchs. 3 Winders. Electric. Buy Wd., Pure & Art. Silk Yarn.

(44) Fashion Art Knitting Mills.

313 Van Sinderen Ave. Grundfest & Isaacson, Props. Sweaters & Novelty Jacquard Golf Sets & Hose. 19 Ktg., 8 Sew. Mchs. 1 Brusher. Electric. Buy Wd., Z. & Art. Silk.

(45) Federal Silk Hosiery Works, Inc.

34 34th St. Inc. 1921. Boris Aronowitch, Pres.; Ira Zuckerman, Treas. & Buyer. Seamless & Full Fashioned Silk & Art. Silk Hosiery. 121 Ktg., 9 Sew. Mchs. 5 Winders. Finish. Electric. Employ 70. Buy Silk, Rayon & C. Yarn.

(46) Fisch, Samuel, & Co.

47 Watkins St. Links & Links Flat & H&M-Made Sweater Coats, Novelties & Golf Sets. 42 Ktg., 12 Sew. Mchs. Buy W., Wd., Z. & Silk Yarn.

(47) Fromm, S.

93 Underhill Ave. Sweaters, Golf Vests, Braids, Elastic Goods, Jersey Cloth, Mufflers, etc. 90 Ktg., 25 Sew. Mchs. Buy Wd. & Art. Silk Yarn.

(48) Glenbrook Sportwear, Inc.

3051 Myrtle Ave. (Glendale.) Inc. 1927. Mr. Reece, Pres.; Mr. Grabinsky, Sec. & Treas. Ladies' Sweater Coats & Novelties. 12 Ktg., 9 Sew. Mchs. Buy Wd., Z. & Rayon Yarn.

(49) Glendale Ribbon Mills, Inc.

Woodhaven Ave. (Glendale.) Inc. 1923. Edw. M. Kahn, Pres.; E. Marienhoff (N.Y.) Treas.; Raymond L. Taft, Supt. Narrow Ribbons. 240 Looms. 15 Warpings. 20 Winders. 20 Spoolers. Dye. Bleach. Finish. 2 Boilers. Electric. Employ 250. Ed. M. Kahn Co., Inc., N.Y., S. Agts.

(50) Glenmore Knitting Works. (Now Raynit Mills.)

(51) Goobich & De Vos.

144 Broadway. Seamless & Sport Hosiery, Novelties & Sweaters. 87 Ktg., 30 Sew. Mchs. 2 Winders. Buy C., Wd. & Art. Silk Yarn.

(52) Graham Knitting Mills.

225 Starr St. Inc. 1924. S. Yanowitz, Pres.; J. Mallow, Sec. & Treas. Sweaters & Novelties. 15 Ktg., 8 Sew. Mchs. Buy Wd. & Rayon Yarn.

(53) Gropper Knitwear Corp

70 Wyckoff Ave. Inc. 1918. Cap. \$100,000. Harry Gropper, Pres.; S. Wornn, Treas.; I.N. Kasdner, Sec. Silk Mufflers & Neckwear. 18

Winders. 10 Warp. 32 Coners. 140 Ktg., 30 Sew. Mchs. Buy Silk Yarn.

(54) Guild Knitting Mills, Inc.
1425 37th St. Rayon Cloth.

(55) H. B. Knitwear Co.
1026 Cypress Ave. Inc. 1925. Cap. \$40,000. S. Hoffman,
Pres.; C. Hoffman, Sec. Ladies' & Misses' Sweaters, Dresses, Suits &
Novelties. 15 Ktg., 20 Sew. Mchs. Buy Wd., Z. & Art. Silk Yarn.

(56) H. & M. Knitting Mills.
59 Liberty Ave. Siegel Bros., Props. Sweater Coats &
Novelties. 50 Ktg., 16 Sew. Mchs. Buy Merc., Wd., Mohair & Fibre Silk Yarn.

(57) Haley & Haley. (Taken over by Frederick W. Johnson.)

(58) Halperin, M.I.
23 Lafayette St. Silk Jersey Cloth & Novelty Knitted Fabrics. Buy Art. Silk & Silk Yarn.

(59) Halperin Mills Corp.
40 Flatbush Ave. Ext. Nathan Halperin, Pres.; Chas.
Steinfeld, Treas. & Buyer; George Halperin, Sec. Neckwear, Knitted
Fabrics & Novelties. 250 Ktg., 60 Sew. Mchs. 160 Winders. Finish.
Electric. Employ 350. Buy C., Silk & Art. Silk Yarn.

(60) Handcraft Knitting Mills.
415 Bedford Ave. D. Halperin, Prop. Sweaters &
Novelties. 18 Ktg., 8 Sew. Mchs. Buy Mohair, Wd. & Fibre Silk Yarn.

(61) Haradon, Herbert H.
292 Taaffe Place. Narrow Ribbons. 16 Looms. Rent power. Sell Direct.

(62) Hirlef Knitting Mills, Inc.
640 Broadway. Inc. 1924. S. Hirsch, Pres. Ladies'
& Misses' Sweaters & Novelties. 18 Ktg. 12 Sew Mchs. 1 Coner. Buy Wd., Z. & Rayon Yarn.

(63) Hirsch, Stephen
515 Woodward Ave. Converter of Rayon on Cones. Buy 150,300, 450 Den. Rayon. Sell Knit Goods Mfrs.

(64) Hollins Knitting Mills
466 Seneca Ave. Inc. 1925. A. Hollins, Pres.; J.
Hollins, Sec. & Treas. Links & Links, Flat & Circular Sweater Coats
& Novelties, 25 Ktg., 12 Sew. Mchs. Electric. Buy Wd. & Rayon Yarn.

(65) J. & G. Knitting Mills
119 Harrison Ave. J. Gilinsky, Prop. Sweaters. 10
Ktg., 8 Sew. Mchs. Buy Wd. & Art. Silk Yarn.

(66) Johnson, Frederick W.
676 Forest ave. Pom Poms.

(67) Jonette Knitting Mills, Inc.
260 Stone ave. Jack Molesky, Pres. & Buyer: M. Lovenko, Sec. & Treas.
Rayon Underwear Fabric. 24 Circular Knitting Mchs. 32 Winders.

(68) Kadison Knitting Mills
587 Hendrix St. J. Kadison, Prop. Sweaters & Novelties. 15 Ktg.,
15 Sew. Mchs. 1 Brush. Mch. Buy Wd., Z. & Art. Silk Yarn.

(69) Kahn & Feldman, Inc.
360 Suydam St. Ridgwood Mill. Thrown Silk. 60,000 Sp. Electric. (see N.Y. City)

(70) Kahn, Max
301 Onderdonk Ave. Sweaters & Novelties. 26 Ktg., 20 Sew. Mchs. Buy Wd.,
Z. & Art. Silk Yarns.

(71) Kaplan Knitting Mills
97 Broadway. Inc. 1921. Sweaters & Novelties.
40 Ktg., 20 Sew. Mchs. 1 Winder. Buy Art. Silk Yarn.

(72) Katz Bros.
47 Thames St. I. Katz, Buyer. Sweaters & Novelties. 3 Winders. 40 Ktg.,
12 Sew. Mchs. Employ 35. Buy Mohair & Art. Silk yarn.

(73) Kayser, Julius, & Co.
232 Taaffe Place. Inc. 1911. Cap. \$10,000,000.
Edwin S. Bayer, Pres.; Henry L. Van Praag, V.-Pres.; Clarence W. Sinn,
V.-Pres. & Treas.; Charles J. Hardy, Sec.; Russell K. Boadwee, Gen.
Supt.; Christopher P. Schaeffner, Pur. Agt. Silk, Cashmere, Wool & Lisle
Gloves, Cotton & Silk Underwear & Silk Hose, Italian Silk Flat & Rayon
Circular Underwear. 500 Ktg., 1,178 Sew. Mchs. 35,028 Sp. Dye. Bleach.

Finish. 4 Boilers. Electric. Employ 4,000. Salesrooms, 353 Fourth Ave., N.Y. (Also Hornell, Walton, Sidney, N.Y.; Bangor, Portl&, Pa., & Sherbrooke, Que.)

(74) Keystone Hosiery Mills, Inc.
80 39th St. Inc. 1927. Cap. \$100,000. Morris Kossoy, Pres.; Paul Swedosh, Sec., Treas. & Buyer. Ladies' Full Fashioned Silk Hosiery. 11 Ktg., 3 Sew. Mchs. 2 Winders. Electric. Employ 25. Buy Merc. & Pure Silk Yarn.

(75) Knit-Craft Mills
1007 Buchman Ave. Hertan Bros., Props. Art. Silk. Knit Fabrics. 28 Ktg. Mchs. 27 Winders. Buy Art. Silk.

(76) Knitwear Mfg. Co., Inc.
Jefferson & Stanwix Sts. Inc. 1915. Cap \$90,000. Harry Glickman, Pres.; Louis Strauss, Treas. Sweaters & Novelties. 106 Ktg., 105 Sew. Mchs. Employ 240. Buy Wd., Silk & Z. Yarn.

(77) Kodax Knitting Mills.
226 Gr& St. Inc. 1924. L.A. Sayewitz, Pres.; M.Zamer. Treas. Ladies' Sweaters & Novelties. 16 Ktg., 6 Sew. Mchs. Buy Z., Rayon & Mohair Yarn.

(78) Kohan, Morris I.
290 Taaffe Pl. Bathing Suits. Tights. Underwear & Theatrical Goods. 9 Ktg., 4 Sew. Mchs. Buy Jap. Tram.

(79) Kraus, J.
58 Walton St. Rayon Knitted Cloth. 12 Winders. 8 Ktg. Mchs. Buy Rayon Yarn.

(80) Levi & Seligman
302 Park Ave. Inc. 1920. Cap. \$500,000. S.Seligman. Pres., Treas. & Buyer. Knitted Fabrics. 212 Ktg. Mchs. 150 Winders. Buy Art. & Pure Silk & Wd. Yarns.

(81) Levine & Co.
146 Junius St. Inc. 1915. Cap. \$40,000. A. H. Levine, Pres. & Buyer; J. Finkel, Sec. & Treas. Ladies' & Misses' Sweater Coats, Golf Sets & Links & Links Knit Goods. 42 Ktg., 20 Sew. Mchs. Electric. Buy Alpaca, Mohair, Wd. & Rayon.

(82) Liberty Knitting Mills.
47 Watkins St. Henry Wachter, Prop. Sweaters & Novelties. 11 Ktg., 5 Sew. Mchs. Buy W., Wd. & Art. Silk.

(83) Lombardi Knitcraft, Inc.
104 7th ave. Cap. \$50,000. V. Lombardi, Pres. & Buyer; C. Lombardi, Sec. & Supt.; Max Feiner, Treas. Wool, Zephyr & Rayon Knitted Cloth. 40 Ktg., 20 Sew. Mchs. 2 Winders. 1 Spooler. Electric. Employ 40. Buy 40-2 Z. Yarn.

(84) McCurrach, Jas., & Bro.
138 Stone Ave. McCurrach Silk Mills. M. C. McCurrach, Buyer; Jno. J. Kennedy, Supt. Mufflers, Broad, Jacquard & Tie Silks. 75 Jacquard Looms. Electric. Sell Direct at 302 Fifth Ave., N.Y.

(85) Mace Mfg. Co.
13 Lawton St. Inc. 1909. Cap. \$125,000. John M. Balsam, Pres., Treas. & Buyer; S. Hausenbold, Sec. Plain & Jacquard Broad Silks, Cotton & Silk Mixed Goods, Webbing & Tubular Ties. 36 Jacquard, 18 Narrow, 116 Box Looms. 6 Warpings. 10 Winders. Electric. Employ 95. Buy C., Pure & Art. Silk. Sell Direct & Century Factors, Inc. N.Y., S. Agts.

(86) Magna Knitwear Specialties, Inc.
1147 DeKalb Ave. Inc. 1926. Cap. \$25,000. Bernard Teodor, Pres. & Treas.; Frederick Teodor, Sec.; Jaimes Aives, V.-Pres. & Supt. Wd., Z., Silk & Fibre Silk Sweaters & Bathing Suits. 15 Ktg., 10 Sew. Mchs. 1 Winder. Electric.

(87) Malkoff Knitting Mills
444 Rockaway Ave. Harry Malkoff, Prop. Ladies', Men's & Children's Woolen Sweaters & Novelties 11 Ktg., 4 Sew. Mchs. Electric. Buy W., Wd., Zephyr & Art. Silk.

(88) Mayflower Knitting Mills
142 Stockholm St. B. Kaplan, Prop. Sweaters & Novelties. 28 Ktg., 12 Sew. Mchs. 1 Coner. Buy Wd., Z., Silk & Cotton Yarn.

(89) Merhige, Amin
363 39th St. Merhige Silk Mills. Broad Silks. 206 Box Looms. 9 Warpings. 17 Winders. 8 Twisters. Dye. Finish. Sell Direct.

(90) Merit Hosiery Co., Inc.
104th St. & 94th Ave. (Ozone Park.) Inc. 1915. Cap. \$1,000,000. Jos. Rubin. Pres.; Jacob Rubin, Treas.; S. Lefcort, Sec. Full Fashioned Silk Hosiery. 6 Winders. 133 Ktg. 32 Sew. Mchs. Dye. Bleach. Finish. 3 Boilers. Electric. Employ 325. Buy Japan Tram & 50,70,120-2 C. Yarn.

- (91) Merit Knitting Mills
3898 101 st Ave. (Woodhaven.) Edward & John
Notter, Props.; E. Notter, Buyer. Sweaters, Neckties & Mufflers. 11
Ktg., 7 Sew. Mchs. 2 Winders. Electric. Buy Art., Tram, Organ. & Fine Wd. Yarn.
- (92) Merton Rayon Mills
221 Powell St. S.N. Bernstein, Prop. Rayon Knitted
Cloth. 9 Winders. 5 Circular Ktg. Mchs. Buy 150 Den. Rayon Yarn.
- (93) Miller Knitting Mills
115 Irving Ave. Est. 1924. Leo Miller, Prop.
Sweaters. 9 Ktg., 6 Sew. Mchs. Buy Wd. & Art. Silk Yarn.
- (94) Mohair Specialty Co.
254 Wallabout St. Inc. 1921. Cap. \$10,000. E.
Evseroff, Pres. & Buyer; D. J. Lowenthal, Treas. Sweaters & Knitted
Coats, Suits & Dresses. 25 Ktg., 8 Sew., 1 Braiding, 1 Wind-Knitted
Coats, Suits & Dresses. 25 Ktg., 8 Sew., 1 Braiding, 1 Winding Mch.
Electric. Buy Mohair, Alpaca, Vicuna & Fibre Silk Yarn.
- (95) Mohair Sweater Mills
97 Broadway. Al Brown, Prop. Ladies' Mohair
Sweaters & Novelties. 8 Ktg., 4 Sew. Mchs. Buy Mohair & Rayon Yarn.
- (96) Moll, August, Mfg. Co.
Mill, 235-247 Lynch St. Cap. \$150,000. Carl
Franken, Pres.; E. V. Wildfoerster, Sec. & Treas. Braids & Trimmings. 1,500 Braiders.
Dye. Finish. Employ 200. Buy C. & Art. Silk. Salesroom, 373 Fourth Ave., N.Y.
- (97) Monroe Winding & Coning Co., Inc.
460 Driggs Ave. Inc. 1918. Cap. \$20,000. Sidney Reiner, Pres.; David Reiner, Treas.
Winding & Coning Worsted, Mohair, Cotton, Silk & Combination Yarns.
- (98) Morris Knitting Mills, Inc.
1609 DeKalb Ave. Est. 910. Inc. 1923. J. Morris, Pres.
& Treas.: L. Morrison, Sec. & Buyer. Wd., Rayon & Silk Sweaters, 37
Ktg., 20 Sew. Mchs. 3 Winders. 7 Warpings. 1 Boiler. Electric. Buy 18, 20, 30-2 Yarn.
- (99) Morris, Manny, Sweater Mills, Inc.
131 Ingraham St. Inc. 1925. Manny Morris, Pres. & Treas. Ladies', Infants',
Men's & Boys' Flat & Links & Links Sweaters & Novelties. 12 Winders. 15 Links,
50 Circular, 10 Raschel, 24 Flat, 2 Loop, 80 Sew. Mchs. Buy Wd., Z. & Art. Silk Yarn.
- (100) Moster & Feldman.
65 Varick Ave. Thrown Silk for Knitting. Also Dyed Silk on Cones. 1,000 Sp. Electric. Sell Direct.
- (101) Nelson Knitting Mills
69 Liberty Ave. Harry Nelson, Prop. Sweaters. 8
Ktg., 6 Sew. Mchs. Electric. Buy Art. Silk Yarn.
- (102) Neu Knitting Mills,
70 Onderdonk Ave. Peter Neu, Prop. Infants' & Children's Sweater Coats & Novelties.
21 Ktg., 16 Sew. Mchs. 1 Coner. Electric. Buy Wd., Z. & Rayon Yarn.
- (103) Novelty Cord & Tassel Co.
57 Hope St. Sacks & Imershein, Props. Minor Hanging, Tie Back Cords, Uph.
Trimmings, Tassels, etc. Buy C. & Rayon Yarn. Sell Direct.
- (104) Nusbaum, D., & Co.
8300 Atlantic Ave. (Ozone Park) Inc. 1906. Cap. \$95,000. D. Nusbaum, Pres.;
F. Nusbaum, Sec. & Buyer. Sweaters, Bathing Suits, Jerseys & Theatrical Tights,
70 Ktg. 35 Sew. Mchs. Electric. Employ 125. Buy W., Wd., Rayon & Silk Yarn.
- (105) Obert Knitting Mills
1120 Willoughby Ave. Obert Bros., Props. Sweaters & Novelties. 15 Ktg., 5 Sew. Mchs. 1 Coner. Buy Silk.
- (106) Osborne, M.A.
827 Bergen St. C. & Silk Theatrical Knit Goods. 30 Ktg., 2 Sew. Mchs.
- (107) Paramount Sportwear Co.
173 Clymer St. A. Dranoff, Prop. Sweaters & Sportwear. 30 Sew. Mchs. Electric.
- (108) Peerless Rayon Corp.
181 Belmont Ave. Rayon Knitted Cloth.
- (109) Peerless Silk Mills, Inc.
1007 Buchman Ave. Est. 1912. Cap. \$25,000. A.
E. Griffin, Pres.; J.F.E. Wood, Treas.: Charles P. Vogel, Buyer & Mgr.
Broad Silks, Hat B&s, Galloons & Ribbons. 8 Plain, 20 Narrow Looms. 3
Warpings. 4 Winders. 1 Twister. 2 Spoolers. Electric. Employ 32. Buy C. P.

Merc. Yarn. Sell Direct at 357 Jay St.

(110) Penn Knitting Mills, Inc.
252 Pennsylvania Ave. Inc. 1924. Cap.\$7,500. Saul. P. Pfeffer, Pres. & Supt.;
Morris Sablosky, Sec. & Treas.; Chas. Sabel, Buyer. Athletic Suits & Shirts,
Bathing Suits. Golf Vests, Novelties & Light Weight Knit Fabrics.
10 Circular, 10 Flat Ktg., 16 Sew. Mchs. Buy Wd. & Art. Silk Yarn.

(111) Perfect Silk Mills
1425 37th St. Inc. 1919. Cap. \$100,000. C. Debany,
Pres.: S. N. Ayoub, Sec., Treas. & Buyer; E. Ajjan, Supt. Broad Silks.
84 Box Looms. 366 Sp. 4 Warpings. 5 Winders. 2 Twisters. Electric. Buy
20-22, 13-15 Raw Silk Yarn. Sell Direct. N.Y. Office, 588 Broadway.

(112) Petrizzo, J., & Co.
24 Stagg St. Hamilton Narrow Fabric Co. Braids,
Trimmings, etc. 600 Braiders. Buy Rayon & Tinsel Yarn. Sell Direct.

(113) Premier Knitting Mills, Inc.
367 Jefferson St. Inc. 1916. Irving Saltzman, Pres. & Sec.; L. Meisel, Treas.
Sweater Coats & Novelties. 40 Ktg., 18 Sew.Mchs. Electric. Buy Art. Silk Yarn.

(114) Princeton Knitting Mills.
35 York St. M. Doft. Prop. Art. Silk Knit Fabrics. 150
Ktg. Mchs. 200 Winders. Electric. Employ 150. Buy Rayon Yarn.

(115) Progressive Knitting Works, Inc.
1708-16 Atlantic Ave. Est. 1899. Inc. 1914. Cap.
\$400,000. Samuel Rubenstein, Pre.: Morris Rubenstein, Treas.: Harry
Rubenstein, Sec. & Buyer. Rayon Knitted Fabrics & Jersey Cloth. 150 Ktg.
Mchs. 35 Winders. Finish. Employ 105. Buy C. W. Merino & Rayon Yarn.

(116) Raynit Mills.
146 Junius St. H. Liberman, Jack Minoff, Props. Rayon
Knitted Cloth. 22 Circular Ktg. Mchs. 32 Winders. Buy Rayon Yarn.

(117) R. & S. Knitting Mills.
360 Troutman St. Inc. 1918. J. Rubinstein, Pres.: D.
Robbins, Sec.: M. Rubinstein, Treas. Sweaters & Novelties, 1 Winder. 25
Ktg., 12 Sew. Mchs. Electric. Buy Wd., Mohair & Rayon Yarn.

(118) Regen, O., Mfg. Co.
18th & Benson Ave. Inc. 1919. Cap. \$20,000. O.Regan, Pres. & Buyer;
Jas. Castelle, Sec. & Treas. Braids & Trimmings. 4 Winders. 20 Gimp Mchs.
7 Sliders. Buy C., Merc., Art. & Tram. Silk Yarn.

(119) Reliance Knitting Mills,
254 Wallabout St. Samwick & Ruboowx. Props. Ladies' &
Misses' Sweater Coats & Novelties. 11 Ktg., 6 Sew. Mchs. Buy Wd. & Rayon Yarn.

(120) Renda, Rocco.
1661 Benson Ave. Dress Trimmings.

(121) Republic Knitting Mills
833 Driggs Ave. Kipnis & Reichell. Props. Ladies' &
Misses' Sweater Coats & Novelties. 30 Ktg., 15 Sew. Mchs. Buy Wd.,
Mohair & Art. Silk Yarns.

(122) Roseben Knitting Mills, Inc.
750 Gr& St. Leo Magaril, Pres. & Treas. Ladies'
Rayon Underwear & Piece Goods. 20 Ktg., 30 Sew. Mchs. 4 Winders. Buy Rayon Yarn.

(123) Rosenbaum, H., & Son.
127 Berriman St. J.P. Rosenbaum. Buyer. Sw. Coats,
Infants' Wear, Novelties & Bathing Suits, 40 Ktg., 30 Sew., 2 Brush,
Mchs. 2 Winders. Buy Wd. & Art. Silk Yarn.

(124) Royal Knitting Mills.
101 Wyckoff Ave. Knitted Fabric Cloth. Buy Rayon Yarn.

(125) Rubin Bros. Millinery, Inc.
67 34th St. Inc. 1923. Cap. \$55,000. Max Singer,
Pres. & Sec.; J.K. Ellenbogen. V.-Pres., Treas., Buyer & Supt.
Millinery Trimmings, Braids & Visca Cloth. 14 Broad, 8 Box Looms. 500
Braiders. 16 Ktg. Mchs. 2 Warpings. 4 Winders. 1 Twister. 3 Spoolers.
Electric. Employ 50. Buy Art. Silk & C. Yarn. Sell Direct. N.Y. Office, 15 W. 38th St.

(126) Sachs Knitting Mills.
456 Johnson Ave. I. Sachs. Prop. Ladies' Wd. &
Mohair Sweater Coats & Novelties. 30 Ktg., 12 Sew. Mchs. 2 Winders.
Electric. Buy Mohair, Wd. & Art. Silk Yarn.

- (127) Samnat Knitting Mills.
47 Watkins St. Wd., Z. & Fibre Silk Sweater
Coats, Links & Links Goods & Bathing Suits. 50 Ktg. Mchs. Electric.
Employ 150. Buy Wd. & Z. Yarns.
- (128) Schonfield, Max
77 Greenpoint Ave. Dress Trimmings, Cords & Knitted Braids. 18 Ktg. Mchs.
- (129) Schwartz, Harry
68 34th St. Wind. Cone. Spool & Spin Silk &
Art. Silk Yarns. 480 S. Sp. 25 Winders. 10 Spoolers. 20 Coners. 3
Twisters. Dye. Electric. Employ 60. Sell Direct.
- (130) Seamark Knitting Mills, Inc.
221 Powell St. Inc. 1925. Cap. \$10,000. Abraham
Hausman, Pres., Sec. & Buyer; J. Liberman, V.-Pres. & Treas. Rayon Knit
Fabrics. 20 Winders. 4 Ktg., 16 Circular Ktg. Mchs. 1 Boiler. Electric.
Employ 35. Buy Rayon Yarn.
- (131) Singer Knitting Mills
251 Varet St. Sweaters. 45 Ktg., 20 Sew. Mchs. Buy Art. Silk Yarn.
- (132) Specialty Angora Mills, Inc.
87 34th St., Inc. 1912. Cap. \$100,000. S.O.A.
Ullman, Pres., Treas. & Buyer; W. J. Roth, Sec. Astrachans & all kinds
of Knit Fabrics. 75 Ktg. Mchs. 2 Boilers Electric. Buy W., Wd. & Art. Silk Yarn.
- (133) Stanley Knitting Mills. (See Manny Morris Sweater Mills, Inc.)
- (134) Strauss Knitting Mills
661 Broadway, Joseph Strauss, Prop. Sweaters &
Novelties, 8 Ktg., 3 Sew. Mchs. 1 Winder. Electric. Buy W., Wd., Z. & Art. Silk Yarn.
- (135) Stylewear Knitting Mills, Inc.
378 Throop Ave. Inc. 1923. Cap. \$22,000. S.
Borich, Pres. & Supt.; M. Baruch, Sec., Treas. & Buyer. Knitted Suits,
Dresses, Capes & Novelties. 32 Ktg., 18 Sew. Mchs. Electric. Employ 60.
Buy Camels Hair, Mohair, Alpaca, Worsted & Silk Yarn.
- (136) Sylvan Knitwear Mills,
1485 Gates Ave. M. W. Rosen, Sec. & Treas. Links
& Links & Flat. Sw. & Novelties. 18 Ktg., 12 Sew. Mchs. Buy Wd. & Silk Yarn.
- (137) Treeo Knitting Mills
Humboldt St. Inc. 1923. S. Greenberg, Pres.; J. Greenberg, Treas.
Ladies' Sweaters & Novelties. 12 Ktg., 16 Sew. Mchs. Buy Wd. & Art. Silk Yarn.
- (138) Trinity Knitting Mills, Inc.
2402 Atlantic Ave. Inc. 1919. Cap. \$100,000. Max
Sugarman, Pres. & Buyer. Sweaters, Novelties & Knitted Sport Wear. 1
Coner. 1 Winder. 17 Ktg., 14 Sew. Mchs. Electric. Buy C., Wd. & Rayon Yarn.
- (139) United States Rayon Corp.
118 Greenpoint Ave. Wide & Narrow Ribbons. 30
Ribbon Looms. 3 Warpings. 2 Winders. N.Y. Office, 40 W. 25th St.
- (140) United States Woven Label Co.
915 Franklin Ave. Inc. 1902. Cap. \$250,000. Maurice
B. Ripin, Pres.; S. H. Ripin, Sec., Treas., Buyer & Supt. Cotton & Silk
Woven Labels. 150 Looms. Finish. Electric. Sell Direct at 36 W. 34th St., N.Y.
- (141) Urbahn's, A., Sons.
158 Marion St. Silk Covered Wire.
- (142) Verbert Knitting Mills, Inc.
47 Watkins St. Jacob Weiss, Pres.; Julius Ostrin,
Sec. & Treas. Rayon Underwear Cloth. 9 Winders. 6 Circ. Ktg. Mchs. (Contract Work)
- (143) Viola Silk Mills, Inc.
33 34th St. (Carl Gutmann & Co., Inc.) Arthur
Leopold, Pres.; John J. Phelan, Treas.; J. Waldman, Sec. Silk Underwear.
18 Ktg. 36 Sew. Mchs. Electric. Employ 50. Buy Raw Silk.
- (144) Vogt, Walter J., & Co., Inc.
Dry Harbor Road. (Glendale.) Est. 1888 Inc. 1924.
Walter J. Vogt. Pres. & Sec.: Harry Vogt. Treas. Braids, Fringes,
Chenilles & Trimmings. 400 Braiders. 40 Knitters. 10 Winders. 2
Twisters. Electric. Employ 60. Buy Art. Silk Yarn. Sell Direct. L. A. Jegen
Co., Chicago; E. D. Henschel, Los Angeles, S. Agts.

(145) Waitzfelder Braid Co.
30 Main St. Inc. 1909. Cap. \$210,000. Albert S.
Waitzfelder, Pres.: A. Schreiber, Sec.: M. R. Denzer, Treas.: Miss M.
Stubbe, Buyer. Braids. Dress & Cloak Trimmings, Sweaters. Mufflers &
Knit Neckties. 100 Ktg., 30 Sew. Mchs. 1,000 Braiders. Electric. Buy Silk,
Art. Silk, C. & Merc. Yarn. Sell Direct. N.Y. Office, 381 Fourth Ave.

(146) Williamsburg Knitting Mills
20 Bogart St. Est. 1895. Nathan Siegel, Prop.;
David M. Siegel, Buyer. Worsted & Fibre Silk Sweater Coats, Novelties,
Knitted Fabrics & Rayon Underwear. 110 Ktg., 95 Sew. Mchs. 14 Winders.
Dye. Bleach. Finish. Electric. Employ 150. Buy Fibre Silk Yarn.

(147) York Knitting Mills
456 Johnson Ave. Herman Crapgo, Prop. Rayon Cloth. 17 Winders.

(148) Yorkshire Knitting Co., Inc.
Office & Mill, 119 Ingraham St. Inc. 1915. D.
Frank, Pres.; S. Gersten, Sec. & Treas. Sweaters, Brushed Goods &
Novelties. 120 Ktg., 50 Sew. Mchs. Buy Pure. Art. & Spun Yarn.

(149) Young Knitting Mills
251 Stockton St. Kaplan & Dunitz, Props. Sweaters.
30 Ktg., 15 Sew. Mchs. 2 Winders. Electric. Buy Pure & Art. Silk Yarn.

(150) Zaloom, N. N., Co.
280 Nevins St. Inc. 1926. N. N. Zaloom, Pres.; Paul Kawas, V. Pres. & Supt.;
George Kahawaty, Sec. Broad Silks. Sell Direct. N.Y. Office, 168 Madison Ave.

This completes the posting of the 1928 Davison's Silk Trade-The Silk Guide-Brooklyn-Kings County List.

Transcribed exclusively for the Brooklyn Pages by Miriam Medina

[Back DIRECTORY Main Index](#)

[Back To BROOKLYN Main](#)

APPENDIX D
IRM FILTRATION SPECIFICATIONS

airwash[®] MULTIPRO Air Scrubber

Interlocking cabinet profile

Provides stability when stacking during transport or when daisy-chaining multiple units

Contoured flex handle

Ample clearance for comfort and mobility, flexes downward for secure stacking

Air flow indicator

Indicates reduced airflow, alerting user filter change may be necessary

12" inlets/outlets

Accommodates up to 800 cfm

Durable housing

Rugged UL 94 compliant flame retardant polyethylene housing for tough environments

Quick release latches

Toolless filter changes and access for cleaning

Variable speed control

Customize the airflow levels you need from 250 to 800 cfm

User-friendly control panel

GFI protected receptacle outlets, allowing daisy chaining up to three units



Application Options

Perfect Seal[®] HEPA

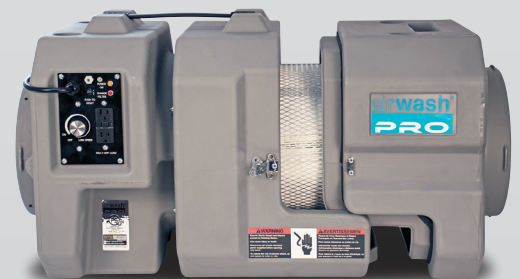
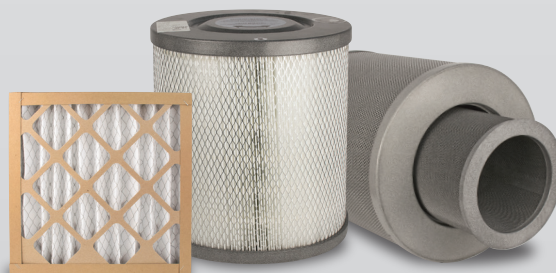
Toolless cylindrical Perfect Seal[®] HEPA filter media for dedicated fine particulate filtration down to 0.3 microns, option to add up to 3 pre-filters for extended service life

Perfect Seal[®] HEPA/VOC Combo

Toolless cylindrical Perfect Seal[®] HEPA & 5 lb. inner canister of dedicated activated carbon for air borne chemical and odour absorption, option to add up to 3 pre-filters for extended service life

Ultra VOC

25 lb. activated carbon canister for extreme air borne chemical and odour absorption, option to add up to 3 pre-filters for extended service life



1-800-268-7732
www.amaircare.com

airwash[®] MULTIPRO Air Scrubber

Ordering Information



2Y-A-1KPG-00

AirWash[®]MULTIPRO Negative Air Scrubber, includes installed Perfect Seal[®] HEPA cylinder and silicone O-ring



AFC1000726

Media pad pre-filter, 13" x 13" x 1"



AFC1057554

Pleated pre-filter, MERV 8, 13" x 13" x 2"



91-A-1407-ET

Washable foam pre-filter, compatible with HEPA and exterior carbon cylinder



90-A-14ME-ET

Toolless Perfect Seal[®] HEPA cylinder



94-A-1402-UL

Ultra VOC Carbon cylinder, exterior 25 lb (gross weight) activated carbon canister



89-A-00F-00D8-RS

Replacement silicone O-ring for HEPA and exterior carbon cylinder



94-A-1402-ET

VOC Carbon cylinder, interior 5 lb. (gross weight) activated carbon canister



92-A-1401-ET

VOC Carbon blanket, interior



89-A-POS-16-NA

Replacement wire pre-filter holder

AirWash[®] MULTIPRO Specifications

Weight:	36 lbs (without filters); 42 lbs (with HEPA filter)
Dimensions:	19" W x 20" H x 32" L 9 (482.6 W x 508 H x 812.8 L)
Airflow:	250 to 800 CFM
Variable Speed Control:	3050 RPM max
Power Supply:	115 vac/1 ph./60 Hz.
Operating current:	2.6 amps
Daisy Chain:	Up to three units on a 9 amp circuit
Stackable:	Up to three units
Inlet/Outlet Connection:	12" dia. collar
Country of Manufacture:	Canada
Warranty:	1 year (excluding filters)
Standards:	CAN/CSA C22.2 No. 113-15 (10th Ed.), UL 507 (9th Ed.)

Dealer Information:

Save time and money!

Toolless access for speedy on site filter changes and change part maintenance

Perfect Seal 360° cylindrical HEPA filter provides up to 25% more surface area than competitor filters, resulting in longer filter life and fewer filter changes

Perfect Seal 360° delivers balanced particulate loading until filter reaches full capacity

Multi functionality for diverse applications – particulate, VOC or combination

Custom colour housings available. Minimum order quantity required. Contact us for details.

1-800-268-7732
www.amaircare.com

airwash®

PRO

PRODUCT MANUAL FOR Airwash®PRO
HEPA AIR FILTRATION SYSTEM



Table of Contents

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Shipping and Packing List.....	1	Wiring Diagram.....	6
Parts Identification/Dimensions	2	Electrical Diagram	6
Operation.....	3/4	Specifications	7
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Negative Pressure Environment		Accessories	7
Positive Pressure Environment			

Rules for Safe Operation

READ AND SAVE THESE INSTRUCTIONS!

Please read instructions before using the HEPA Air Filtration System (HEPA system).

1. For safety and optimized performance of the HEPA system, this equipment should be operated by trained personnel only.
2. Read this manual carefully. Failure to follow these rules and instructions could cause a malfunction of the air filter or unsatisfactory service and could void the warranty.
3. Follow a regular service and maintenance schedule to ensure efficient operation.

Shipping and Packing List

Package 1 of 1 contains:

- 1 - HEPA System
- 1 - HEPA Cartridge
- 1 - Installation Instructions (this manual)
- 1 - Registration Card

⚠ WARNING

High Speed Rotating Parts Hazard.

Can cause injury on upon contact.

Disconnect all electrical power supplies and wait for rotating parts to completely stop before servicing.

Do not operate equipment without all access panels and components in place.



⚠ WARNING

Electrical Shock Hazard.

Can cause injury or death.

Disconnect all electrical power supplies before servicing.

Do not operate equipment without access panels and fan guard in place.

⚠ WARNING

Risk of Dust Explosion.

Disconnect all electrical power supplies and wait for rotating parts to still before servicing.

Do not operate equipment without access panels in place.

⚠ WARNING

Risk of Airborne Contaminants Exposure.

Can cause respiratory problems.

Can cause illness.

Do not operate equipment without access panel in place.

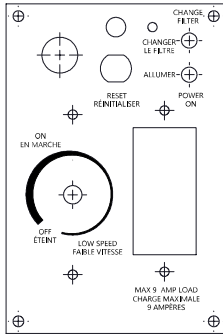
Wear appropriate protective clothing and mask when servicing filters.

⚠ WARNING

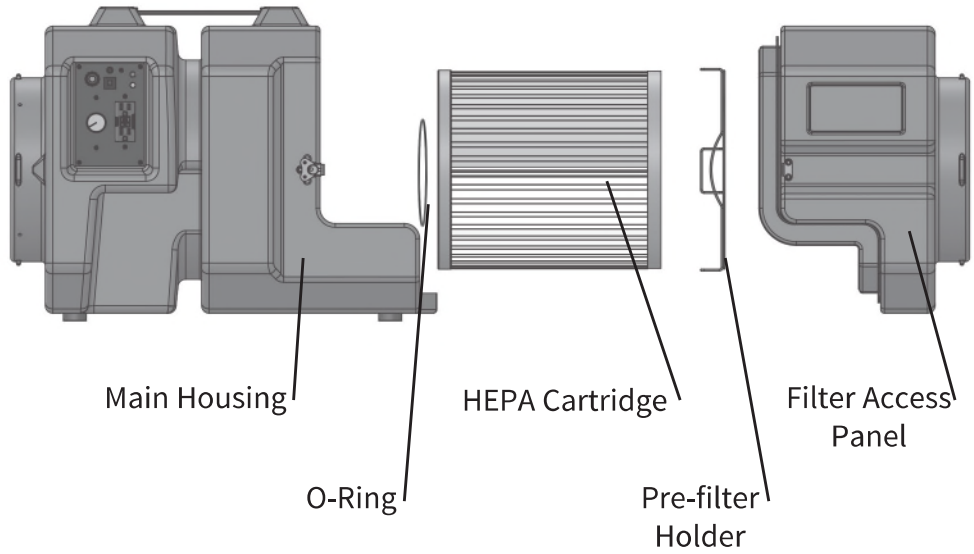
During operation, do NOT stack units more than 2 high.

Parts Identification Diagram - Airwash®PRO Portable Filtration System

Cabinet Parts



Control Panel Front



Main Housing

HEPA Cartridge

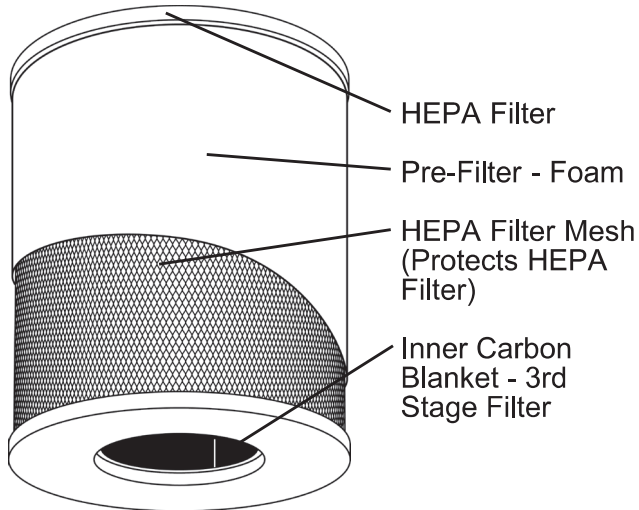
Filter Access Panel

O-Ring

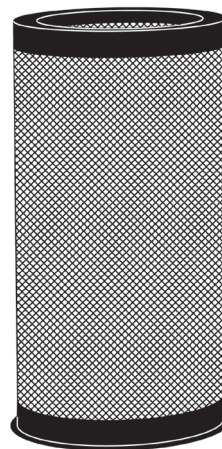
Pre-filter Holder

Filter Parts Identification

HEPA Cartridge Parts



Optional Carbon Canister




For third stage increased removal of chemicals and odors.

Located inside the HEPA filter.

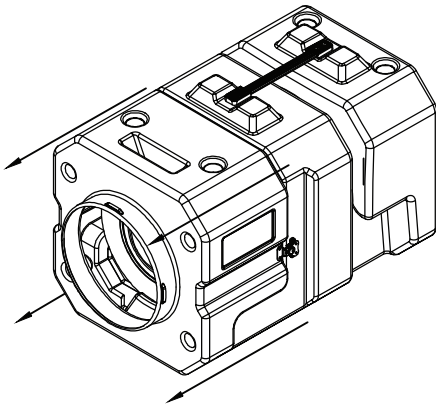
Discard inner carbon filter when using the optional carbon canister.

Operating Instructions

⚠ WARNING
Electrical Shock Hazard.
Can cause injury or death.
Disconnect all electrical power supplies before servicing.
Do not operate equipment without access panels in place.



⚠ WARNING
Risk of Airborne Contaminants Exposure.
Can cause respiratory problems.
Can cause illness.
Do not operate equipment without access panel in place.
Wear appropriate protective clothing and mask when servicing filters.

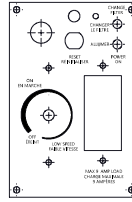


1. Pre-Start:

- Unplug the unit.
- Access the cabinet interior by releasing the 2 side mounted clamps and removing the filter access panel.
- Confirm the interior of the unit is clean and free of contaminants.
- The selected HEPA cartridge should be secured to the bulkhead and sealed with a bottom O-Ring.
- Confirm the selected pre-filter is clean and fitted with the pre-filter holder firmly inside of the filter access panel.
- Fit the filter access panel to the main housing and secure the 2 side clamps.

2. Operation:

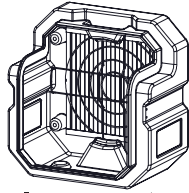
- Plug the unit power cord into a suitable supply receptacle. The amber "Power On" LED should illuminate to indicate power to the unit controls.



- Rotate the speed control fully clockwise to the lowest operating speed. Air is drawn into the unit, first through any pre-filters and then through the HEPA cartridge. The clean air is exhausted through the fan guard at the main housing outlet.
- Rotate the control knob counter clockwise to increase the amount of airflow. A red "Change Filter" LED will illuminate to indicate reduced airflow through the unit. The unit will continue to operate with reduced CFM until the cause of the restriction has been remedied.
- To stop the operation, rotate the control knob, fully counter clock-wise.
- Check operating speed, individual filter loading and inlet port for blockage.

3. Filter Inspection or Replacement:

- Unplug the unit from the electrical supply.
- Release the 2 side clamps and remove the filter access panel.
- Use caution and established procedures to avoid unnecessary release of contaminants from the housing, pre-filters and HEPA filter cartridge during inspection or filter replacement.
- Dispose of used filters carefully using appropriate procedures.
- Foam sleeve and blanket type pre-filters can be rolled inside out as they are removed from service.

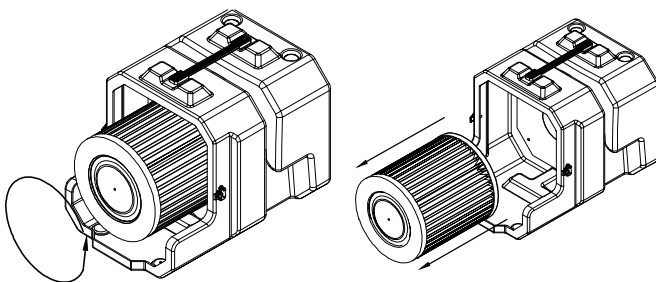


4. Pre-Filter Replacement:

- a. Access the pre-filter holder from the interior of the filter access panel. Note the operating position and orientation of the assembled pre-filter. (See Figure #1)
- b. To remove, first rotate the pre-filter holder counter-clockwise to release the compression fit.
- c. Lift the holder carefully from the filter access panel.
- d. Removed pre-filter packs should be bagged and disposed with suitable procedures.
- e. Clean the empty filter access panel and holder before fitting the selected replacement pre-filter pack into position.
- f. Orient the pre-filter holder with the open slot at the top and the single vertical wire face towards the inlet.
- g. Position the holder down onto the pre-filter and push down as the cage is rotated clockwise to engage the compression fit within the filter access panel.
- h. Confirm the pre-filter packs are oriented correctly in the assembly, cover the 12 inch diameter inlet opening and are firmly in position.

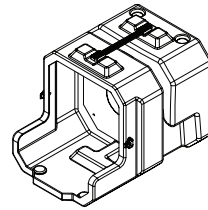
5. HEPA Cartridge:

- a. Inspect the HEPA cartridge with the filter access panel removed.



- b. With the main housing secure, place hands flat against the smooth metal end cap of the HEPA cartridge to grip and rotate the cartridge counter clockwise to release it from the bulkhead.
- c. The Loaded HEPA cartridge and O-ring

should be bagged and disposed with suitable procedures.



- d. Clean the empty housing before fitting the replacement O-ring and HEPA cartridge.
- e. Press firmly to compress the O-ring as the HEPA cartridge is rotated clockwise to lock it on the bulkhead.

6. VOC Blanket (optional):

- a. With the HEPA cartridge removed from the bulkhead, look inside the HEPA cartridge to locate the two ends of the VOC blanket.
- b. Pull one end of the old inner carbon filter in and bend it into a loose roll so it can be removed.
- c. Remove the inner carbon filter from the HEPA cartridge.
- d. Remove plastic shrink wrap from the new inner carbon filter.
- e. Unroll the inner carbon filter and roll it up in the opposite direction (this makes the filter follow a more contoured profile against the inner HEPA filter surfaces and helps keep it in place), place the rolled inner carbon filter inside the HEPA cartridge and gently unroll it until the ends 'butt' together and the filter is snug against the HEPA filter.

7. VOC Canister (optional):

- a. Remove old carbon canister (if installed) by pulling it out from the inside of the HEPA filter.
- b. If replacing an inner carbon filter with the carbon canister, remove inner carbon filter by following the steps a. to c. in section 6 (above).
- c. Remove the plastic shrink wrap from the new carbon canister.
- d. Slide the carbon canister into the HEPA cartridge, smaller end first. The carbon canister should slide all the way in until the metal edges at the base meet the HEPA filter.
- e. Support the carbon canister with your fingers so it does not slide out when replacing the HEPA cartridge assembly into the unit.

Troubleshooting

Circuit Breaker:

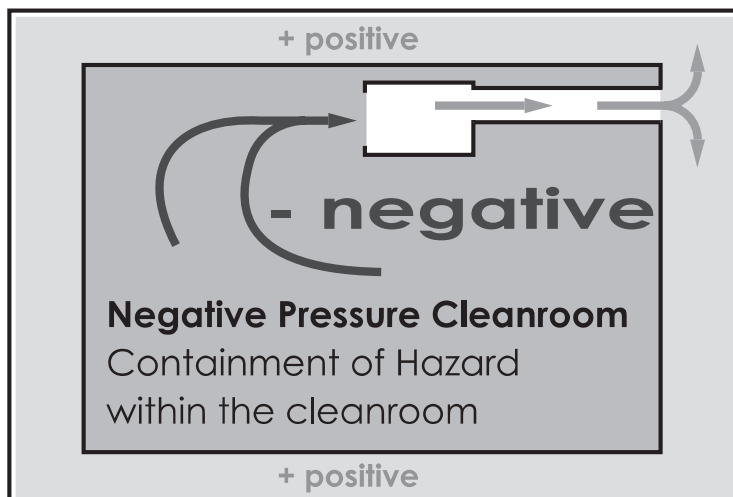
Onboard overload protection is set to trip at 12 amps. If tripped, all power will be lost to the unit and accessories connected to the duplex receptacle on the affected unit. Turn the unit control knob to the off position and unplug all accessory loads. Push the button on the circuit breaker to reset and the amber indicating light should illuminate to confirm power has been restored.

GFCI Trip Indicator:

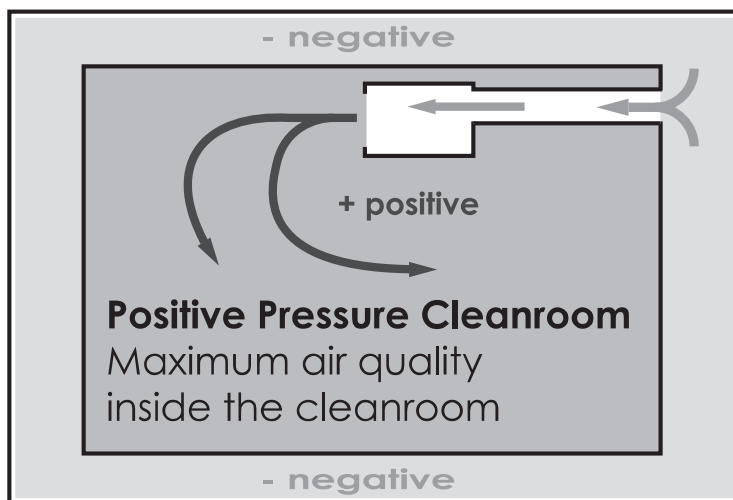
Press the TEST button every month to assure proper operation. A duplex receptacle located with the unit controls can be used to power additional equipment. The receptacle has ground fault circuit protection with light indication, test and reset buttons. To test operation, ensure the main assembly is plugged in to a live circuit and the power on LED is illuminated. Plug a test lamp into the GFCI receptacle and this light should remain on. Push the "TEST" button located on the GFCI receptacle to trip the device. The test lamp should remain off until you firmly push the RESET button located beside the "TEST" button. Power will be restored to the duplex receptacle.

Product Application Guidelines


To Create a Negative Pressure Environment



To Create a Positive Pressure Environment



Electrical Diagram - Control Detail



⚠ WARNING

Electrical Shock Hazard.

Can cause injury or death.

Disconnect all electrical power supplies before servicing.

Do not operate equipment without access panels in place.

Do not use this fan with any solid-state speed control device.

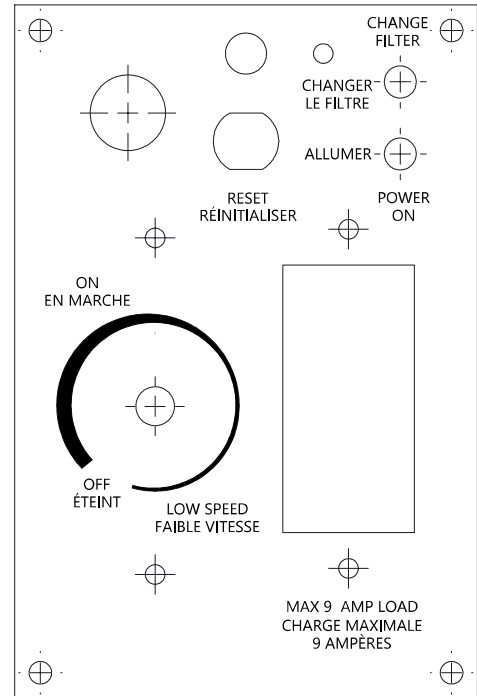
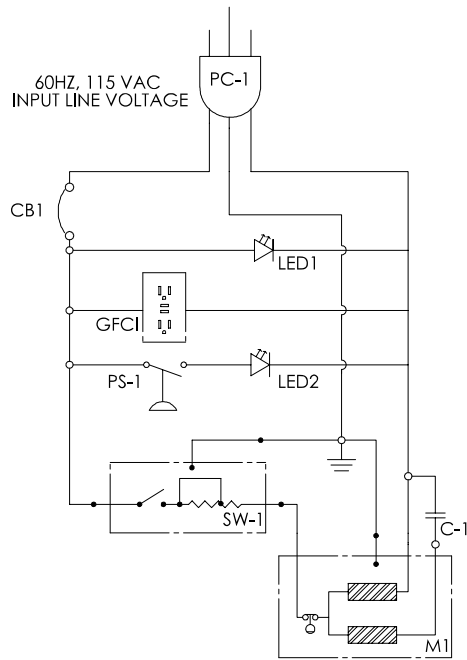


Figure 1.

ITEM NO.	PART NAME	DESCRIPTION	QTY
PC-1	Power cord		1
CB1	Circuit Breaker	12 Amps	1
GFCI	Duplex Receptacle	Ground Fault CI	1
PS-1	Pressure Switch		1
LED1	Amber LED	Power ON	1
LED2	Red LED	Change Filter	1
SW-1	Control Switch	Variable Speed Knob	1
C-1	Capacitor	25 µF	1
M1	Motor	250 Wheel/115V	1

Specifications - Airwash®PRO Portable Filtration System

Power Supply:	120 vac/1 ph. /60 Hz.
Operating Current:	2.6 amps. independent/11.6 amps with loaded receptacle
Variable Speed Control:	3050 RPM max.
Airflow:	690 cfm (1170 cu. m./hr.) nominal on high speed
HEPA Cartridge Efficiency:	99.97% minimum at 0.3 micron particle and above
Dimensions:	19" W x 20" H x 32" L (482.6mm W x 508 mm H x 812.8 mm L)
Inlet/Outlet Connection:	12" dia. collar
Weight:	42 lb. (19 kg.)
STANDARDS:	This equipment meets the technical requirements of CSA C22.2 No. 113-15

Available Maintenance Parts

Item Number	Item Name	Item Description
90-H-14ME-ET	HEPA Cartridge	14" Easy Twist Filter with O-Ring Seal
91-H-1406-ET	1 " Pleated Pre-filter	13" x 13" x 1" (1026454)

Optional Accessories

Item Number	Item Name	Item Description
92-H-1401-ET	VOC Blanket	14" Inner Carbon Blanket - Stage 3 filter
94-H-1402-ET	VOC Canister	14" ET Granulated Carbon Canister - Stage 3 filter
94-H-1402-UL	VOC Ultra Canister	25 lb. Granulated Carbon Canister

APPENDIX E
REMEDIAL INVESTIGATION REPORT
FEBRUARY 2025

1609 DEKALB AVENUE

BROOKLYN, NEW YORK

Remedial Investigation Report

NYC OER Project Number: 21TMP1230K

Prepared for:

Benny Mela, Valeria Mela

1609 Dekalb Avenue

Brooklyn, NY 11237

Prepared by:



Partridge Venture Engineering, PC

25 West 39th Street, 12th Floor

New York, NY 10018

(646) 602-4999

February 2025

REMEDIAL INVESTIGATION REPORT

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FIGURES

- Figure 1 - Site Map
- Figure 2 – Sample Locations

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- Table 1 – VOCs in Soil Vapor/Indoor Air Samples (showing exceedances of NYS DOH Soil Vapor Intrusion Guidance)

APPENDICES

- Appendix A: Vapor Sampling Logs
- Appendix B: Laboratory Data Deliverables for Soil Vapor Analytical Data

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

CERTIFICATION

I, Erik Draijer, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation for the 1609 DeKalb Avenue Site, (NYC OER Project No. 21TMP1230K). I am responsible for the content of this Remedial Investigation Report (RIR), have reviewed its contents and certify that this RIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.



2/17/25 Erik Draijer

Qualified Environmental Professional

Date

Signature

EXECUTIVE SUMMARY

The Remedial Investigation Report (RIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy pursuant to RCNY§ 43-1407(f). The remedial investigation (RI) described in this document is consistent with applicable guidance.

Site Location and Current Usage

The Site is located at 1609 DeKalb Avenue in the Bushwick section in Brooklyn, New York and is identified as Block 3237 and Lot 41 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 8,000 square feet and is bounded by 88 Wyckoff Avenue to the northeast, 950 Hart Street to the northwest, 1601 Dekalb Avenue to the southwest, and Dekalb Avenue to the southeast. A map of the site boundary is shown in Figure 1. Currently, the Site is used for residential purposes and contains a three-story residential building totaling 7,212 square feet in building footprint and 21,390 square feet in total building area with 21 units.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of residential use. The subject property has been improved with structures originally constructed prior to the 1968 Building Code and is currently seeking rehabilitation in accordance with Loft Law/DOB requirements. The current zoning designation is R6A - high lot coverage, six- to eight-story apartment buildings set at or near the street line designed to be compatible with older buildings in medium-density neighborhoods. The proposed use is consistent with existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

The property was identified as Morris Knitting Mills Inc. in 1933. The property was unimproved in 1907. By the 1951 Sanborn map, the subject property was identified as a 3-story loft building. Between 1965 and 2007, the subject property was identified as a knitting mill on Sanborn fire insurance maps. The structure and use of the subject property observed in the aerial photographs from 1954 to 2022 are consistent with the Sanborn maps. The subject property was most recently purchased in 1987 by Burhan Mela from Alan Goldsamt.

PVE completed a site inspection on October 12, 2024 to inspect current site conditions. The site inspection was performed by Erik Draijer, PE, QEP. No on-site Areas of Concern were identified during the site inspection.

Summary of the Work Performed under the Remedial Investigation

On November 20, 2024, four (4) 6-L Summa canisters (SV-1 20241120, SV-2 20241120, SV-3 20241120, and SV-4 20241120) were deployed in the basement and bottom floor of the structure (Figure 2). No residential occupancy exists in the basement. Samples were collected in a 6-liter summa canister with a flow controller connected to the summa canisters set collect the sample over a 24-hour period. Each of the four (4) soil vapor points were installed through the lowest level building slab, and were installed in accordance with NYSDOH procedures to depths of 1.0 feet below bottom of slab. A helium- vapor test was conducted to demonstrate a proper seal around the sampling ports and confirm sample integrity. Prior to sample collection, the sample port was purged of three volumes at a rate not to exceed 0.2 L/min.

An additional four (4) co-located ambient air samples (AI-1 20241120, AI-2 20241120, AI-3 20241120, and AI-4 20241120) were deployed on November 20, 2024. The indoor ambient air samples were also collected in a 6-liter summa canister with a flow controller connected to the summa canisters set collect the sample over a 24-hour period simultaneously with the soil vapor sampling.

Samples were collected on November 21, 2024, and submitted to York Analytical Labs Inc. for analysis of Volatile Organic Compounds (VOCs) via USEPA Method TO-15.

Summary of Environmental Findings

All concentrations of TCE were detected in soil vapors that require mitigation, regardless of the indoor air concentration. The concentrations of PCE were detected in SV-4/AI-4 that would warrant monitoring.

Trichloroethylene (TCE):

- AI-1: 1.9 $\mu\text{g}/\text{m}^3$
- SV-1: 76 $\mu\text{g}/\text{m}^3$

- AI-2: 0.75 $\mu\text{g}/\text{m}^3$

- SV-2: 330 $\mu\text{g}/\text{m}^3$

- AI-3: 0.50 $\mu\text{g}/\text{m}^3$

- SV-3: 290 $\mu\text{g}/\text{m}^3$

- AI-4: 32 $\mu\text{g}/\text{m}^3$

- SV-4: 74 $\mu\text{g}/\text{m}^3$

Tetrachloroethylene (PCE):

- SV-4: 36 $\mu\text{g}/\text{m}^3$

- AI-4: 26 $\mu\text{g}/\text{m}^3$

REMEDIAL INVESTIGATION REPORT

1.0 SITE BACKGROUND

Benny Mela, property owner, is considering enrolling in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate an 8,000-square foot site located at 1609 DeKalb Avenue in the Bushwick section of Brooklyn, New York. Residential use is currently on site and no changes in unit density are proposed for the property. The RI work was performed between November 20 and November 21, 2024. This RIR summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property pursuant to RCNY § 43-1407(f).

1.1 Site Location and Current Usage

The Site is located at 1609 DeKalb Avenue in the Bushwick section in Brooklyn, New York and is identified as Block 3237 and Lot 41 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 8,000 square feet and is bounded by 88 Wyckoff Avenue to the northeast, 950 Hart Street to the northwest, 1601 Dekalb Avenue to the southwest, and Dekalb Avenue to the southeast. A map of the site boundary is shown in Figure 1. Currently, the Site is used for residential purposes and contains a three-story residential building totaling 7,212 square feet in building footprint and 21,390 square feet in total building area with 21 units.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of residential use. The subject property has been improved with structures originally constructed prior to the 1968 Building Code and is currently seeking rehabilitation in accordance with Loft Law/DOB requirements. The current zoning designation is R6A - high lot coverage, six- to eight-story apartment buildings set at or near the street line designed to be compatible with older buildings in medium-density neighborhoods. The proposed use is consistent with existing zoning for the property.

1.3 Description of Surrounding Property

The surrounding property use consists of residential and commercial buildings. The adjoining property to the northeast is utilized as a US Postal Service office. The property to the southwest is currently under construction and is a future residential building. The property to the northeast is currently constructed as a multifamily residential building. The southeastern adjoining use is DeKalb Avenue followed by Wycoff Heights Medical Center, which is considered a healthcare sensitive receptor within 500 feet. One (1) other sensitive receptor is located within 500 feet of the subject property, identified as Women's Health Center Clinic at 110 Wycoff Avenue 200 feet to the east-southeast.

2.0 SITE HISTORY

2.1 Past Uses and Ownership

The property was identified as Morris Knitting Mills Inc. in 1933. The property was unimproved in 1907. By the 1951 Sanborn map, the subject property was identified as a 3-story loft building. Between 1965 and 2007, the subject property was identified as a knitting mill on Sanborn fire insurance maps. The structure and use of the subject property observed in the aerial photographs from 1954 to 2022 are consistent with the Sanborn maps. The subject property was most recently purchased in 1987 by Burhan Mela from Alan Goldsamt.

2.2 Previous Investigations

PVE reviewed remedial investigation reports and environmental site assessment reports for the adjoining property located to the southeast (1601 DeKalb Avenue) that is currently enrolled in the NYC VCP (19TMP1986K). The Remedial Investigation Report, dated November 2019 prepared by HydroTech Environmental, included a Phase I ESA, dated August 22, 2016, prepared by HydroTech Environmental. PVE reviewed the Sanborn fire insurance maps to determine past operating history of the subject property (1609 DeKalb Avenue).

The property was identified as Morris Knitting Mills Inc. in 1933. The property was unimproved in 1907. By the 1951 Sanborn map, the subject property was identified as a 3-story loft building. Between 1965 and 2007, the subject property was identified as a knitting mill on Sanborn fire insurance maps.

No subsurface investigations were performed on the subject property.

2.3 Site Inspection

PVE completed a site inspection on October 12, 2024 to inspect current site conditions. The site inspection was performed by Erik Draijer, PE, QEP. No on-site Areas of Concern were identified during the site inspection.

2.4 Areas of Concern

The subject property has been improved with structures originally constructed prior to the 1968 Building Code and is currently seeking rehabilitation in accordance with Loft Law/DOB requirements. The property has an E-Designation (E-465) for hazardous materials, noise and air quality, and an approved Noise/Air Quality Remedial Action Plan (RAP) and certain hazmat requirements must be satisfied and implemented during site activities.

Although the site history of a knitting mill operated since at least 1933, operations ceased at an unknown date and the property was utilized as a loft for residential purposes. Knitting mill operations included the use and storage of chemicals to dye, treat, clean, or manufacture fibers and textiles used in the knitting process. Based on the site history an E-Designation area of concern, OER requested a vapor investigation during a Pre-Application Meeting.

3.0 PROJECT MANAGEMENT

3.1 Project Organization

The Qualified Environmental Profession (QEP) responsible for preparation of this RIR is Erik Draijer.

3.2 Health and Safety

All work described in this RIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

3.3 Materials Management

All material encountered during the RI was managed in accordance with applicable laws and regulations. The investigation was limited to soil vapor and indoor air only.

4.0 REMEDIAL INVESTIGATION ACTIVITIES

4.1 Sub-Slab Soil Vapor Sampling

On November 20, 2024, four (4) 6-L Summa canisters (SV-1 20241120, SV-2 20241120, SV-3 20241120, and SV-4 20241120) were deployed in the basement and bottom floor of the structure (Figure 2). No residential occupancy exists in the basement. Samples were collected in a 6-liter summa canister with a flow controller connected to the summa canisters set collect the sample over a 24-hour period. Each of the four (4) soil vapor points were installed through the lowest level building slab, and were installed in accordance with NYSDOH procedures to depths of 1.0 feet below bottom of slab. A helium- vapor test was conducted to demonstrate a proper seal around the sampling ports and confirm sample integrity. Prior to sample collection, the sample port was purged of three volumes at a rate not to exceed 0.2 L/min.

An additional four (4) co-located ambient air samples (AI-1 20241120, AI-2 20241120, AI-3 20241120, and AI-4 20241120) were deployed on November 20, 2024. The indoor ambient air samples were also collected in a 6-liter summa canister with a flow controller connected to the summa canisters set collect the sample over a 24-hour period simultaneously with the soil vapor sampling.

Samples were collected on November 21, 2024, and submitted to York Analytical Labs Inc. for analysis of Volatile Organic Compounds (VOCs) via USEPA Method TO-15.

4.2 Results

4.2.1 *Indoor Air Samples*

According to the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (February 2024), twenty-one (21) compounds are regulated by NYSDOH: 1,1-Dichloroethene (1,1-DCE), Cis-1,2-Dichloroethene (Cis-1,2-DCE), Vinyl Chloride (VC), 1,1,1-Trichloroethane (1,1,1-TCA), Carbon Tetrachloride, Methylene Chloride, Tetrachloroethene (PCE), Trichloroethene (TCE), Benzene, Ethylbenzene, Naphthalene, Cyclohexane, Isooctane (2,2,4-Trimethylpentane), 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, O-Xylene, M-Xylene, P-Xylene, Heptane, Hexane, and Toluene. According to the NYSDOH matrix guidance, the following NYSDOH-regulated compounds were detected in soil vapor/indoor air samples:

- AI-1
Trichloroethylene (TCE): 1.9 ug/m³
- AI-2
Trichloroethylene (TCE): 0.75 ug/m³
- AI-3
Trichloroethylene (TCE): 0.50 ug/m³
- AI-4
Trichloroethylene (TCE): 32 ug/m³
Tetrachloroethylene (PCE): 36 ug/m³

4.2.2 *Sub-Slab Soil Vapor Samples*

According to the NYSDOH matrix guidance, the following NYSDOH-regulated compounds were detected within guidance values in ambient indoor air samples that warrant continued monitoring:

- SV-1
Trichloroethylene (TCE): 76 µg/m³
- SV-2
Trichloroethylene (TCE): 330 µg/m³
- SV-3
Trichloroethylene (TCE): 290 µg/m³
- SV-4
Trichloroethylene (TCE): 74 µg/m³
Tetrachloroethylene (PCE): 26 µg/m³

5.0 ENVIRONMENTAL EVALUATION

5.1 Soil Vapor Chemistry

The following NYSDOH compounds with guidance values were detected at concentrations in ambient indoor air and soil vapor samples that warrant mitigation:

All concentrations of TCE were detected in soil vapors that require mitigation, regardless of the indoor air concentration. The concentrations of PCE were detected in SV-4/AI-4 that would warrant monitoring.

Trichloroethylene (TCE):

- AI-1: 1.9 $\mu\text{g}/\text{m}^3$
- SV-1: 76 $\mu\text{g}/\text{m}^3$

- AI-2: 0.75 $\mu\text{g}/\text{m}^3$
- SV-2: 330 $\mu\text{g}/\text{m}^3$

- AI-3: 0.50 $\mu\text{g}/\text{m}^3$
- SV-3: 290 $\mu\text{g}/\text{m}^3$

- AI-4: 32 $\mu\text{g}/\text{m}^3$
- SV-4: 74 $\mu\text{g}/\text{m}^3$

Tetrachloroethylene (PCE):

- SV-4: 36 $\mu\text{g}/\text{m}^3$
- AI-4: 26 $\mu\text{g}/\text{m}^3$

Data collected during the RI is sufficient to delineate the distribution of contaminants in soil vapor at the Site. A summary table of data for chemical analyses performed on soil vapor samples is included in Table 1.

5.2 Prior Activity

Based on an evaluation of the data and information from the RIR, disposal of significant amounts of hazardous waste is not suspected at this site.

5.3 Impediments to Remedial Action

There are no known impediments to remedial action at this property. PVE recommends vapor mitigation to prevent vapor intrusion into the existing building.

TABLES

TABLE 1:

**VOCS IN SOIL VAPOR/INDOOR AIR SAMPLES
(SHOWING EXCEEDANCES OF NYS DOH SOIL
VAPOR INTRUSION GUIDANCE)**

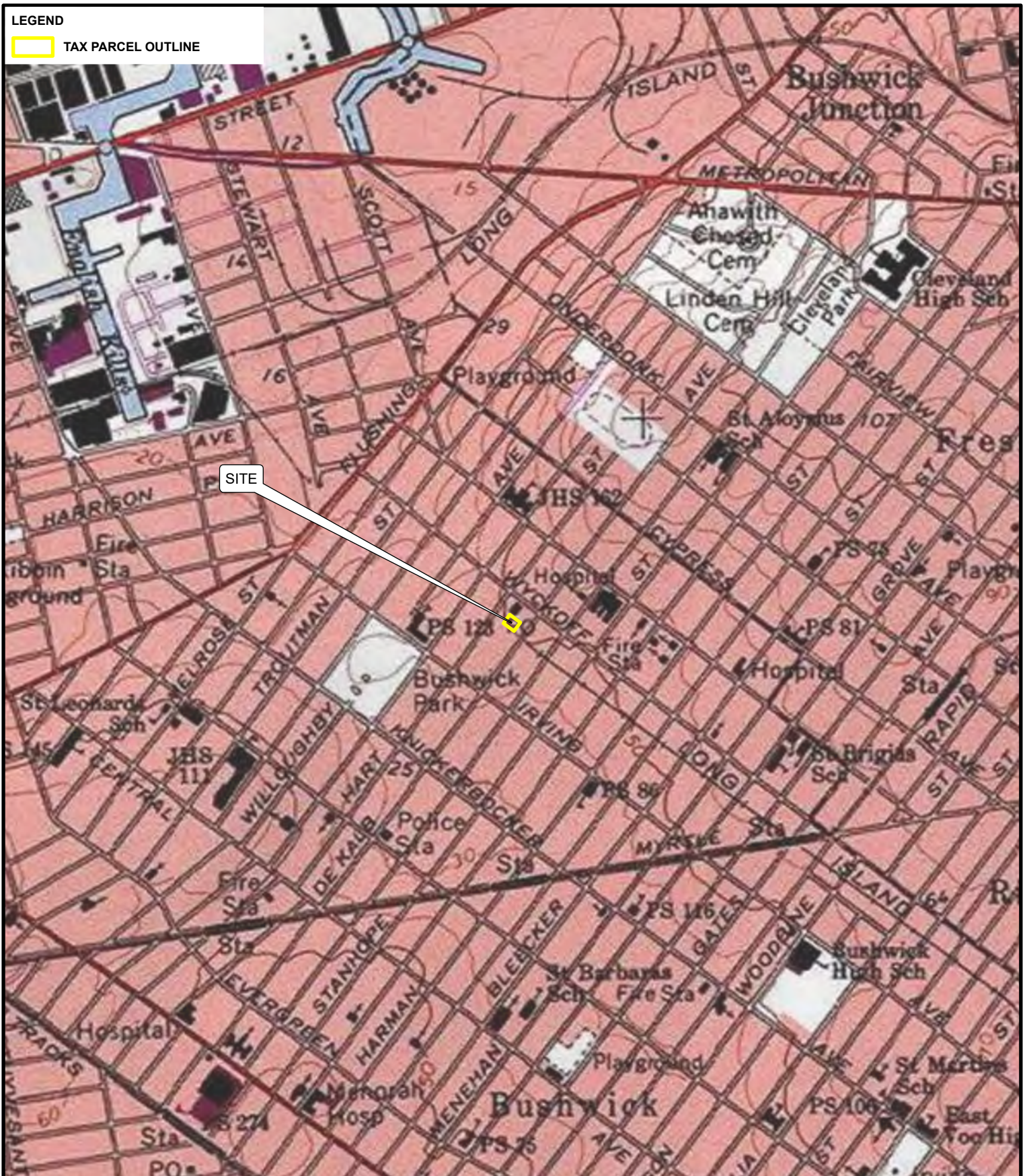
Table 1 - VOCs in Soil Vapor and Indoor Air
 Compared to NYSDOH Decision Matrices (2024), Soil Vapor Intrusion Guidance Document
 1609 Dekalb Avenue, Brooklyn, NY 11237
 PVE File #20240432

Analyte	CAS RN	NYSDOH SV 022024 Decision Matrices Minimum Concentrations	NYSDOH SV 052017 Decision Matrices Minimum Concentrations	Date Sampled Location		11/21/2024 SV-1		11/21/2024 AI-1		11/21/2024 SV-2		11/21/2024 AI-2		11/21/2024 AI-3		11/21/2024 SV-3		11/21/2024 SV-4		11/21/2024 AI-4		
				Sample ID		SV-1-20241120		AI-1-20241120		SV-2-20241120		AI-2-20241120		AI-3-20241120		SV-3-20241120		SV-4-20241120		AI-4-20241120		
				Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result	Unit	Result
1,1,1,2-Tetrachloroethane	630-20-6	-	-	ND< 0.95	ug/m3	2.2	ug/m3	ND< 1.0	ug/m3	ND< 0.50	ug/m3	ND< 0.49	ug/m3	ND< 1.1	ug/m3	ND< 1.0	ug/m3	ND< 0.55	ug/m3	ND< 0.55	ug/m3	
1,1,1-Trichloroethane (TCA)	71-55-6	-	100	ug/m3	26	ug/m3	2.0	ug/m3	39	ug/m3	ND< 0.40	ug/m3	ND< 0.39	ug/m3	36	ug/m3	17	ug/m3	ND< 0.44	ug/m3	ND< 0.44	ug/m3
1,1,2-Tetrachloroethane	79-34-5	-	-	ug/m3	ND< 0.95	ug/m3	2.3	ug/m3	ND< 1.0	ug/m3	ND< 0.50	ug/m3	ND< 0.49	ug/m3	ND< 1.1	ug/m3	ND< 1.0	ug/m3	ND< 0.55	ug/m3	ND< 0.55	ug/m3
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	-	-	ND< 1.1	ug/m3	3.2	ug/m3	ND< 1.2	ug/m3	0.56	ug/m3	0.55	ug/m3	ND< 1.2	ug/m3	ND< 1.1	ug/m3	ND< 0.62	ug/m3	ND< 0.62	ug/m3	
1,1,2-Trichloroethane	79-00-5	-	-	ug/m3	ND< 0.76	ug/m3	1.8	ug/m3	ND< 0.83	ug/m3	ND< 0.40	ug/m3	ND< 0.39	ug/m3	ND< 0.85	ug/m3	ND< 0.79	ug/m3	ND< 0.44	ug/m3	ND< 0.44	ug/m3
1,1-Dichloroethane	75-34-3	-	-	ug/m3	ND< 0.56	ug/m3	1.4	ug/m3	ND< 0.62	ug/m3	ND< 0.30	ug/m3	ND< 0.29	ug/m3	ND< 0.63	ug/m3	ND< 0.59	ug/m3	ND< 0.33	ug/m3	ND< 0.33	ug/m3
1,1-Dichloroethylene	75-35-4	-	6	ug/m3	ND< 0.14	ug/m3	0.14	ug/m3	0.18	ug/m3	ND< 0.073	ug/m3	ND< 0.071	ug/m3	0.19	ug/m3	ND< 0.14	ug/m3	ND< 0.080	ug/m3	ND< 0.080	ug/m3
1,2,4-Trichlorobenzene	120-82-1	-	-	ug/m3	ND< 1.0	ug/m3	0.76	ug/m3	ND< 1.1	ug/m3	ND< 0.55	ug/m3	ND< 0.53	ug/m3	ND< 1.2	ug/m3	ND< 1.1	ug/m3	ND< 0.60	ug/m3	ND< 0.60	ug/m3
1,2,4-Trimethylbenzene	95-63-6	60	-	ug/m3	0.96	ug/m3	1.9	ug/m3	1.2	ug/m3	0.87	ug/m3	0.88	ug/m3	1.2	ug/m3	1.0	ug/m3	ND< 0.55	ug/m3	ND< 0.55	ug/m3
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	-	-	ug/m3	ND< 1.1	ug/m3	2.4	ug/m3	ND< 1.2	ug/m3	ND< 0.56	ug/m3	ND< 0.55	ug/m3	ND< 1.2	ug/m3	ND< 1.1	ug/m3	ND< 0.62	ug/m3	ND< 0.62	ug/m3
1,2-Dichlorobenzene	95-50-1	-	-	ug/m3	ND< 0.83	ug/m3	1.3	ug/m3	ND< 0.92	ug/m3	ND< 0.44	ug/m3	ND< 0.43	ug/m3	ND< 0.94	ug/m3	ND< 0.87	ug/m3	ND< 0.48	ug/m3	ND< 0.48	ug/m3
1,2-Dichloroethane	107-06-2	-	-	ug/m3	ND< 0.56	ug/m3	1.6	ug/m3	ND< 0.62	ug/m3	ND< 0.30	ug/m3	ND< 0.29	ug/m3	ND< 0.63	ug/m3	ND< 0.59	ug/m3	ND< 0.33	ug/m3	ND< 0.33	ug/m3
1,2-Dichloropropane	78-87-5	-	-	ug/m3	ND< 0.64	ug/m3	1.6	ug/m3	ND< 0.71	ug/m3	ND< 0.34	ug/m3	ND< 0.33	ug/m3	ND< 0.72	ug/m3	ND< 0.67	ug/m3	ND< 0.37	ug/m3	ND< 0.37	ug/m3
1,2-Dichlorotetrafluoroethane	76-14-2	-	-	ug/m3	ND< 0.57	ug/m3	4.0	ug/m3	ND< 1.1	ug/m3	ND< 0.51	ug/m3	ND< 0.50	ug/m3	ND< 1.1	ug/m3	ND< 1.0	ug/m3	ND< 0.56	ug/m3	ND< 0.56	ug/m3
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	60	-	ug/m3	ND< 0.68	ug/m3	1.6	ug/m3	ND< 0.75	ug/m3	ND< 0.36	ug/m3	ND< 0.35	ug/m3	0.77	ug/m3	ND< 0.72	ug/m3	ND< 0.40	ug/m3	ND< 0.40	ug/m3
1,3-Butadiene	106-99-0	-	-	ug/m3	ND< 0.92	ug/m3	0.76	ug/m3	ND< 1.0	ug/m3	ND< 0.49	ug/m3	ND< 0.48	ug/m3	ND< 1.0	ug/m3	ND< 0.97	ug/m3	ND< 0.53	ug/m3	ND< 0.53	ug/m3
1,3-Dichlorobenzene	141-73-1	-	-	ug/m3	ND< 0.83	ug/m3	1.7	ug/m3	ND< 0.92	ug/m3	ND< 0.44	ug/m3	ND< 0.43	ug/m3	ND< 0.94	ug/m3	ND< 0.87	ug/m3	ND< 0.48	ug/m3	ND< 0.48	ug/m3
1,3-Dichloropropane	542-28-9	-	-	ND< 0.64	ug/m3	1.5	ug/m3	ND< 0.71	ug/m3	ND< 0.34	ug/m3	ND< 0.33	ug/m3	ND< 0.72	ug/m3	ND< 0.67	ug/m3	ND< 0.37	ug/m3	ND< 0.37	ug/m3	
1,4-Dichlorobenzene	106-46-7	-	-	ug/m3	ND< 0.83	ug/m3	1.8	ug/m3	ND< 0.92	ug/m3	ND< 0.44	ug/m3	ND< 0.43	ug/m3	ND< 0.94	ug/m3	ND< 0.87	ug/m3	ND< 0.48	ug/m3	ND< 0.48	ug/m3
1,4-Dioxane (P-Dioxane)	123-91-1	-	-	ND< 1.0	ug/m3	1.0	ug/m3	ND< 1.1	ug/m3	ND< 0.53	ug/m3	ND< 0.52	ug/m3	ND< 1.0	ug/m3	ND< 1.0	ug/m3	ND< 0.58	ug/m3	ND< 0.58	ug/m3	
2,2,4-Trimethylpentane	540-84-1	-	-	0.32	ug/m3	2.5	ug/m3	ND< 0.36	ug/m3	1.4	ug/m3	1.4	ug/m3	0.37	ug/m3	ND< 0.34	ug/m3	0.79	ug/m3	0.79	ug/m3	
2-Hexanone	591-78-6	-	-	ug/m3	ND< 1.1	ug/m3	1.4	ug/m3	ND< 1.3	ug/m3	ND< 0.60	ug/m3	ND< 0.59	ug/m3	ND< 1.3	ug/m3	ND< 1.2	ug/m3	ND< 0.66	ug/m3	ND< 0.66	ug/m3
4-Ethyltoluene	622-96-8	-	-	ug/m3	ND< 0.68	ug/m3	1.9	ug/m3	0.75	ug/m3	0.83	ug/m3	0.78	ug/m3	1.9	ug/m3	0.79	ug/m3	0.47	ug/m3	0.47	ug/m3
Acetone	67-64-1	-	-	ug/m3	13	ug/m3	37	ug/m3	17	ug/m3	13	ug/m3	21	ug/m3	33	ug/m3	58	ug/m3	35	ug/m3	35	ug/m3
Acrylonitrile	107-13-1	-	-	ND< 3.9	ug/m3	ND< 2.1	ug/m3	ND< 4.3	ug/m3	2.1	ug/m3	ND< 2.0	ug/m3	ND< 4.4	ug/m3	7.2	ug/m3	ND< 2.3	ug/m3	ND< 2.3	ug/m3	
Allyl Chloride (3-Chloropropene)	107-05-1	-	-	ND< 2.2	ug/m3	ND< 1.2	ug/m3	ND< 2.4	ug/m3	ND< 1.2	ug/m3	1.4	ug/m3	ND< 2.5	ug/m3	ND< 2.3	ug/m3	ND< 1.3	ug/m3	ND< 1.3	ug/m3	
Benzene	71-43-2	60	-	ug/m3	0.75	ug/m3	2.4	ug/m3	1.5	ug/m3	1.4	ug/m3	1.8	ug/m3	3.2	ug/m3	0.84	ug/m3	ND< 0.80	ug/m3	ND< 0.80	ug/m3
Benzyl Chloride	100-44-7	-	-	ND< 0.72	ug/m3	0.76	ug/m3	ND< 0.79	ug/m3	ND< 0.38	ug/m3	ND< 0.37	ug/m3	ND< 0.81	ug/m3	ND< 0.75	ug/m3	ND< 0.42	ug/m3	ND< 0.42	ug/m3	
Bromodichloromethane	75-27-4	-	-	ND< 0.93	ug/m3	2.4	ug/m3	ND< 1.0	ug/m3	ND< 0.49	ug/m3	ND< 0.48	ug/m3	ND< 1.0	ug/m3	ND< 0.97	ug/m3	ND< 0.54	ug/m3	ND< 0.54	ug/m3	
Bromofom	75-25-2	-	-	ND< 1.4	ug/m3	1.4	ug/m3	ND< 1.6	ug/m3	ND< 0.76	ug/m3	ND< 0.74	ug/m3	ND< 1.6	ug/m3	ND< 1.5	ug/m3	ND< 0.83	ug/m3	ND< 0.83	ug/m3	
Bromomethane	74-83-9	-	-	ug/m3	ND< 0.94	ug/m3	1.3	ug/m3	ND< 0.59	ug/m3	ND< 0.29	ug/m3	ND< 0.28	ug/m3	ND< 0.61	ug/m3	ND< 0.56	ug/m3	ND< 0.31	ug/m3	ND< 0.31	ug/m3
Carbon Disulfide	75-15-0	-	-	2.2	ug/m3	1.1	ug/m3	5.7	ug/m3	ND< 0.23	ug/m3	ND< 0.22	ug/m3	3.2	ug/m3	2.9	ug/m3	ND< 0.29	ug/m3	ND< 0.29	ug/m3	
Carbon Tetrachloride	56-23-5	6	-	ug/m3	2.5	ug/m3	2.3	ug/m3	2.4	ug/m3	0.37	ug/m3	0.36	ug/m3	3.0	ug/m3	3.6	ug/m3	0.35	ug/m3	0.35	ug/m3
Chlorobenzene	108-90-7	-	-	ug/m3	ND< 0.64	ug/m3	1.5	ug/m3	ND< 0.70	ug/m3	ND< 0.34	ug/m3	ND< 0.33	ug/m3	ND< 0.72	ug/m3	ND< 0.67	ug/m3	ND< 0.37	ug/m3	ND< 0.37	ug/m3
Chloroethane	75-00-3	-	-	ug/m3	ND< 0.37	ug/m3	0.93	ug/m3	ND< 0.40	ug/m3	ND< 0.19	ug/m3	ND< 0.19	ug/m3	ND< 0.41	ug/m3	ND< 0.38	ug/m3	ND< 0.21	ug/m3	ND< 0.21	ug/m3
Chloroform	67-66-3	-	-	ug/m3	39	ug/m3	2.0	ug/m3	6.3	ug/m3	0.36	ug/m3	0.35	ug/m3	5.0	ug/m3	6.3	ug/m3	ND< 0.39	ug/m3	ND< 0.39	ug/m3
Chloromethane	74-87-3	-	-	ug/m3	0.57	ug/m3	1.0	ug/m3	1.4	ug/m3	1.3	ug/m3	2.6	ug/m3	ND< 0.32	ug/m3	ND< 0.30	ug/m3	1.3	ug/m3	1.3	ug/m3
Cis-1,2-Dichloroethylene	156-59-2	6	-	ug/m3	ND< 0.14	ug/m3	1.4	ug/m3	ND< 0.15	ug/m3	0.17	ug/m3	ND< 0.071	ug/m3	ND< 0.16	ug/m3	0.23	ug/m3	41	ug/m3	41	ug/m3
Cis-1,3-Dichloropropene	10061-01-5	-	-	ug/m3	ND< 0.63	ug/m3	1.4	ug/m3	ND< 0.69	ug/m3	ND< 0.33	ug/m3	ND< 0.33	ug/m3	ND< 0.71	ug/m3	ND< 0.66	ug/m3	ND< 0.36	ug/m3	ND< 0.36	ug/m3
Cyclohexane	110-82-7	60	-	ug/m3	ND< 0.48	ug/m3	1.4	ug/m3	ND< 0.53	ug/m3	0.35	ug/m3	0.32	ug/m3	0.59	ug/m3	ND< 0.50	ug/m3	ND< 0.28	ug/m3	ND< 0.28	ug/m3
Dibromochloromethane	124-48-1	-	-	ND< 1.2	ug/m3	1.6	ug/m3	ND< 1.3	ug/m3	ND< 0.63	ug/m3	ND< 0.61	ug/m3	ND< 1.3	ug/m3	ND< 1.2	ug/m3	ND< 0.68	ug/m3	ND< 0.68	ug/m3	
Dichlorodifluoromethane	75-71-8	-	-	ug/m3	3.2	ug/m3	3.8	ug/m3	2.6	ug/m3	2.5	ug/m3	2.5	ug/m3	ND< 0.77	ug/m3	ND< 0.72	ug/m3	2.4	ug/m3	2.4	ug/m3
Ethyl Acetate	141-78-6	-	-	ND< 1.0	ug/m3	2.2	ug/m3	ND< 1.0	ug/m3	1.2	ug/m3	1.1	ug/m3	ND< 1.1	ug/m3	ND< 1.0	ug/m3	ND< 0.58	ug/m3	ND< 0.58	ug/m3	
Ethylbenzene	100-41-4	60	-	ug/m3	1.2	ug/m3	2.8	ug/m3	1.5	ug/m3	2.5	ug/m3	2.7	ug/m3	5.0	ug/m3	1.5	ug/m3	1.8	ug/m3	1.8	ug/m3
Hexachlorobutadiene	87-68-3	-	-	ug/m3	ND< 1.5	ug/m3	1.8	ug/m3	ND< 1.6	ug/m3	ND< 0.78	ug/m3	ND< 0.77	ug/m3	ND< 1.7	ug/m3	ND< 1.6	ug/m3	ND< 0.86	ug/m3	ND< 0.86	ug/m3
Isopropanol	67-63-0	-	-	4.2	ug/m3	5.6	ug/m3	ND< 2.3	ug/m3	7.0	ug/m3	6.9	ug/m3	2.5	ug/m3	6.2	ug/m3	5.5	ug/m3	5.5	ug/m3	
m,p-Xylene	179601-23-1	200	-	4.0	ug/m3	7.2	ug/m3	3.7	ug/m3	7.5	ug/m3	6.5	ug/m3	5.4	ug/m3	4.0	ug/m3	6.5	ug/m3	6.5	ug/m3	
Methyl Ethyl Ketone (2-Butanone)	78-93-3	-	-	ug/m3	1.2	ug/m3	3.0	ug/m3	2.7	ug/m3	2.6	ug/m3	3.1	ug/m3	4.2	ug						

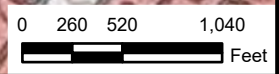
FIGURES

FIGURE 1:
SITE MAP

LEGEND
 TAX PARCEL OUTLINE



DATA SOURCES:
 Tax Parcel Outline: NYS GIS Data
 Basemap: Copyright:© 2013 National Geographic Society, i-cubed



PVE
 48 Springside Avenue
 Poughkeepsie, NY 12603
 Office: 845.454.2544
 Fax: 845.454.2655

SITE LOCATION MAP
 1609 DEKALB AVENUE
 BROOKLYN, NEW YORK 11237


PROJECT NO.
 20240999


FIGURE 1
 DATE: 02/13/2025
 SCALE: AS INDICATED
 PROJECTION: STATE PLANE NAD83 NY EAST
 ALL LOCATIONS APPROXIMATE

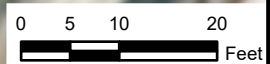
FIGURE 2:
SAMPLE LOCATIONS

LEGEND

- NYS_Tax_Parcels_Public
(INCLUDES MOST COUNTIES)
selection
- ▲ SOIL VAPOR
- ▲ INDOOR AIR



DATA SOURCES:
 Tax Parcel Outline:
 Basemap: Esri Community Maps Contributors, NYC OpenData, New Jersey Office of GIS, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, New York State, Maxar, Microsoft



PVE
 25 W. 39th St. 12th Floor
 New York, NY 10018
 Phone: (646) 602-4999
 Fax: (212) 682-1991

SAMPLE LOCATION MAP
 1609 DEKALB AVENUE
 BROOKLYN, NEW YORK 11237

PROJECT NO.
20240404

N
▲

FIGURE 2

DATE: 12/10/2024

SCALE: AS INDICATED

PROJECTION: STATE PLANE NAD83 NY LONG ISLAND

ALL LOCATIONS APPROXIMATE

APPENDICES

APPENDIX A:
VAPOR SAMPLING LOGS

VAPOR SAMPLING LOG

Project Name/Address: 1609 Dekalb

PVE Project #: 20240999

Sampler(s): JK

Weather: 48°, cloudy w/ light rain

NOTES: _____

KEY

Location Type:

- (A) Sub-slab
- (B) Soil vapor probe, pre-fabricated (_____)
- (C) Soil vapor probe, field constructed (Describe: _____)
- (D) Ambient Air

Sampling Method:

- (A) 1-L summa canister
- (B) 6-L summa canister
- (C) Other: _____

Purge Method:

- (A) Peristaltic pump set to a flow rate ≤ 0.2 L/min
- (B) PID set to a flow rate ≤ 0.2 L/min
- (C) Other: _____

Apparent Moisture Content of Sampling Zone:

- (A) Dry
- (B) Moist
- (C) Saturated

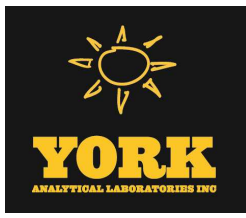
Sample ID	Location Type	Apparent Moisture	Sample Depth	Helium Tracer Test	Sampling Method	Purge Method	Purge Volume	Sample Start Date/Time	Sample End Date/Time	Canister ID	Regulator ID	Canister start vacuum	Canister end vacuum
SV-1	A	no	3"	yes	B	B	3 volumes	11/20/24 0941	11/21/24 0831	28306	-30	-	-4.5
SV-2	A	↓	↓	↓	↓	↓	↓	11/20/24 0938	11/21/24 0834	50992 JK 50992	-30	↓	-3
SV-3	A	↓	↓	↓	↓	↓	↓	11/20/24 0936	11/21/24 0837	23994	-30	↓	-1
SV-4	A	↓	↓	↓	↓	↓	↓	11/20/24 0934	11/21/24 0839	48298	-30	↓	-1

_____ Laboratory: _____

Date Shipped to Lab: _____

Delivery Service: FedEx UPS Courier

APPENDIX B:
LABORATORY DATA DELIVERABLES FOR SOIL
VAPOR ANALYTICAL DATA



Technical Report

prepared for:

PVE, LLC.
25 W. 39th Street, 12th Floor
New York NY, 10018
Attention: Erik Draijer

Report Date: 12/09/2024
Client Project ID: 20240999 1609 Dekalb Ave
York Project (SDG) No.: 24K1644

Revision No. 1.0

Stratford, CT Laboratory IDs:
NY:10854, NJ: CT005, PA: 68-0440, CT: PH-0723



Richmond Hill, NY Laboratory IDs:
NY:12058, NJ: NY037, CT: PH-0721, NH: 2097,
EPA: NY01600

120 RESEARCH DRIVE
www.YORKLAB.com

STRATFORD, CT 06615
(203) 325-1371

132-02 89th AVENUE
FAX (203) 357-0166

RICHMOND HILL, NY 11418
ClientServices@yorklab.com

Report Date: 12/09/2024
Client Project ID: 20240999 1609 Dekalb Ave
York Project (SDG) No.: 24K1644

PVE, LLC.
25 W. 39th Street, 12th Floor
New York NY, 10018
Attention: Erik Draijer

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on November 21, 2024 and listed below. The project was identified as your project: **20240999 1609 Dekalb Ave.**

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
24K1644-01	SV-1-20241120	Soil Vapor	11/21/2024	11/21/2024
24K1644-02	AI-1-20241120	Indoor Ambient Air	11/21/2024	11/21/2024
24K1644-03	SV-2-20241120	Soil Vapor	11/21/2024	11/21/2024
24K1644-04	AI-2-20241120	Indoor Ambient Air	11/21/2024	11/21/2024
24K1644-05	SV-3-20241120	Soil Vapor	11/21/2024	11/21/2024
24K1644-06	AI-3-20241120	Indoor Ambient Air	11/21/2024	11/21/2024
24K1644-07	SV-4-20241120	Soil Vapor	11/21/2024	11/21/2024
24K1644-08	AI-4-20241120	Indoor Ambient Air	11/21/2024	11/21/2024

General Notes for York Project (SDG) No.: 24K1644

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854, NJ Cert No. CT005, PA Cert No. 68-04440, CT Cert No. PH-0723; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058, NJ Cert No. NY037, CT Cert No. PH-0721, NH Cert No. 2097, EPA Cert No. NY01600.

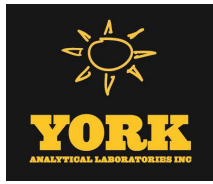
Approved By:



Cassie L. Mosher
Laboratory Manager

Date: 12/09/2024





Sample Information

Client Sample ID: SV-1-20241120

York Sample ID: 24K1644-01

York Project (SDG) No.
24K1644

Client Project ID
20240999 1609 Dekalb Ave

Matrix
Soil Vapor

Collection Date/Time
November 21, 2024 8:31 am

Date Received
11/21/2024

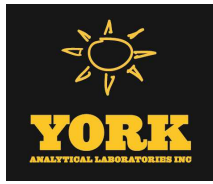
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m ³	0.95	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR
71-55-6	1,1,1-Trichloroethane	26		ug/m ³	0.76	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m ³	0.95	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m ³	1.1	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
79-00-5	1,1,2-Trichloroethane	ND		ug/m ³	0.76	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-34-3	1,1-Dichloroethane	ND		ug/m ³	0.56	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-35-4	1,1-Dichloroethylene	ND		ug/m ³	0.14	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
120-82-1	1,2,4-Trichlorobenzene	ND	TO-LC S-L	ug/m ³	1.0	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
95-63-6	1,2,4-Trimethylbenzene	0.96		ug/m ³	0.68	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	1.1	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.83	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.56	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.64	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	0.97	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m ³	0.68	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
106-99-0	1,3-Butadiene	ND		ug/m ³	0.92	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.83	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.64	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR



Sample Information

Client Sample ID: SV-1-20241120

York Sample ID: 24K1644-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:31 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.83	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
123-91-1	1,4-Dioxane	ND		ug/m ³	1.0	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
540-84-1	* 2,2,4-Trimethylpentane	0.32		ug/m ³	0.32	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR
78-93-3	2-Butanone	1.2		ug/m ³	0.41	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	1.1	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR
107-05-1	3-Chloropropene	ND		ug/m ³	2.2	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
108-10-1	4-Methyl-2-pentanone	0.74		ug/m ³	0.57	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
67-64-1	Acetone	13		ug/m ³	2.6	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
107-13-1	Acrylonitrile	ND		ug/m ³	3.9	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
71-43-2	Benzene	0.75		ug/m ³	0.44	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.72	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-27-4	Bromodichloromethane	ND		ug/m ³	0.93	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-25-2	Bromoform	ND	ICVE	ug/m ³	1.4	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
74-83-9	Bromomethane	ND		ug/m ³	0.54	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-15-0	Carbon disulfide	2.2		ug/m ³	0.43	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
56-23-5	Carbon tetrachloride	2.5		ug/m ³	0.22	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
108-90-7	Chlorobenzene	ND		ug/m ³	0.64	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-00-3	Chloroethane	ND		ug/m ³	0.37	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
67-66-3	Chloroform	39		ug/m ³	0.68	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR



Sample Information

Client Sample ID: SV-1-20241120

York Sample ID: 24K1644-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:31 am

11/21/2024

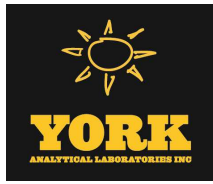
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
74-87-3	Chloromethane	0.57	TO-CC V, TO-LC S-H	ug/m ³	0.29	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m ³	0.14	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m ³	0.63	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
110-82-7	Cyclohexane	ND		ug/m ³	0.48	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
124-48-1	Dibromochloromethane	ND	ICVE	ug/m ³	1.2	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-71-8	Dichlorodifluoromethane	3.2		ug/m ³	0.69	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
141-78-6	* Ethyl acetate	ND		ug/m ³	1.0	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR
100-41-4	Ethyl Benzene	1.2		ug/m ³	0.60	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
87-68-3	Hexachlorobutadiene	ND		ug/m ³	1.5	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
67-63-0	Isopropanol	4.2		ug/m ³	2.0	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
80-62-6	Methyl Methacrylate	ND		ug/m ³	0.57	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.50	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-09-2	Methylene chloride	7.9		ug/m ³	2.9	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
91-20-3	* Naphthalene	ND		ug/m ³	1.5	1.388	EPA TO-15 Certifications: NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
142-82-5	n-Heptane	ND		ug/m ³	0.57	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
110-54-3	n-Hexane	ND		ug/m ³	0.49	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
95-47-6	o-Xylene	1.1		ug/m ³	0.60	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
179601-23-1	p- & m- Xylenes	4.0		ug/m ³	1.2	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
622-96-8	* p-Ethyltoluene	ND		ug/m ³	0.68	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR



Sample Information

Client Sample ID: SV-1-20241120

York Sample ID: 24K1644-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:31 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
115-07-1	* Propylene	1.1		ug/m ³	0.24	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR
100-42-5	Styrene	ND		ug/m ³	0.59	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
127-18-4	Tetrachloroethylene	28		ug/m ³	0.94	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
109-99-9	* Tetrahydrofuran	1.1		ug/m ³	0.82	1.388	EPA TO-15 Certifications:	11/29/2024 12:00	12/03/2024 00:07	YR
108-88-3	Toluene	22		ug/m ³	0.52	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m ³	0.55	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m ³	0.63	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
79-01-6	Trichloroethylene	76		ug/m ³	0.19	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-69-4	Trichlorofluoromethane (Freon 11)	1.6		ug/m ³	0.78	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
108-05-4	Vinyl acetate	ND	TO-LC S-L, ICVE	ug/m ³	0.49	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
593-60-2	Vinyl bromide	ND		ug/m ³	0.61	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR
75-01-4	Vinyl Chloride	ND		ug/m ³	0.18	1.388	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	11/29/2024 12:00	12/03/2024 00:07	YR

Sample Information

Client Sample ID: AI-1-20241120

York Sample ID: 24K1644-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:33 am

11/21/2024

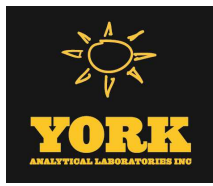
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	2.2		ug/m ³	0.50	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
71-55-6	1,1,1-Trichloroethane	2.0		ug/m ³	0.40	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR



Sample Information

Client Sample ID: AI-1-20241120

York Sample ID: 24K1644-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:33 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
79-34-5	1,1,2,2-Tetrachloroethane	2.3		ug/m ³	0.50	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	3.2		ug/m ³	0.56	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
79-00-5	1,1,2-Trichloroethane	1.8		ug/m ³	0.40	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-34-3	1,1-Dichloroethane	1.4		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-35-4	1,1-Dichloroethylene	1.4		ug/m ³	0.073	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
120-82-1	1,2,4-Trichlorobenzene	0.76	TO-LC S-L	ug/m ³	0.55	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
95-63-6	1,2,4-Trimethylbenzene	1.9		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
106-93-4	1,2-Dibromoethane	2.4		ug/m ³	0.56	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
95-50-1	1,2-Dichlorobenzene	1.3		ug/m ³	0.44	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
107-06-2	1,2-Dichloroethane	1.6		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
78-87-5	1,2-Dichloropropane	1.6		ug/m ³	0.34	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
76-14-2	1,2-Dichlorotetrafluoroethane	4.0	TO-CC V, TO-LC S-H	ug/m ³	0.51	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
108-67-8	1,3,5-Trimethylbenzene	1.6		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
106-99-0	1,3-Butadiene	0.76		ug/m ³	0.49	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
541-73-1	1,3-Dichlorobenzene	1.7		ug/m ³	0.44	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
142-28-9	* 1,3-Dichloropropane	1.5		ug/m ³	0.34	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
106-46-7	1,4-Dichlorobenzene	1.8		ug/m ³	0.44	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
123-91-1	1,4-Dioxane	1.0		ug/m ³	0.53	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
540-84-1	* 2,2,4-Trimethylpentane	2.5		ug/m ³	0.17	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
78-93-3	2-Butanone	3.0		ug/m ³	0.22	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
591-78-6	* 2-Hexanone	1.4		ug/m ³	0.60	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR



Sample Information

Client Sample ID: AI-1-20241120

York Sample ID: 24K1644-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:33 am

11/21/2024

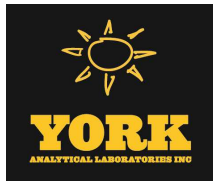
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
107-05-1	3-Chloropropene	ND		ug/m ³	1.2	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
108-10-1	4-Methyl-2-pentanone	1.8		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
67-64-1	Acetone	37		ug/m ³	1.4	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
107-13-1	Acrylonitrile	ND		ug/m ³	2.1	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
71-43-2	Benzene	2.4		ug/m ³	0.23	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
100-44-7	Benzyl chloride	0.76		ug/m ³	0.38	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-27-4	Bromodichloromethane	2.4		ug/m ³	0.49	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-25-2	Bromoform	1.4	ICVE, TO-LC S-L	ug/m ³	0.76	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
74-83-9	Bromomethane	1.3		ug/m ³	0.29	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-15-0	Carbon disulfide	1.1		ug/m ³	0.23	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
56-23-5	Carbon tetrachloride	2.3		ug/m ³	0.12	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
108-90-7	Chlorobenzene	1.5		ug/m ³	0.34	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-00-3	Chloroethane	0.93		ug/m ³	0.19	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
67-66-3	Chloroform	2.0		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
74-87-3	Chloromethane	10	TO-CC V, TO-LC S-H	ug/m ³	0.15	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
156-59-2	cis-1,2-Dichloroethylene	1.4		ug/m ³	0.073	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
10061-01-5	cis-1,3-Dichloropropylene	1.4		ug/m ³	0.33	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
110-82-7	Cyclohexane	1.4		ug/m ³	0.25	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
124-48-1	Dibromochloromethane	1.6	ICVE	ug/m ³	0.63	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-71-8	Dichlorodifluoromethane	3.8		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR



Sample Information

Client Sample ID: AI-1-20241120

York Sample ID: 24K1644-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:33 am

11/21/2024

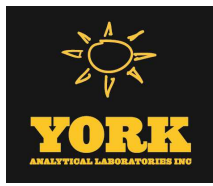
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
141-78-6	* Ethyl acetate	2.2		ug/m ³	0.53	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
100-41-4	Ethyl Benzene	2.8		ug/m ³	0.32	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
87-68-3	Hexachlorobutadiene	1.8		ug/m ³	0.78	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
67-63-0	Isopropanol	5.6		ug/m ³	1.1	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
80-62-6	Methyl Methacrylate	1.4		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	1.3		ug/m ³	0.26	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-09-2	Methylene chloride	2.7		ug/m ³	1.5	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
91-20-3	* Naphthalene	1.3	TO-LC S-L	ug/m ³	0.77	0.735	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
142-82-5	n-Heptane	1.9		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
110-54-3	n-Hexane	2.0		ug/m ³	0.26	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
95-47-6	o-Xylene	2.8		ug/m ³	0.32	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
179601-23-1	p- & m- Xylenes	7.2		ug/m ³	0.64	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
622-96-8	* p-Ethyltoluene	1.9		ug/m ³	0.36	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
115-07-1	* Propylene	1.9		ug/m ³	0.13	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
100-42-5	Styrene	1.3		ug/m ³	0.31	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
127-18-4	Tetrachloroethylene	3.5		ug/m ³	0.50	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
109-99-9	* Tetrahydrofuran	1.6		ug/m ³	0.43	0.735	EPA TO-15 Certifications:	12/03/2024 12:00	12/04/2024 02:26	YR
108-88-3	Toluene	3.7		ug/m ³	0.28	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
156-60-5	trans-1,2-Dichloroethylene	1.4		ug/m ³	0.29	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
10061-02-6	trans-1,3-Dichloropropylene	1.4		ug/m ³	0.33	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
79-01-6	Trichloroethylene	1.9		ug/m ³	0.099	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR



Sample Information

Client Sample ID: AI-1-20241120

York Sample ID: 24K1644-02

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:33 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-69-4	Trichlorofluoromethane (Freon 11)	3.1		ug/m ³	0.41	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
108-05-4	Vinyl acetate	0.78	ICVE, TO-LC S-L	ug/m ³	0.26	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
593-60-2	Vinyl bromide	1.5		ug/m ³	0.32	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR
75-01-4	Vinyl Chloride	1.1		ug/m ³	0.094	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 12:00	12/04/2024 02:26	YR

Sample Information

Client Sample ID: SV-2-20241120

York Sample ID: 24K1644-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:34 am

11/21/2024

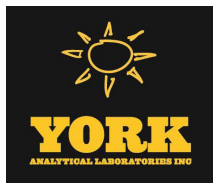
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m ³	1.0	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
71-55-6	1,1,1-Trichloroethane	39		ug/m ³	0.83	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m ³	1.0	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m ³	1.2	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
79-00-5	1,1,2-Trichloroethane	ND		ug/m ³	0.83	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
75-34-3	1,1-Dichloroethane	ND		ug/m ³	0.62	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
75-35-4	1,1-Dichloroethylene	0.18		ug/m ³	0.15	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m ³	1.1	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
95-63-6	1,2,4-Trimethylbenzene	1.2		ug/m ³	0.75	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	1.2	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR



Sample Information

Client Sample ID: SV-2-20241120

York Sample ID: 24K1644-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:34 am

11/21/2024

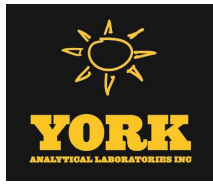
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.92	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.62	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.71	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	1.1	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m ³	0.75	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
106-99-0	1,3-Butadiene	ND		ug/m ³	1.0	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.92	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.71	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.92	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
123-91-1	1,4-Dioxane	ND		ug/m ³	1.1	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
540-84-1	* 2,2,4-Trimethylpentane	ND		ug/m ³	0.36	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
78-93-3	2-Butanone	2.7		ug/m ³	0.45	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	1.3	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
107-05-1	3-Chloropropene	ND		ug/m ³	2.4	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
108-10-1	4-Methyl-2-pentanone	ND		ug/m ³	0.63	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
67-64-1	Acetone	17		ug/m ³	2.9	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
107-13-1	Acrylonitrile	ND		ug/m ³	4.3	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
71-43-2	Benzene	1.5		ug/m ³	0.49	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.79	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR



Sample Information

Client Sample ID: SV-2-20241120

York Sample ID: 24K1644-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:34 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

Table with 11 columns: CAS No., Parameter, Result, Flag, Units, Reported to LOQ, Dilution, Reference Method, Date/Time Prepared, Date/Time Analyzed, Analyst. Rows include various chemical compounds like Bromodichloromethane, Bromoform, Carbon disulfide, etc.



Sample Information

Client Sample ID: SV-2-20241120

York Sample ID: 24K1644-03

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:34 am

11/21/2024

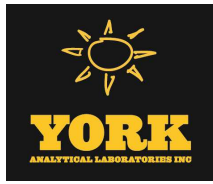
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.55	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
75-09-2	Methylene chloride	ND		ug/m ³	3.2	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
91-20-3	* Naphthalene	ND		ug/m ³	1.6	1.528	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
142-82-5	n-Heptane	ND		ug/m ³	0.63	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
110-54-3	n-Hexane	ND		ug/m ³	0.54	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
95-47-6	o-Xylene	1.0		ug/m ³	0.66	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
179601-23-1	p- & m- Xylenes	3.7		ug/m ³	1.3	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
622-96-8	* p-Ethyltoluene	0.75		ug/m ³	0.75	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
115-07-1	* Propylene	2.4		ug/m ³	0.26	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
100-42-5	Styrene	ND		ug/m ³	0.65	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
127-18-4	Tetrachloroethylene	52		ug/m ³	1.0	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
109-99-9	* Tetrahydrofuran	ND		ug/m ³	0.90	1.528	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 02:21	YR
108-88-3	Toluene	3.2		ug/m ³	0.58	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m ³	0.61	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m ³	0.69	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
79-01-6	Trichloroethylene	330	B	ug/m ³	0.21	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
75-69-4	Trichlorofluoromethane (Freon 11)	1.7		ug/m ³	0.86	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
108-05-4	Vinyl acetate	ND	ICVE, TO-LC S-L	ug/m ³	0.54	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
593-60-2	Vinyl bromide	ND		ug/m ³	0.67	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR
75-01-4	Vinyl Chloride	ND		ug/m ³	0.20	1.528	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 02:21	YR



Sample Information

Client Sample ID: SV-2-20241120

York Sample ID: 24K1644-03

<u>York Project (SDG) No.</u> 24K1644	<u>Client Project ID</u> 20240999 1609 Dekalb Ave	<u>Matrix</u> Soil Vapor	<u>Collection Date/Time</u> November 21, 2024 8:34 am	<u>Date Received</u> 11/21/2024
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Sample Information

Client Sample ID: AI-2-20241120

York Sample ID: 24K1644-04

<u>York Project (SDG) No.</u> 24K1644	<u>Client Project ID</u> 20240999 1609 Dekalb Ave	<u>Matrix</u> Indoor Ambient Air	<u>Collection Date/Time</u> November 21, 2024 8:35 am	<u>Date Received</u> 11/21/2024
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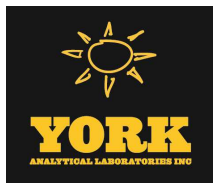
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m ³	0.50	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
71-55-6	1,1,1-Trichloroethane	ND		ug/m ³	0.40	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m ³	0.50	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.56		ug/m ³	0.56	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
79-00-5	1,1,2-Trichloroethane	ND		ug/m ³	0.40	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-34-3	1,1-Dichloroethane	ND		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-35-4	1,1-Dichloroethylene	ND		ug/m ³	0.073	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m ³	0.55	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
95-63-6	1,2,4-Trimethylbenzene	0.87		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	0.56	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.44	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.34	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	0.51	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR



Sample Information

Client Sample ID: AI-2-20241120

York Sample ID: 24K1644-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:35 am

11/21/2024

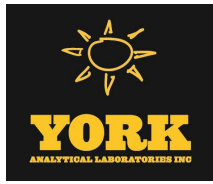
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
106-99-0	1,3-Butadiene	ND		ug/m ³	0.49	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.44	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.34	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.44	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
123-91-1	1,4-Dioxane	ND		ug/m ³	0.53	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
540-84-1	* 2,2,4-Trimethylpentane	1.4		ug/m ³	0.17	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
78-93-3	2-Butanone	2.6		ug/m ³	0.22	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	0.60	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
107-05-1	3-Chloropropene	ND		ug/m ³	1.2	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
108-10-1	4-Methyl-2-pentanone	1.3		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
67-64-1	Acetone	13		ug/m ³	1.4	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
107-13-1	Acrylonitrile	ND		ug/m ³	2.1	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
71-43-2	Benzene	1.4		ug/m ³	0.23	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.38	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-27-4	Bromodichloromethane	ND		ug/m ³	0.49	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-25-2	Bromoform	ND		ug/m ³	0.76	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
74-83-9	Bromomethane	ND		ug/m ³	0.29	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-15-0	Carbon disulfide	ND		ug/m ³	0.23	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
56-23-5	Carbon tetrachloride	0.37		ug/m ³	0.12	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR



Sample Information

Client Sample ID: AI-2-20241120

York Sample ID: 24K1644-04

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:35 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-90-7	Chlorobenzene	ND		ug/m ³	0.34	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-00-3	Chloroethane	ND		ug/m ³	0.19	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
67-66-3	Chloroform	0.36		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
74-87-3	Chloromethane	1.3		ug/m ³	0.15	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
156-59-2	cis-1,2-Dichloroethylene	0.17		ug/m ³	0.073	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m ³	0.33	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
110-82-7	Cyclohexane	0.35		ug/m ³	0.25	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
124-48-1	Dibromochloromethane	ND		ug/m ³	0.63	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-71-8	Dichlorodifluoromethane	2.5		ug/m ³	0.36	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
141-78-6	* Ethyl acetate	1.2		ug/m ³	0.53	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
100-41-4	Ethyl Benzene	2.5		ug/m ³	0.32	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
87-68-3	Hexachlorobutadiene	ND		ug/m ³	0.78	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
67-63-0	Isopropanol	7.0		ug/m ³	1.1	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
80-62-6	Methyl Methacrylate	0.45		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.26	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-09-2	Methylene chloride	2.4		ug/m ³	1.5	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
91-20-3	* Naphthalene	ND		ug/m ³	0.77	0.735	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
142-82-5	n-Heptane	0.75		ug/m ³	0.30	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
110-54-3	n-Hexane	4.0		ug/m ³	0.26	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
95-47-6	o-Xylene	2.5		ug/m ³	0.32	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR



Sample Information

Client Sample ID: AI-2-20241120

York Sample ID: 24K1644-04

York Project (SDG) No.

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Matrix

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24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:35 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
179601-23-1	p- & m- Xylenes	7.5		ug/m ³	0.64	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
622-96-8	* p-Ethyltoluene	0.83		ug/m ³	0.36	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
115-07-1	* Propylene	ND		ug/m ³	0.13	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
100-42-5	Styrene	ND		ug/m ³	0.31	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
127-18-4	Tetrachloroethylene	1.0		ug/m ³	0.50	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
109-99-9	* Tetrahydrofuran	1.2		ug/m ³	0.43	0.735	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 03:26	YR
108-88-3	Toluene	4.8		ug/m ³	0.28	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m ³	0.29	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m ³	0.33	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
79-01-6	Trichloroethylene	0.75	B	ug/m ³	0.099	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-69-4	Trichlorofluoromethane (Freon 11)	1.3		ug/m ³	0.41	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
108-05-4	Vinyl acetate	ND	ICVE, TO-LC S-L	ug/m ³	0.26	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
593-60-2	Vinyl bromide	ND		ug/m ³	0.32	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR
75-01-4	Vinyl Chloride	ND		ug/m ³	0.094	0.735	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 03:26	YR

Sample Information

Client Sample ID: SV-3-20241120

York Sample ID: 24K1644-05

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:37 am

11/21/2024

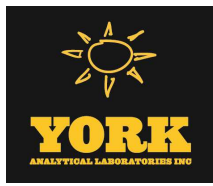
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
120 RESEARCH DRIVE	STRATFORD, CT 06615						132-02 89th AVENUE			RICHMOND HILL, NY 11418
www.YORKLAB.com	(203) 325-1371						FAX (203) 357-0166			ClientServices@



Sample Information

Client Sample ID: SV-3-20241120

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24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:37 am

11/21/2024

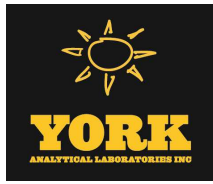
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m ³	1.1	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
71-55-6	1,1,1-Trichloroethane	36		ug/m ³	0.85	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m ³	1.1	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m ³	1.2	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
79-00-5	1,1,2-Trichloroethane	ND		ug/m ³	0.85	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-34-3	1,1-Dichloroethane	ND		ug/m ³	0.63	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-35-4	1,1-Dichloroethylene	0.19		ug/m ³	0.16	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m ³	1.2	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
95-63-6	1,2,4-Trimethylbenzene	1.2		ug/m ³	0.77	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	1.2	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.94	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.63	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.72	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	1.1	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
108-67-8	1,3,5-Trimethylbenzene	0.77		ug/m ³	0.77	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
106-99-0	1,3-Butadiene	ND		ug/m ³	1.0	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.94	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.72	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.94	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR



Sample Information

Client Sample ID: SV-3-20241120

York Sample ID: 24K1644-05

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

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24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:37 am

11/21/2024

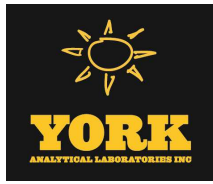
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
123-91-1	1,4-Dioxane	ND		ug/m ³	1.1	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
540-84-1	* 2,2,4-Trimethylpentane	0.37		ug/m ³	0.37	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
78-93-3	2-Butanone	4.2		ug/m ³	0.46	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	1.3	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
107-05-1	3-Chloropropene	ND		ug/m ³	2.5	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
108-10-1	4-Methyl-2-pentanone	0.90		ug/m ³	0.64	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
67-64-1	Acetone	33		ug/m ³	3.0	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
107-13-1	Acrylonitrile	ND		ug/m ³	4.4	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
71-43-2	Benzene	3.2		ug/m ³	0.50	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.81	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-27-4	Bromodichloromethane	ND		ug/m ³	1.0	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-25-2	Bromoform	ND		ug/m ³	1.6	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
74-83-9	Bromomethane	ND		ug/m ³	0.61	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-15-0	Carbon disulfide	3.2		ug/m ³	0.49	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
56-23-5	Carbon tetrachloride	3.0		ug/m ³	0.25	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
108-90-7	Chlorobenzene	ND		ug/m ³	0.72	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-00-3	Chloroethane	ND		ug/m ³	0.41	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
67-66-3	Chloroform	5.0		ug/m ³	0.76	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
74-87-3	Chloromethane	ND		ug/m ³	0.32	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m ³	0.16	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR



Sample Information

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York Sample ID: 24K1644-05

York Project (SDG) No.

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24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:37 am

11/21/2024

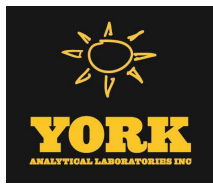
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m ³	0.71	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
110-82-7	Cyclohexane	0.59		ug/m ³	0.54	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
124-48-1	Dibromochloromethane	ND		ug/m ³	1.3	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-71-8	Dichlorodifluoromethane	ND		ug/m ³	0.77	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
141-78-6	* Ethyl acetate	ND		ug/m ³	1.1	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
100-41-4	Ethyl Benzene	5.0		ug/m ³	0.68	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
87-68-3	Hexachlorobutadiene	ND		ug/m ³	1.7	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
67-63-0	Isopropanol	2.5		ug/m ³	2.3	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
80-62-6	Methyl Methacrylate	2.4		ug/m ³	0.64	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.56	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
75-09-2	Methylene chloride	ND		ug/m ³	3.3	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
91-20-3	* Naphthalene	ND		ug/m ³	1.6	1.566	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
142-82-5	n-Heptane	0.77		ug/m ³	0.64	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
110-54-3	n-Hexane	0.66		ug/m ³	0.55	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
95-47-6	o-Xylene	1.8		ug/m ³	0.68	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
179601-23-1	p- & m- Xylenes	5.4		ug/m ³	1.4	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
622-96-8	* p-Ethyltoluene	1.9		ug/m ³	0.77	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
115-07-1	* Propylene	9.3		ug/m ³	0.27	1.566	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 04:24	YR
100-42-5	Styrene	ND		ug/m ³	0.67	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR
127-18-4	Tetrachloroethylene	52		ug/m ³	1.1	1.566	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 04:24	YR



Sample Information

Client Sample ID: SV-3-20241120

York Sample ID: 24K1644-05

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:37 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

Table with 11 columns: CAS No., Parameter, Result, Flag, Units, Reported to LOQ, Dilution, Reference Method, Date/Time Prepared, Date/Time Analyzed, Analyst. Rows include Tetrahydrofuran, Toluene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropylene, Trichloroethylene, Trichlorofluoromethane (Freon 11), Vinyl acetate, Vinyl bromide, Vinyl Chloride.

Sample Information

Client Sample ID: AI-3-20241120

York Sample ID: 24K1644-06

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:37 am

11/21/2024

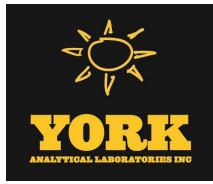
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

Table with 11 columns: CAS No., Parameter, Result, Flag, Units, Reported to LOQ, Dilution, Reference Method, Date/Time Prepared, Date/Time Analyzed, Analyst. Rows include 1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113).



Sample Information

Client Sample ID: AI-3-20241120

York Sample ID: 24K1644-06

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:37 am

11/21/2024

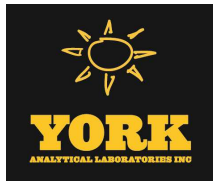
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
79-00-5	1,1,2-Trichloroethane	ND		ug/m ³	0.39	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-34-3	1,1-Dichloroethane	ND		ug/m ³	0.29	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-35-4	1,1-Dichloroethylene	ND		ug/m ³	0.071	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m ³	0.53	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
95-63-6	1,2,4-Trimethylbenzene	0.88		ug/m ³	0.35	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	0.55	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.43	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.29	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.33	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	0.50	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m ³	0.35	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
106-99-0	1,3-Butadiene	ND		ug/m ³	0.48	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.43	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.33	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.43	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
123-91-1	1,4-Dioxane	ND		ug/m ³	0.52	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
540-84-1	* 2,2,4-Trimethylpentane	1.4		ug/m ³	0.17	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR
78-93-3	2-Butanone	3.1		ug/m ³	0.21	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	0.59	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR



Sample Information

Client Sample ID: AI-3-20241120

York Sample ID: 24K1644-06

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:37 am

11/21/2024

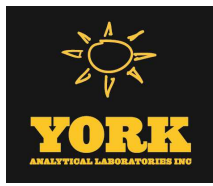
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
107-05-1	3-Chloropropene	1.4		ug/m ³	1.1	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
108-10-1	4-Methyl-2-pentanone	1.2		ug/m ³	0.29	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
67-64-1	Acetone	21		ug/m ³	1.4	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
107-13-1	Acrylonitrile	ND		ug/m ³	2.0	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
71-43-2	Benzene	1.8		ug/m ³	0.23	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.37	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-27-4	Bromodichloromethane	ND		ug/m ³	0.48	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-25-2	Bromoform	ND		ug/m ³	0.74	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
74-83-9	Bromomethane	ND		ug/m ³	0.28	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-15-0	Carbon disulfide	ND		ug/m ³	0.22	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
56-23-5	Carbon tetrachloride	0.36		ug/m ³	0.11	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
108-90-7	Chlorobenzene	ND		ug/m ³	0.33	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-00-3	Chloroethane	ND		ug/m ³	0.19	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
67-66-3	Chloroform	ND		ug/m ³	0.35	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
74-87-3	Chloromethane	2.6		ug/m ³	0.15	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m ³	0.071	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m ³	0.33	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
110-82-7	Cyclohexane	0.32		ug/m ³	0.25	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
124-48-1	Dibromochloromethane	ND		ug/m ³	0.61	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-71-8	Dichlorodifluoromethane	2.5		ug/m ³	0.36	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR



Sample Information

Client Sample ID: AI-3-20241120

York Sample ID: 24K1644-06

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:37 am

11/21/2024

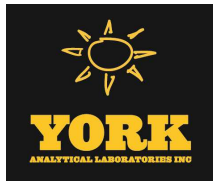
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
141-78-6	* Ethyl acetate	1.1		ug/m ³	0.52	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR
100-41-4	Ethyl Benzene	2.7		ug/m ³	0.31	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
87-68-3	Hexachlorobutadiene	ND		ug/m ³	0.77	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
67-63-0	Isopropanol	6.9		ug/m ³	1.1	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
80-62-6	Methyl Methacrylate	0.41		ug/m ³	0.29	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.26	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
75-09-2	Methylene chloride	2.3		ug/m ³	1.5	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
91-20-3	* Naphthalene	ND		ug/m ³	0.75	0.719	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
142-82-5	n-Heptane	0.74		ug/m ³	0.29	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
110-54-3	n-Hexane	1.4		ug/m ³	0.25	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
95-47-6	o-Xylene	2.3		ug/m ³	0.31	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
179601-23-1	p- & m- Xylenes	6.5		ug/m ³	0.62	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
622-96-8	* p-Ethyltoluene	0.78		ug/m ³	0.35	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR
115-07-1	* Propylene	ND		ug/m ³	0.12	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR
100-42-5	Styrene	ND		ug/m ³	0.31	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
127-18-4	Tetrachloroethylene	1.0		ug/m ³	0.49	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
109-99-9	* Tetrahydrofuran	1.2		ug/m ³	0.42	0.719	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 05:29	YR
108-88-3	Toluene	4.8		ug/m ³	0.27	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m ³	0.29	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m ³	0.33	0.719	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 05:29	YR



Sample Information

Client Sample ID: AI-3-20241120

York Sample ID: 24K1644-06

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:37 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

Table with 11 columns: CAS No., Parameter, Result, Flag, Units, Reported to LOQ, Dilution, Reference Method, Date/Time Prepared, Date/Time Analyzed, Analyst. Rows include Trichloroethylene, Trichlorofluoromethane (Freon 11), Vinyl acetate, Vinyl bromide, and Vinyl Chloride.

Sample Information

Client Sample ID: SV-4-20241120

York Sample ID: 24K1644-07

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:39 am

11/21/2024

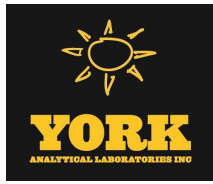
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

Table with 11 columns: CAS No., Parameter, Result, Flag, Units, Reported to LOQ, Dilution, Reference Method, Date/Time Prepared, Date/Time Analyzed, Analyst. Rows include 1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113), 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethylene, and 1,2,4-Trichlorobenzene.



Sample Information

Client Sample ID: SV-4-20241120

York Sample ID: 24K1644-07

York Project (SDG) No.

Client Project ID

Matrix

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Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:39 am

11/21/2024

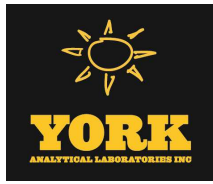
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
95-63-6	1,2,4-Trimethylbenzene	1.0		ug/m ³	0.72	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	1.1	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.87	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.59	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.67	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	1.0	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m ³	0.72	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
106-99-0	1,3-Butadiene	ND		ug/m ³	0.97	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.87	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.67	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.87	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
123-91-1	1,4-Dioxane	ND		ug/m ³	1.0	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
540-84-1	* 2,2,4-Trimethylpentane	ND		ug/m ³	0.34	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
78-93-3	2-Butanone	4.5		ug/m ³	0.43	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	1.2	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
107-05-1	3-Chloropropene	ND		ug/m ³	2.3	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
108-10-1	4-Methyl-2-pentanone	ND		ug/m ³	0.60	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
67-64-1	Acetone	58		ug/m ³	2.8	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
107-13-1	Acrylonitrile	7.2		ug/m ³	4.1	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR



Sample Information

Client Sample ID: SV-4-20241120

York Sample ID: 24K1644-07

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:39 am

11/21/2024

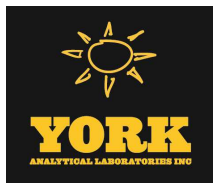
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-43-2	Benzene	0.84		ug/m ³	0.46	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.75	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-27-4	Bromodichloromethane	ND		ug/m ³	0.97	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-25-2	Bromoform	ND		ug/m ³	1.5	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
74-83-9	Bromomethane	ND		ug/m ³	0.56	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-15-0	Carbon disulfide	2.9		ug/m ³	0.45	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
56-23-5	Carbon tetrachloride	3.6		ug/m ³	0.23	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
108-90-7	Chlorobenzene	ND		ug/m ³	0.67	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-00-3	Chloroethane	ND		ug/m ³	0.38	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
67-66-3	Chloroform	6.3		ug/m ³	0.71	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
74-87-3	Chloromethane	ND		ug/m ³	0.30	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
156-59-2	cis-1,2-Dichloroethylene	0.23		ug/m ³	0.14	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m ³	0.66	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
110-82-7	Cyclohexane	ND		ug/m ³	0.50	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
124-48-1	Dibromochloromethane	ND		ug/m ³	1.2	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-71-8	Dichlorodifluoromethane	ND		ug/m ³	0.72	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
141-78-6	* Ethyl acetate	ND		ug/m ³	1.0	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
100-41-4	Ethyl Benzene	1.5		ug/m ³	0.63	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
87-68-3	Hexachlorobutadiene	ND		ug/m ³	1.6	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
67-63-0	Isopropanol	5.2		ug/m ³	2.1	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR



Sample Information

Client Sample ID: SV-4-20241120

York Sample ID: 24K1644-07

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Soil Vapor

November 21, 2024 8:39 am

11/21/2024

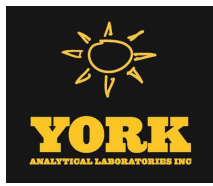
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
80-62-6	Methyl Methacrylate	ND		ug/m ³	0.60	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.52	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-09-2	Methylene chloride	ND		ug/m ³	3.0	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
91-20-3	* Naphthalene	ND		ug/m ³	1.5	1.455	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
142-82-5	n-Heptane	ND		ug/m ³	0.60	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
110-54-3	n-Hexane	ND		ug/m ³	0.51	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
95-47-6	o-Xylene	1.3		ug/m ³	0.63	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
179601-23-1	p- & m- Xylenes	4.0		ug/m ³	1.3	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
622-96-8	* p-Ethyltoluene	0.79		ug/m ³	0.72	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
115-07-1	* Propylene	ND		ug/m ³	0.25	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
100-42-5	Styrene	ND		ug/m ³	0.62	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
127-18-4	Tetrachloroethylene	26		ug/m ³	0.99	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
109-99-9	* Tetrahydrofuran	ND		ug/m ³	0.86	1.455	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 06:27	YR
108-88-3	Toluene	3.5		ug/m ³	0.55	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m ³	0.58	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m ³	0.66	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
79-01-6	Trichloroethylene	74	B	ug/m ³	0.20	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-69-4	Trichlorofluoromethane (Freon 11)	1.5		ug/m ³	0.82	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
108-05-4	Vinyl acetate	ND	ICVE, TO-LC S-L	ug/m ³	0.51	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR



Sample Information

Client Sample ID: SV-4-20241120

York Sample ID: 24K1644-07

York Project (SDG) No. 24K1644	Client Project ID 20240999 1609 Dekalb Ave	Matrix Soil Vapor	Collection Date/Time November 21, 2024 8:39 am	Date Received 11/21/2024
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Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
593-60-2	Vinyl bromide	ND		ug/m ³	0.64	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR
75-01-4	Vinyl Chloride	ND		ug/m ³	0.19	1.455	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 06:27	YR

Sample Information

Client Sample ID: AI-4-20241120

York Sample ID: 24K1644-08

York Project (SDG) No. 24K1644	Client Project ID 20240999 1609 Dekalb Ave	Matrix Indoor Ambient Air	Collection Date/Time November 21, 2024 8:40 am	Date Received 11/21/2024
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Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	* 1,1,1,2-Tetrachloroethane	ND		ug/m ³	0.55	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
71-55-6	1,1,1-Trichloroethane	ND		ug/m ³	0.44	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m ³	0.55	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m ³	0.62	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
79-00-5	1,1,2-Trichloroethane	ND		ug/m ³	0.44	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-34-3	1,1-Dichloroethane	ND		ug/m ³	0.33	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-35-4	1,1-Dichloroethylene	ND		ug/m ³	0.080	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m ³	0.60	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
95-63-6	1,2,4-Trimethylbenzene	0.55		ug/m ³	0.40	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
106-93-4	1,2-Dibromoethane	ND		ug/m ³	0.62	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
95-50-1	1,2-Dichlorobenzene	ND		ug/m ³	0.48	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR



Sample Information

Client Sample ID: AI-4-20241120

York Sample ID: 24K1644-08

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:40 am

11/21/2024

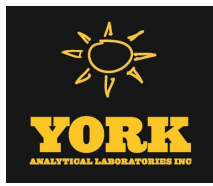
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
107-06-2	1,2-Dichloroethane	ND		ug/m ³	0.33	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
78-87-5	1,2-Dichloropropane	ND		ug/m ³	0.37	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m ³	0.56	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m ³	0.40	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
106-99-0	1,3-Butadiene	ND		ug/m ³	0.53	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
541-73-1	1,3-Dichlorobenzene	ND		ug/m ³	0.48	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
142-28-9	* 1,3-Dichloropropane	ND		ug/m ³	0.37	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
106-46-7	1,4-Dichlorobenzene	ND		ug/m ³	0.48	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
123-91-1	1,4-Dioxane	ND		ug/m ³	0.58	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
540-84-1	* 2,2,4-Trimethylpentane	0.79		ug/m ³	0.19	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
78-93-3	2-Butanone	2.8		ug/m ³	0.24	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
591-78-6	* 2-Hexanone	ND		ug/m ³	0.66	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
107-05-1	3-Chloropropene	ND		ug/m ³	1.3	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
108-10-1	4-Methyl-2-pentanone	ND		ug/m ³	0.33	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
67-64-1	Acetone	35		ug/m ³	1.5	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
107-13-1	Acrylonitrile	ND		ug/m ³	2.3	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
71-43-2	Benzene	0.80		ug/m ³	0.26	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
100-44-7	Benzyl chloride	ND		ug/m ³	0.42	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-27-4	Bromodichloromethane	ND		ug/m ³	0.54	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR



Sample Information

Client Sample ID: AI-4-20241120

York Sample ID: 24K1644-08

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1644

20240999 1609 Dekalb Ave

Indoor Ambient Air

November 21, 2024 8:40 am

11/21/2024

Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-25-2	Bromoform	ND		ug/m ³	0.83	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
74-83-9	Bromomethane	ND		ug/m ³	0.31	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-15-0	Carbon disulfide	ND		ug/m ³	0.25	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
56-23-5	Carbon tetrachloride	0.35		ug/m ³	0.13	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
108-90-7	Chlorobenzene	ND		ug/m ³	0.37	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-00-3	Chloroethane	ND		ug/m ³	0.21	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
67-66-3	Chloroform	ND		ug/m ³	0.39	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
74-87-3	Chloromethane	1.3		ug/m ³	0.17	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
156-59-2	cis-1,2-Dichloroethylene	41		ug/m ³	0.080	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m ³	0.36	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
110-82-7	Cyclohexane	ND		ug/m ³	0.28	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
124-48-1	Dibromochloromethane	ND		ug/m ³	0.68	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-71-8	Dichlorodifluoromethane	2.4		ug/m ³	0.40	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
141-78-6	* Ethyl acetate	ND		ug/m ³	0.58	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
100-41-4	Ethyl Benzene	1.8		ug/m ³	0.35	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
87-68-3	Hexachlorobutadiene	ND		ug/m ³	0.86	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
67-63-0	Isopropanol	6.5		ug/m ³	1.2	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
80-62-6	Methyl Methacrylate	ND		ug/m ³	0.33	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m ³	0.29	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR



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Indoor Ambient Air

November 21, 2024 8:40 am

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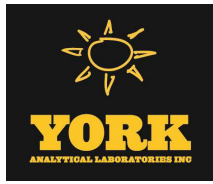
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-09-2	Methylene chloride	ND		ug/m ³	1.7	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
91-20-3	* Naphthalene	ND		ug/m ³	0.84	0.804	EPA TO-15 Certifications: NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
142-82-5	n-Heptane	0.43		ug/m ³	0.33	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
110-54-3	n-Hexane	1.0		ug/m ³	0.28	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
95-47-6	o-Xylene	1.9		ug/m ³	0.35	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
179601-23-1	p- & m- Xylenes	5.5		ug/m ³	0.70	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
622-96-8	* p-Ethyltoluene	0.47		ug/m ³	0.40	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
115-07-1	* Propylene	ND		ug/m ³	0.14	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
100-42-5	Styrene	ND		ug/m ³	0.34	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
127-18-4	Tetrachloroethylene	36		ug/m ³	0.55	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
109-99-9	* Tetrahydrofuran	1.2		ug/m ³	0.47	0.804	EPA TO-15 Certifications:	12/03/2024 09:00	12/04/2024 07:32	YR
108-88-3	Toluene	3.3		ug/m ³	0.30	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
156-60-5	trans-1,2-Dichloroethylene	1.3		ug/m ³	0.32	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m ³	0.36	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
79-01-6	Trichloroethylene	32	B	ug/m ³	0.11	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-69-4	Trichlorofluoromethane (Freon 11)	1.3		ug/m ³	0.45	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
108-05-4	Vinyl acetate	ND	ICVE, TO-LC S-L	ug/m ³	0.28	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
593-60-2	Vinyl bromide	ND		ug/m ³	0.35	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR
75-01-4	Vinyl Chloride	0.14		ug/m ³	0.10	0.804	EPA TO-15 Certifications: NELAC-NY12058,NJDEP-NY037	12/03/2024 09:00	12/04/2024 07:32	YR





Sample and Data Qualifiers Relating to This Work Order

TO-LCS-L	The result reported for this compound may be biased low due to its behavior in the analysis batch LCS where it recovered less 70% of the expected value.
TO-LCS-H	The result reported for this compound may be biased high due to its behavior in the analysis batch LCS where it recovered greater than 130% of the expected value.
TO-CCV	The value reported is ESTIMATED for this compound due to its behavior during continuing calibration verification (>30% Difference from initial calibration).
ICVE	The value reported is ESTIMATED. The value is estimated due to its behavior during initial calibration verification (recovery exceeded 30% of expected value).
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants.

Definitions and Other Explanations

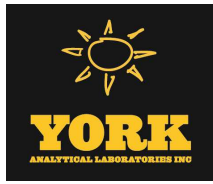
*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon current NELAC/TNI Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.



Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.

Revision Description: This report has been revised to remove the TO-VAC qualifiers.



York Analytical Laboratories, Inc.
 120 Research Drive 132-02 89th Ave Queens,
 Stratford, CT 06615 NY 11418

Field Chain-of-Custody Record - AIR

YORK Project No.

24K1649



clientservices@yorklab.com
 www.yorklab.com

NOTE: YORK's Standard Terms & Conditions are listed on the back side of this document.
 This document serves as your written authorization for YORK to proceed with the analyses requested below.
 signature binds you to YORK's Standard Terms & Conditions.

Your Page 1 of 1

YOUR Information		Report To:		Invoice To:		YOUR Project Number		Turn-Around Time	
Company: PVE Engineering		Company: SAME		Company: SAME		20240999		RUSH - Next Day	
Address: 25 W 39th St, 12th FL New York, NY 10018		Address: SAME		Address: SAME		YOUR Project Name		RUSH - Two Day	
Phone: (646) 606-4999		Phone: SAME		Phone: SAME		1609 Dekalb Ave.		RUSH - Three Day	
Contact: Erik Draijer		Contact: SAME		Contact: Tara Alvarado		YOUR PO#:		RUSH - Four Day	
E-mail: edraijer@pve-llc.com		E-mail: talvarado@pve-llc.com		E-mail: talvarado@pve-llc.com				Standard (5-7 Day) <input checked="" type="checkbox"/>	

Please print clearly and legibly. All information must be complete. Samples will not be logged in and the turn-around-time clock will not begin until any questions by YORK are resolved. Jared Roemer Samples Collected by: (print your name above and sign below) 	Air Matrix Codes	Samples From	Report / EDD Type (circle selections)			YORK Reg. Comp.
	AI - Indoor Ambient Air	New York	<input checked="" type="checkbox"/> Summary Report	CT RCP	Standard Excel EDD	Compared to the following Regulation(s): (please fill in)
	AO - Outdoor Amb. Air	New Jersey	<input type="checkbox"/> QA Report	CT RCP DQA/DUE	EQUS (Standard)	
	AE - Vapor Extraction Well/ Process Gas/Effluent	Connecticut	<input type="checkbox"/> NY ASP A Package	NJDEP Reduced Deliv.	<input checked="" type="checkbox"/> NYSDEC EQUS	
AS - Soil Vapor/Sub-Slab	Pennsylvania	<input type="checkbox"/> NY ASP B Package	NJDKQP	NJDEP SRP HazSite		
	Other	<input type="checkbox"/> Other:				

Certified Canisters: Batch ___ Individual ___		Please enter the following REQUIRED Field Data					Reporting Units: ug/m ³ <input checked="" type="checkbox"/> ppbv ___ ppmv ___	
Sample Identification	Date/Time Sampled	Air Matrix	Canister Vacuum Before Sampling (in Hg)	Canister Vacuum After Sampling (in Hg)	Canister ID	Flow Cont. ID	Analysis Requested	
SV-1-20241120	11/21/24/0831	AS	-30	-4.5	28306	12188	VOCs via TO-15	
AI-1-20241120	11/21/24/0833	AI	-30	-0.2	51078	17991		
SV-2-20241120	11/21/24/0834	AS	-30	-3	50992	13569		
AI-2-20241120	11/21/24/0835	AI	-30	-1	28312	19424		
SV-3-20241120	11/21/24/0837	AS	-30	-1	23994	19388		
AI-3-20241120	11/21/24/0837	AI	-30	0	51008	16423		
SV-4-20241120	11/21/24/0839	AS	-30	-1	48298	20437		
AI-4-20241120	11/21/24/0840	AI	-29	0	24254	20431		

Comments: The following samples were very close to 0 Hg : SV-3-20241120, SV-4-20241120, AI-4-20241120, AI-3-20241120	Detection Limits Required	Sampling Media
	≤ 1 ug/m ³ <input checked="" type="checkbox"/> Routine Survey NYSDEC V1 Limits ___ Other ___	6 Liter Canister Tedlar Bag

Samples Relinquished by / Company	Date/Time	Samples Received by / Company	Date/Time	Samples Relinquished by / Company	Date/Time
	11/21/24		11/21/24 16:15		
Samples Received by / Company	Date/Time	Samples Relinquished by / Company	Date/Time	Samples Received by / Company	Date/Time
Samples Relinquished by / Company	Date/Time	Samples Received by / Company	Date/Time	Samples Received in LAB by	Date/Time
					11/21/24 17:50

APPENDIX F
SSDS PILOT STUDY REPORT
AUGUST 2025

August 2025

Benny Mela, Valerie Mela

1609 DeKalb Avenue
Brooklyn, New York 11237

Re: SSDS Design Field Study; 1609 DeKalb Avenue (Block 3237 Lot 41), Brooklyn, New York 11237
PVE File #20240432

Dear Valerie:

Partridge Venture Engineering, PC dba PVE Engineering (PVE) is pleased to present this progress report for vapor mitigation services pertaining to the above-referenced site (Figure 1 and 2).

1.0 INTRODUCTION

PVEDi conducted a vapor investigation at the above referenced site in a report dated February 2025. On November 20, 2024, four (4) 6-L Summa canisters (SV-1 20241120, SV-2 20241120, SV-3 20241120, and SV-4 20241120) were deployed in the basement and bottom floor of the structure (Figure 2). No residential occupancy exists in the basement. Samples were collected in a 6-liter summa canister with a flow controller connected to the summa canisters set collect the sample over a 24-hour period. Each of the four (4) soil vapor points were installed through the lowest level building slab, and were installed in accordance with NYSDOH procedures to depths of 1.0 feet below bottom of slab. A helium- vapor test was conducted to demonstrate a proper seal around the sampling ports and confirm sample integrity. Prior to sample collection, the sample port was purged of three volumes at a rate not to exceed 0.2 L/min. An additional four (4) co-located ambient air samples (AI-1 20241120, AI-2 20241120, AI-3 20241120, and AI-4 20241120) were deployed on November 20, 2024. The indoor ambient air samples were also collected in a 6-liter summa canister with a flow controller connected to the summa canisters set collect the sample over a 24-hour period simultaneously with the soil vapor sampling.

Samples were collected on November 21, 2024, and submitted to York Analytical Labs Inc. for analysis of Volatile Organic Compounds (VOCs) via USEPA Method TO-15.

Summary of Environmental Findings

All concentrations of TCE were detected in soil vapors that require mitigation, regardless of the indoor air concentration. The concentrations of PCE were detected in SV-4/AI-4 that would warrant monitoring.

Trichloroethylene (TCE):

- AI-1: 1.9 µg/m³
- SV-1: 76 µg/m³

- AI-2: 0.75 µg/m³
- SV-2: 330 µg/m³

- AI-3: 0.50 µg/m³
- SV-3: 290 µg/m³

- AI-4: 32 µg/m³
- SV-4: 74 µg/m³

Tetrachloroethylene (PCE):

- SV-4: 36 $\mu\text{g}/\text{m}^3$
- AI-4: 26 $\mu\text{g}/\text{m}^3$

PVE conducted a pilot-scale communication evaluation at the above-reference property in accordance with our approved scope of work. Testing was performed to verify the lateral extent of a negative pressure field using a suction pit/plenum installed in two (2) locations. Below is a description of design and installation activities.

2.0 FIELD ACTIVITIES

Sub-Slab Depressurization System (SSDS) Design

PVE prepared a preliminary SSDS design in coordination with Paknia Architects to select locations for a sub-slab depressurization system (SSDS) to be implemented into the existing building. Two (2) locations were selected for SSDS piping in locations that will be enclosed in chases and confirmed with Paknia for their proposed alterations within the building. Preliminary design locations have been provided to the design team. PVE mobilized to the field to perform communication testing at these locations to determine lateral extent of a negative pressure field.

Diagnostic Evaluation and Communication Testing

PVE conducted communication and vacuum testing within the building to evaluate the potential for air to flow beneath the slab and extract vapors from proposed vacuum extraction points. Suction/vacuum pits were constructed through the street-grade foundation slab of the building and through the cellar foundation.

- A total of five (5) sub-slab sampling ports were installed throughout the interior of the building by creating a borehole using a hammer drill and 5/8-inch drill bit, followed by installation of a field-fabricated vapor pin. Three (3) sampling points (MP-1, MP-2, and MP-3) were installed in 10', 20', and 30' radius around the basement-level extraction point (TP-1), and two sampling points (MP-4 and MP-5) were installed in a 10' and 20' radius around the first-floor extraction point (TP-2). These locations are depicted in Figure 1.
- Vapor pins were installed for purposes of conducting radius of influence testing (communication testing using pressure meters).
- Temporary vapor extraction points were cored through the building: one located in the basement slab and one located in the first floor slab. Each suction pit was constructed in the concrete slab using a coring bit and other hammer drill attachments. Each pit was excavated to approximately 1.5-feet below slab-grade using hand tools. A 2-foot long section of Schedule 40, 4"- diameter, PVC riser was installed above the elevation of the surrounding slab and backfilled with clean $\frac{3}{4}$ "-washed stone below slab elevation. The remaining space was backfilled with concrete/grout mixture to seal the pipe at the slab-elevation.
- In-line suction fans (Radonaway RP-265) was applied to the PVC riser to determine the area of influence provided by each fan series at each vacuum extraction location.
- A digital micro-manometer was used to measure the pressure differential between the sub-slab environment and indoor air at each monitoring location.
- Each vacuum fan will be operated for a period of approximately 60 minutes. Manometer readings were collected every 10 minutes from the sub-slab sampling ports until the sub-slab pressure stabilizes (i.e. remains constant for three measurements).
- Prior to starting the test, a flexible hose was routed from the first extraction zone header to the mobile test blower, which was staged in the side yard on the exterior of the building

Results

On June 26, 2025, three (3) sub-slab monitoring points (MP-1, MP-2, MP-3) were installed in a 20', 30', and 10' radius from the proposed ventilation point (TP-1) within the partial cellar, respectively (Figure 1). The proposed ventilation point was selected for its proximity to a future proposed trash room with an opportunity to chase the piping to the roof with future alterations. PVE cored through the slab using a 6"-diameter core bit on a Hammer Drill. A temporary stub-up 4"-diameter Schedule-40 PVC pipe was placed within the slab, and a RadonAway RP265 with an optimal air flow of 320 cubic feet per minute (CFM) was attached to the stub-up location. Pressure readings were collected from each of the three (3) monitoring points using a Fluke-922 micromanometer. Readings of -0.010 to -0.014 were identified at the 10' radius point (MP-3) over the course of 60 minutes. Readings of -0.002 to -0.004 were identified at the 30' radius point (MP-2) over the course of 60 minutes. Readings of 0.000 to -0.001 were identified at the 20' radius point (MP-1) over the course of 60 minutes. Data collected during the diagnostic testing is summarized in Table 1. Two (2) sections of the cellar slab contained pits and open holes within the immediate vicinity of the testing, approximately 4 square feet in size, each. PVE attempted to temporarily cover each pit within the slab, however we estimate these open pits may have influenced our findings during the study. We recommend backfilling and sealing all pits, pipes penetrations, and cracks prior to further testing or SSDS installation. Locations of these pits within the cellar are described on Figure 1.

Two (2) sub-slab monitoring points (MP-4 and MP-5) were installed in a 20' and 10' radius from the proposed ventilation point (TP-2) within the first floor, respectively (Figure 1). The proposed ventilation point was selected for its proximity to a future proposed make-up air duct to chase the piping to the roof with future alterations. PVE cored through the slab using a 6"-diameter core bit on a Hammer Drill. A temporary stub-up 4"-diameter Schedule-40 PVC pipe was placed within the slab, and a RadonAway RP265 with an optimal air flow of 320 cubic feet per minute (CFM) was attached to the stub-up location. Pressure readings were collected from each of the two (2) monitoring points using a Fluke-922 micromanometer. Readings of -0.010 to -0.014 were identified at the 10' radius point (MP-5) over the course of 60 minutes. Readings of a static -0.008 to -0.004 were identified at the 20' radius point (MP-4) over the course of 60 minutes. Data collected during the diagnostic testing is summarized in Table 1.

Based on the findings of the pilot-scale vacuum testing, a final SSDS drawing set will be provided to mitigate the potential vapor intrusion condition. The system was designed to evacuate sub-slab vapors in accordance with local/State regulation and NYS Department of Health (NYSDOH) guidance. Final drawings will be provided in a mechanical filing set to NYC DOB.

SSDS Installation

The installation will consist of the cutting and removal of a portion of the concrete slab, excavation of sub-slab material, and construction of an approximate 2' by 2' by 2' plenum box. Thin-walled steel pipe was placed in the plenum box and backfilled with clean crushed stone (1/2"), routed through the building and exhausts at the termination point on the roof. One (1) RadonAway RP265 blower is proposed to be installed in-line of the SSDS piping approximately 4' above the top of slab. The termination and exhaust points will be located at least 15' from operable windows, fresh air intake, or HVAC equipment. A photo report log is included as Appendix A.

The SSDS was temporarily connected via 12V power. PVE recommends a licensed electrician to hardwire return to the site for final electrical connection.

Sincerely,

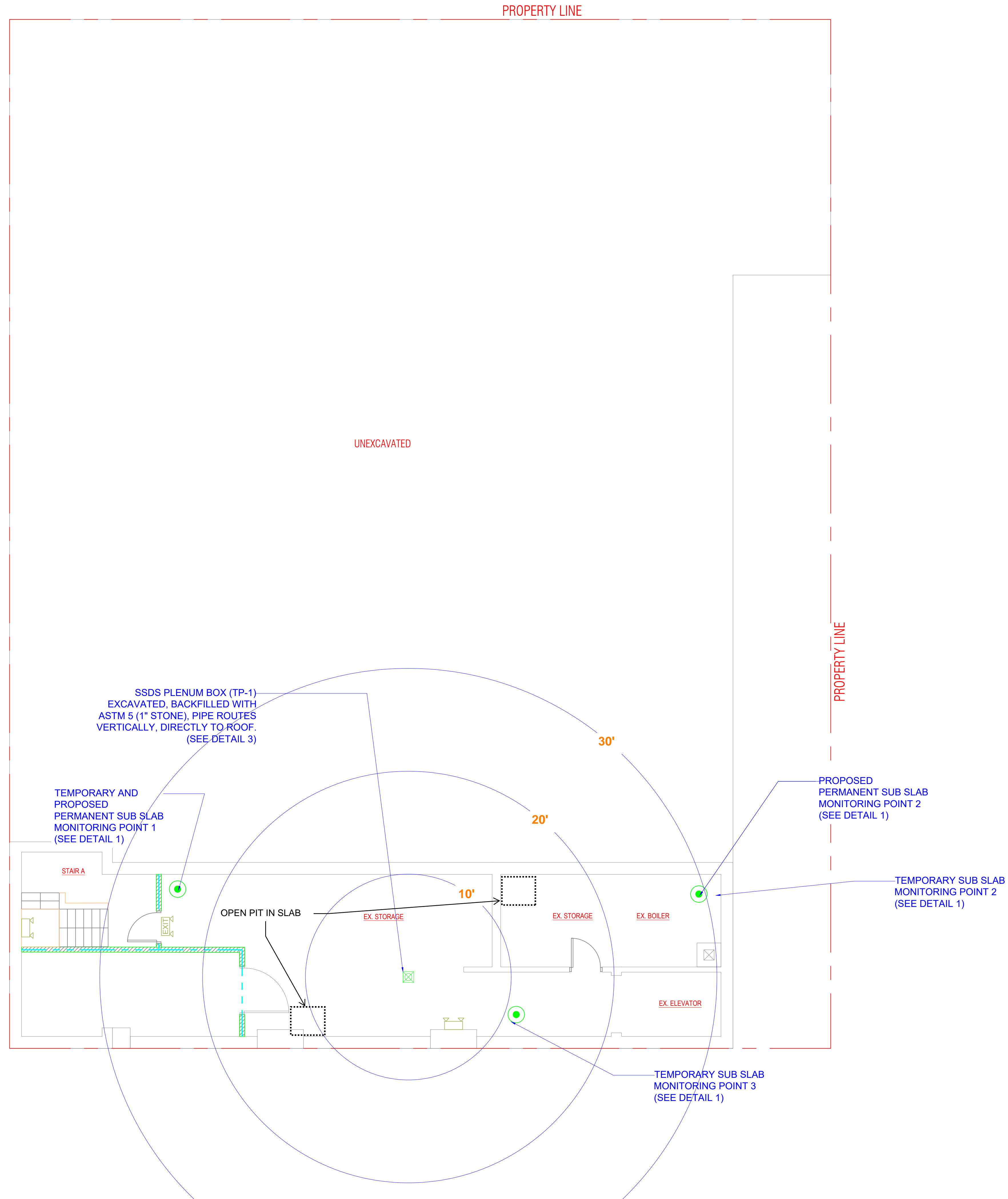
A handwritten signature in black ink, appearing to read 'ED', is centered on a light gray rectangular background.

Erik Draijer, P.E., QEP
Team Director, Environmental Services

Figure 1 – Pilot Study Locations

Table 1 – Pre-Installation Diagnostic Testing Data

Appendix A – Photo Log



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PVE, LLC 001

REVISIONS		
No.	Date	Issue
1.	4/29/2025	OER SUBMISSION

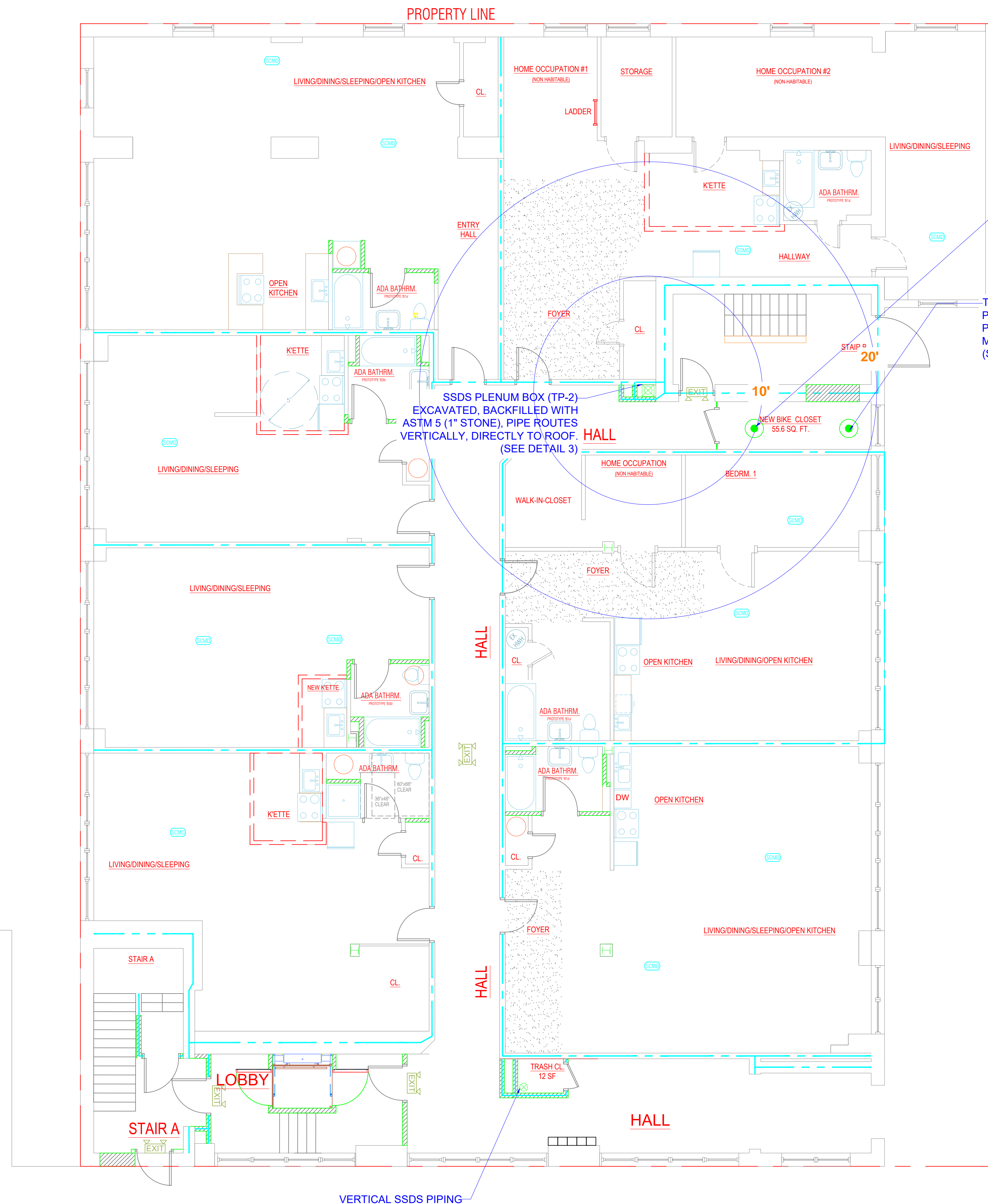
Project No. 20240999
 OER PROJECT: 22TMP0840K
 North:

DRAWING TITLE

SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS) PLAN

DRAWING NUMBER

FIGURE 1



TEMPORARY SUB SLAB MONITORING POINT 5 (SEE DETAIL 1)

TEMPORARY AND PROPOSED PERMANENT SUB SLAB MONITORING POINT 4 (SEE DETAIL 1)

SSDS PLENUM BOX (TP-2) EXCAVATED, BACKFILLED WITH ASTM 5 (1" STONE), PIPE ROUTES VERTICALLY, DIRECTLY TO ROOF. (SEE DETAIL 3)

VERTICAL SSDS PIPING

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PVE, LLC 2025

REVISIONS		
No.	Date	Issue
1.	4/29/2025	OER SUBMISSION

Project No. 20240999
 OER PROJECT: 22TMP0840K
 North:

DRAWING TITLE
 SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS) PLAN

DRAWING NUMBER
FIGURE 1

Project Address: 1609 Dekalb Ave
 Date: 6/26/2025
 Location: Brooklyn, NY
 Data Collector: _____
 Extraction Point: _____

Airflow / Vacuums: Unit:

Suction Point										
Pilot Tube & Fan	RadonAway RP-265	Dial	N/A							
	Vacuum	"WC								
	Temperature	°F	76							
	Air Velocity	fps	65							
	Flow Volume	cfm	287-321							
	Dilution Valve	% Open								
	Flow Control Valve	% Open	100%							

Vapor Concentrations: Unit:

Multi-Meter - Total Volatiles (max)	PPM	0.4								
-------------------------------------	-----	-----	--	--	--	--	--	--	--	--

Monitoring Point Vacuums: Time

		10:20	10:30	10:40	10:50	11:00	11:10	11:20	11:30	
TP-1	Monitoring Point 1 (20' radius)									
	at 0 cfm	Background ("WC)	0.004							
	at 0 cfm	PID (PPM)	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0
	at 320 cfm	Static Pressure ("WC)		-0.001	-0.001	-0.001	-0.001	-0.001	0.000	-0.001
	Monitoring Point 2 (30' radius)									
	at 0 cfm	Background ("WC)	0.001							
	at 0 cfm	PID (PPM)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	at 320 cfm	Static Pressure ("WC)		-0.004	-0.004	-0.003	-0.002	-0.002	-0.002	-0.002
	Monitoring Point 3 (10' radius)									
	at 0 cfm	Background ("WC)	0.000							
	at 0 cfm	PID (PPM)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	at 320 cfm	Static Pressure ("WC)		-0.014	-0.015	-0.014	-0.014	-0.012	-0.010	-0.014

Time

		12:25	12:30	12:40	12:50	13:00	13:10	13:20	13:30	
TP-2	Monitoring Point 4 (20' radius)									
	at 0 cfm	Background ("WC)	0.001							
	at 0 cfm	PID (PPM)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	at 320 cfm	Static Pressure ("WC)		-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
	Monitoring Point 5 (10' radius)									
	at 0 cfm	Background ("WC)	0.002							
	at 0 cfm	PID (PPM)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	at 320 cfm	Static Pressure ("WC)		-0.040	-0.041	-0.041	0.045	-0.045	-0.042	-0.050

General Notes & Comments:

- Meets NYSDOH requirement of -0.025" WC
 - Meets industry minimum of -0.004" WC
 - Does not demonstrate effective negative pressure influence
- Pressure readings collection in inches water column ("WC).

1609 DEKALB AVE, BROOKLYN, NY 11237 PHOTO REPORT



Photo 1

Drilling to install temporary extraction point in basement of the property.



Photo 2
Cored extraction point awaiting installation of SSDS fan.



Photo 3
Installation of fan for temporary extraction point in basement of the property.



Photo 4
Pit within basement sl.



Photo 5
*Temporary
Monitoring Point*



Photo 6
*Temporary
Monitoring Point*



Photo 7
*Collection of
pressure reading
with a manometer
on temporarily
installed monitoring
point in basement*



Photo 8
Drilling to install temporary extraction point on the first-floor staircase of the property.



Photo 9
Cored extraction point awaiting installation of SSDS fan.

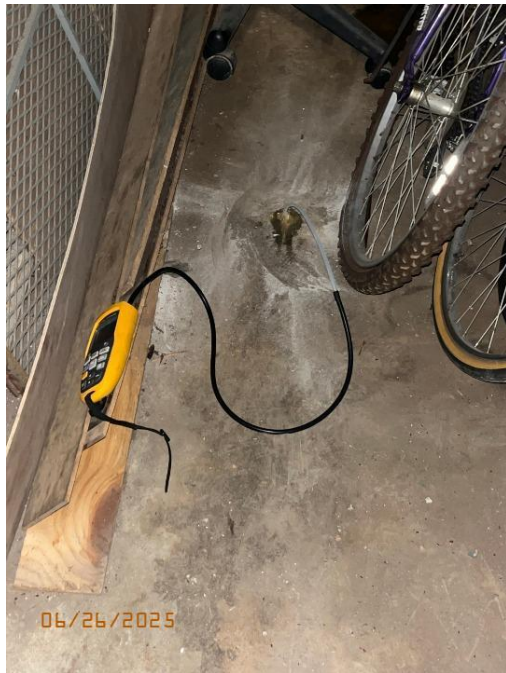


Photo 12
*Collection of
pressure reading
with a manometer
on temporarily
installed monitoring
point in basement*

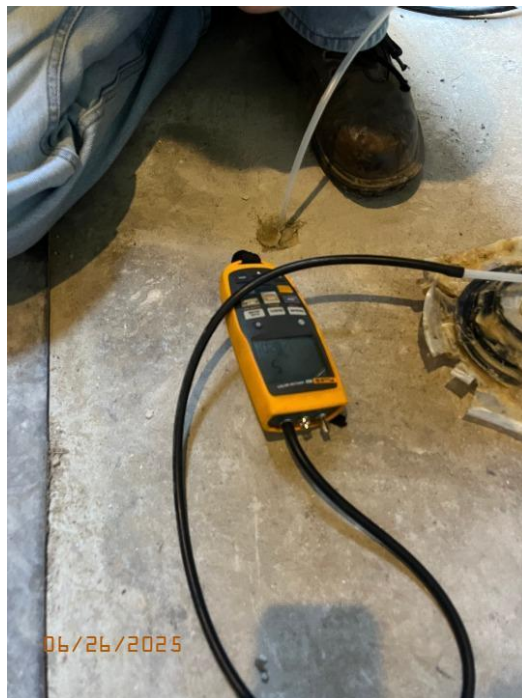


Photo 13
*Collection of
pressure reading
with a manometer
on temporarily
installed monitoring
point in basement*

APPENDIX G
PHOTO LOG

1609 DEKALB AVE, BROOKLYN, NY 11237 PHOTO REPORT



Photo 1
*Window well located
in basement*



Photo 2
*Window well located
in basement*

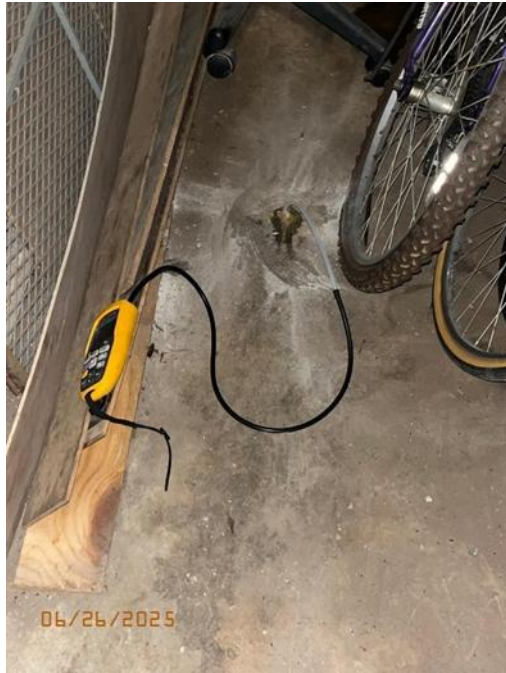


Photo 3
*Installation of
previously installed
monitoring point to
be re-used.*



Photo 4
*Pit in basement slab
for condensate
drainage to be
sealed.*



Photo 5
*Pit in basement slab
to be sealed.*



Photo 6
*Pit in boiler room to
be backfilled and
sealed, utilized as
test pit/plenum box
location for SSDS
testing.*

Appendix H

Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

**1609 DEKALB AVENUE
BROOKLYN
KINGS COUNTY, NEW YORK**

PREPARED FOR:

**Benny Mel, Valerie Mela
1609 Dekalb Avenue
Brooklyn, New York 11237**

PREPARED BY:

PVEDI

PVEDI Architecture, Engineering, and Geology
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Phone: 646-602-4999 – Fax: 845-454-2655

March 2026
PVEDI File #20240432

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TABLES

Table 1 (embedded) - Laboratory Analytical Methods for Field Samples

ATTACHMENTS

Attachment A - Resumes for Project Team

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) describes the protocols and procedures that will be followed during implementation of the Interim Remedial Measures (IRM) Work Plan at the 1609 DeKalb Avenue Site in the Brooklyn, New York. The objective of the QAPP is to provide for Quality Assurance (QA) and maintain Quality Control (QC) of environmental investigative, sampling and interim remedial activities conducted at the Site by PVEDI. Adherence to the QAPP will ensure that defensible data will be obtained during the investigation and remediation.

If any changes are made to the QAPP, these changes will be submitted to the appropriate parties and referenced in all reports.

2.0 PROJECT TEAM

The project team will be drawn from PVEDI professional and technical personnel and PVEDI's subcontractors. All field personnel and subcontractors will have completed a 40-hour training course and updated 8-hour refresher course that meet the Occupational Safety and Health Administration (OSHA) requirements of 29 CFR Part 1910. The following sections describe the key project personnel and their responsibilities.

2.1 PROJECT DIRECTOR

The project director will be responsible for the general oversight of all aspects of the project, including scheduling, budgeting, data management, and decision-making regarding the field program. The project director will communicate regularly with all members of the PVEDI project team and the New York State Department of Environmental Conservation (NYSDEC) to ensure a smooth flow of information between involved parties. Erik Draijer will serve as the project director for the IRM; his resume is included in Attachment A.

2.2 PROJECT MANAGER

The Project Manager will be responsible for directing and coordinating all elements of fieldwork. They will prepare reports and participate in meetings with the Site owner and/or the NYSDEC. Mariana Verri will serve as the Project Manager.

2.3 FIELD TEAM LEADER

The field team leader will be responsible for supervising the daily sampling and health and safety activities in the field and will ensure adherence to the HASP. This person(s) will report to the Project Manager on a regular basis regarding daily progress and any deviations from approved plans. The field team leader will be a qualified, responsible person, able to act professionally and promptly during soil disturbing activities. Other PVEDI staff, as assigned will be field team leaders for field work.

2.4 PROJECT QUALITY ASSURANCE/QUALITY CONTROL OFFICER

The Quality Assurance/Quality Control (QA/QC) Officer will be responsible for adherence to the QAPP. They will review the procedures with all personnel prior to commencing any fieldwork and will assess implementation of the required procedures. Chris Brown will serve as the QA/QC officer.

2.5 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL OFFICER

The laboratory QA/QC officer will be responsible for quality control procedures and checks in the laboratory and ensuring adherence to laboratory protocols. He/she will track the movement of samples from the time they are checked in at the laboratory to the time that analytical results are issued. He/she will conduct a final check on the analytical calculations and sign off on the laboratory reports. The laboratory QA/QC officer will be determined upon selection of a contract laboratory(s) for the work.

2.6 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall objectives and criteria for assuring quality for this effort are discussed below. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented. The objectives of this QAPP are to address the following:

- The procedures to be used to collect, preserve, package, and transport groundwater samples
- Field data collection
- Record keeping
- Data management
- Chain-of-custody procedures
- Precision, accuracy, completeness, representativeness, decision rules, comparability, and level of quality control effort conformance for sample analysis and data management by the laboratory under EPA analytical met

3.0 STANDARD OPERATING PROCEDURES

The following sections describe the standard operating procedures (SOPs) for the investigative activities. During operations, safety monitoring will be performed as described in the project Health and Safety Plan (HASP) and all field personnel will wear appropriate personal protective equipment (PPE). The Interim Remedial Measures will include soil vapor sampling, soil sampling, slab repair, and soil vapor mitigation pilot testing, vapor mitigation design, and installation.

3.1 SOIL SAMPLING

3.1.1 Shallow Soil Sampling

Soil vapor probes and shallow surface soil sampling will be completed to characterize shallow soils within and the existing building footprint and to collect soil samples for laboratory analysis. Figures in the Work Plan depict the proposed soil vapor probe locations and the locations of existing structures present at the Site.

Soil samples will be collected using hand tools. Logging will consist of: describing the soil according to the Unified Soil Classification System; describing any evidence of contamination (e.g., non-aqueous phase liquid (NAPL), staining, sheens, odors); and screening for organic vapors using a photoionization detector (PID).

Samples selected for laboratory analysis will be biased towards intervals containing urban fill material or other evidence of contamination (e.g., staining, odors, elevated PID readings).

The soil samples designated for analysis will be collected into laboratory-supplied containers, sealed and labeled, and placed in an ice-filled cooler. Proposed soil samples and analyses are described in the "Sample

Summary Table” of the Work Plan. The samples will be analyzed in a laboratory following New York State Department of Health (NYSDOH) Analytical Services Protocol (ASP) Category B deliverables.

3.1.2 Restoration

Upon completion of probing/drilling, each hand boring will be completed as a soil vapor sampling probe for soil vapor sample collection and utilizes as a dual-purpose vapor monitoring point during SSDS pilot study communication testing. Soil vapor points will be completed to ground surface using drilling sand, if necessary. The borings will be patched with the appropriate materials (e.g., asphalt or concrete patch), depending on the original finish.

3.2 DECONTAMINATION OF SAMPLING EQUIPMENT

All non-disposable sampling equipment (Hand auger, Hammer Drill cores, etc.) will be decontaminated between sampling locations. The decontamination procedure will be as follows:

1. Scrub using tap water/Alconox mixture and bristle brush.
2. Rinse with tap water.
3. Scrub again with tap water/Alconox and bristle brush.
4. Rinse with tap water.
5. Rinse with distilled water.
6. Air-dry the equipment, if possible.

Decontamination will be conducted within 5-gallon buckets to capture decontamination water. Decontamination waste will be handled as described in Section 3.4.

If deemed necessary, a methanol solution and/or a 10% nitric acid solution will be included in the decontamination procedure.

3.3 MANAGEMENT OF INVESTIGATION DERIVED WASTE

Decontamination fluids will be containerized and staged near the point of generation, and will be properly disposed of based on laboratory results. If free of visible contamination, disposable personal protective equipment (PPE) and sampling equipment (scoops, gloves, rope, etc.) will be placed in heavy-duty plastic bags and disposed of properly as general refuse.

4.0 SAMPLING AND LABORATORY PROCEDURES

4.1 SOIL SAMPLING

Soil sampling will be conducted according to the following procedures:

- Characterize the sample according to the modified Unified soil classification system.
- Field screening for evidence of contamination (e.g., odors, staining, elevated PID measurements). Create small holes in the core at one-foot intervals using a sampling spoon (or similar) and place the PID probe in the hole to obtain an organic vapor concentration measurement.
- After selecting which samples will be analyzed in the laboratory, fill the required laboratory-supplied sample jars with the soil from the selected sampling location, eliminating headspace as

much as possible. Seal and label the sample jars as described in Section 4.5 of this QAPP and place in an ice-filled cooler.

- Decontaminate any soil sampling equipment between sample locations as described in Section 3.4 of this QAPP.
- Record boring number, sample depth, and sample observations (evidence of contamination, PID readings, soil classification) in field log book and boring log data sheet, if applicable.

4.2 LABORATORY METHODS

Table 1 summarizes the laboratory methods that will be used to analyze field samples as well as the sample container type, preservation, and applicable holding times. An ELAP Certified laboratory will be used for all chemical analyses in accordance with DER-10 2.1(b) and 2.1(f), including Category B Deliverables.

Table 1 Laboratory Analytical Methods for Analysis Groups

Matrix	Analysis	EPA Method	Bottle Type	Preservative	Hold Time
	TCL VOCs	8260	Encore sampler (3), or Terracore Sampler with transfer into vials (3)	4°C	48 hours to analyze unpreserved, or preserve and 14 days to analyze
	Base Neutral & Acid Extractable SVOCs (TCL SVOCs)	8270	Glass 4 oz. Jar	4°C	14 days to extract 40 days to analyze
	TAL Metals	6000/7000	Glass 4 oz. Jar	4°C	6 months (28 days for Hg)
	Pesticides	8081	Glass 4 oz. Jar	4°C	14 days to extract 40 days to analyze
	PCBs	8082	Glass 4 oz. Jar	4°C	14 days to extract 40 days to analyze

4.3 QUALITY CONTROL SAMPLING

In addition to the laboratory analysis of the investigative soil samples, additional analyses will be included for quality control measures, as required by the Category B sampling techniques. These samples will include field blanks, trip blanks, matrix spike/matrix spike duplicates (MS/MSD), and duplicate/blind duplicate samples at a frequency of one sample per 20 field samples collected. The “Sample Summary Table” in the Work Plan provides a summary of the field samples and QA/QC samples to be analyzed by the laboratory.

4.4 SAMPLE HANDLING

4.4.1 Sample Labeling and Shipping

All sample containers will be provided with labels containing the following information:

- Project identification
- Sample identification
- Date and time of collection
- Analysis(es) to be performed

Once the samples are collected and labeled, they will be placed on ice in coolers. The samples will be shipped with chain-of-custody (COC) forms. Samples will be shipped overnight (e.g., Federal Express) or transported by a laboratory courier.

4.4.2 Sample Custody

Field personnel will be responsible for maintaining the sample coolers in a secured location until they are picked up and/or sent to the laboratory. The record of possession of samples from the time they are obtained in the field to the time they are delivered to the laboratory or shipped off-site will be documented on COC forms. The COC forms will contain the following information: project name; names of sampling personnel; sample number; date and time of collection and matrix; and signatures of individuals involved in sample transfer, and the dates and times of transfers.

4.5 FIELD INSTRUMENTATION

Field personnel will be trained in the proper operation of all field instruments at the start of the field program. Instruction manuals for the equipment will be on file for referencing proper operation, maintenance and calibration procedures.

4.6 DATA REVIEW

In accordance with DER-10, each of the samples collected as part of the IRM will undergo a third party data review process to ensure the usability of the data collected. Data usability summary reports (DUSR) documenting any issues with QA/QC will be prepared and included in the CCR Report.

4.6.1 Data Usability Evaluation

Data usability evaluation procedures shall be performed for both field and laboratory operations as described below.

4.6.2 Procedures Used to Evaluate Field Data Usability

Procedures to validate field data for this project will be facilitated by adherence to the plan outlined in the QAPP. The performance of all field activities, checking for transcription errors and review of field log books is the responsibility of the Field Team Leader.

4.6.3 Procedures Used to Evaluate Laboratory Data Usability

Data evaluation will be performed by the third-party data validator using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review* (Ref. 8), and Contract Laboratory Program, *National Functional Guidelines for Inorganic Data Review* (Ref. 9). The data review guidance will be used only to the extent that it is applicable to the SW-846 methods; SW-846 methodologies will be followed primarily and given preference over CLP when differences occur. Also, results of blanks, surrogate spikes, MS/MSDs, and

laboratory control samples will be reviewed/ evaluated by the data validator. All sample analytical data for each sample matrix shall be evaluated. The third-party data validation expert will also evaluate the overall completeness of the data package. Completeness checks will be administered on all data to determine whether deliverables specified in this QAPP are present. The reviewer will determine whether all required items are present and request copies of missing deliverables

RESUMES

ERIK J. DRAIJER PE, QEP

Team Director
Environmental Services

edraijer@pvedi-aecom
646-602-4999

EDUCATION

**University of Massachusetts,
Amherst**

Bachelor of Environmental Science
Minor in Resource Economics

LICENSES & CERTIFICATIONS

Professional Engineer: New York

OSHA 30-HR Construction Safety

OSHA 40-HR Hazardous Waste
Operations and Emergency
Response Health and Safety Training

Qualified Environmental Professional
(QEP)

AFFILIATIONS

American Red Cross Biomed
Specialist

Board of Directors, NYC Brownfield
Partnership

NJDEP Radon Measurement and
Mitigation Technician

TENURE

PVEDI: Since 2017

ABOUT

Erik is an experienced Senior Project Manager with broad-based knowledge of managing and conducting field investigations, including soil, groundwater, and soil vapor sampling, as well as remediation system design and management. He is responsible for project management, including project scoping, coordination with subcontractors, correspondence with regulatory agencies, data management, reporting, and client relations. He is responsible for a broad range of due diligence and transaction-based projects, as well as brownfield redevelopment and voluntary cleanup projects across the United States. Erik is also involved in business development, staffing decisions, and is in a leadership development role.

PROFESSIONAL PRACTICE AREAS

- Brownfield Redevelopment Services, including State Regulatory Programs
- Conceptual Site Modeling, Contaminant Fate and Transport
- Due Diligence Assessments
- Ecological Reviews
- Environmental Assessments in accordance with Part 50/58 for the Department of Housing and Urban Development (HUD)
- Federal (HUD), State, and Locally-financed Affordable Housing Assessment Services Industrial Hygiene Services
- Noise Remedial Action Plans
- Noise Studies and Abatements
- NY State's Brownfield Cleanup Program (BCP) Experience
- Phase II Environmental Site Assessments
- Remedial Action Work Plans in Accordance with NYC Requirements
- Subsurface Investigations
- Toxicological Analysis
- Vapor Mitigation Design

CHRISTOPHER B. BROWN PG

Principal / Chief Operating Officer

cbrown@pvedi-ae.com
646-602-4999 ext. 302

EDUCATION

Binghamton University
Master of Science, Geology
Colgate University
Bachelor of Arts, Geology

LICENSES & CERTIFICATIONS

Professional Geologist:
New York #000291
Pennsylvania #005709
Texas #15707
American Institute of Professional Geologists, CPG

AFFILIATIONS

American Institute of Professional Geologists, Board Member
Habitat for Humanity of Dutchess County: President Emeritus (2023), President (2017-2022)
National Groundwater Association
New York Council of Professional Geologists

TENURE

PVEDI: Since 2011
Prior Experience: 17 Years

ABOUT

As PVEDI's COO, Chris manages the firm's operations across all locations. He implements organizational structure and develops strategic initiatives that enhance operational efficiencies throughout all divisions.

Chris is also the Director of Environmental Services, a role he has held since the company's 2011 merger with the former Hudson Valley-based Conrad Geoscience Corp. he co-founded in 1996. He has conducted and supervised the investigation and remediation of state- and federally-listed hazardous waste sites, brownfields, petroleum spills, landfills, and a variety of contaminated residential, commercial, and industrial sites.

Chris oversees the firm's environmental due diligence services for real estate transactions and has participated in hundreds of real estate transactions. He also has worked on geologic characterization projects for Class II, V and VI injection wells. His skills as a consultant on complex and sometimes contentious matters have earned him the trust and respect of clients, regulatory agencies and the PVEDI team.

PROFESSIONAL PRACTICE AREAS

- Brownfield Site Assessments
- Conceptual Site Modeling / Contaminant Fate and Transport
- Due Diligence Assessments
- Geologic Evaluations
- NYSDEC and NYCOER Regulatory Programs
- Permitting and Regulatory Compliance
- Remedial Actions
- Subsurface Investigations

MARIANA VERRI

Project Manager Environmental Services

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EDUCATION

City University of New York
Master of Science, Earth and
Environmental Science
Urban Environmental Science
Specialization

University of Texas at Arlington
Bachelor of Science, Earth and
Environmental Sciences
Environmental and Sustainability
Studies Minor

LICENSES & CERTIFICATIONS

OSHA 30-HR Hazard Recognition
Training for the Construction
Industry

OSHA 40-HR Hazardous Waste
Operations and Emergency
Response Health and Safety Training
U.S. EPA Risk Assessor

AFFILIATIONS

Brownfield Coalition of the Northeast
New York City Brownfield
Partnership
Society of Women Environmental
Professionals

FLUENT LANGUAGES

English
Portuguese
Spanish

TENURE

PVEDI: Since 2021

ABOUT

As a Project Manager for Environmental Services, Mariana supports the group's directors and managers in a variety of projects, including environmental due diligence, site characterization, and remediation. Throughout projects, she is relied on for input relating to technical and regulatory matters to ensure that investigations are designed to meet State and Federal requirements.

Mariana has broad experience in managing and performing a variety of investigations, including soil borings, groundwater monitoring well installation and sampling of all environmental media. She is also responsible for assembling site characterization data and creating site maps using ArcGIS Pro and ArcMap to present project-specific data in visual format.

In addition to her site characterization and reporting experience, Mariana is experienced in the requirements necessary to satisfy NYC and State Brownfield Cleanup Program standards, including New York City E-designation requirements for hazardous materials, noise and air quality. Mariana has prepared remedial investigation and remedial action plans for both State and City programs. In addition, she has managed lead-based paint inspections using X-ray Fluorescence analysis and clearance testing following federal, state, and local regulatory agencies.

PROFESSIONAL PRACTICE AREAS

- Lead-Based Paint Inspections
- NYC E-Designation Program Requirements
- NYC Voluntary Cleanup Program Project Management
- NYS Brownfield Program Requirements
- Phase I and II Environmental Site Assessments

PUBLICATIONS

Christos Tsabaris, Dionisis L. Patiris, Rosalinda Adams, Julian Castillo, Maria F. Henriquez, Caroline Hurtado, Lesley Munoz, Leonidas Kalpaxis, Mariana Verri, Stylianos Alexakis, Filothei K. Pappa, Angelos Lampousis. In Situ Radioactivity Maps and Trace Metal Concentrations in Beach Sands of a Mining Coastal Area at North Aegean, Greece. *Journal of Marine Science and Engineering*. 2023; 11 (6):1207.

JARED ROEMER

Environmental Scientist

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EDUCATION

Virginia Tech

Bachelor of Science, Environmental Science

TENURE

PVEDI: Since 2024

Prior Experience: 3 Years

ABOUT

As an environmental scientist with PVEDI, Jared focuses on research, data analysis and problem-solving to address various environmental issues. He collects and analyzes data from various soil, water and air samples, and monitors environmental conditions using GIS and other modeling software. His responsibilities include Site Assessments, Phase I and II ESA's, Brownfield Remediation and Cleanup Programs, Hazardous Building Materials Abatements, Community Air Monitoring Programs (CAMP), Remedial Investigations, Remedial Action Plans, Real Estate Transactions and Due Diligence.

PROFESSIONAL PRACTICE AREAS

- AutoCAD
- Construction Oversight
- Soil and Groundwater Sampling
- Data Collection and Analysis
- Drilling Oversight
- Environmental Sampling
- GIS
- Indoor Air Sampling
- Phase I & II Environmental Site Assessments
- Site Inspections
- Soil Boring Classification
- Sub-Slab Sampling
- Vapor / Air Monitoring
- Well Development