Interim Remedial Measure (IRM) Work Plan

69-34 & 69-36 76th Street
Middle Village, NY 11379
NYC Block: 3794, Lots: 46 & 47
(Site #241266 / Spill #2201492)

June 13, 2023

Rev. 1

Prepared for:
S76 Management LLC
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Brooklyn, NY 11211

Prepared by:
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CERTIFICATION

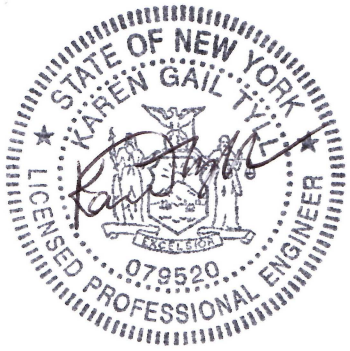
I, Karen Tyll, P.E., certify that I am currently a Registered Professional Engineer as defined in 6 NYCRR Part 375 and that this Interim Remedial Measure Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).

In order to address full compliance with New York State Education Laws, all engineering work is performed by Karen Tyll, P.E., under direct contract to S76 Management LLC c/o Star Rubbish. Karen Tyll, P.E. is a fully licensed NYS Engineer and Tyll Engineering and Consulting, PC is fully authorized to provide engineering services in New York State.

Karen Tyll, P.E.
Name

079520
PE License Number

6/27/23
Date



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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BER	Business Environmental Risk
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
C&D	Construction and Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering Controls and Institutional Controls
ELAP	Environmental Laboratory Accreditation Program
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IEC	Institutional & Engineering Controls
IRM	Interim Remedial Measure
IRMWP	Interim Remedial Measure Work Plan
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYS DEC	New York State Department of Environmental Conservation
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYC VCP	New York City Voluntary Cleanup Program
NYCRR	New York Codes Rules and Regulations
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
O&M	Operation & Maintenance
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PCBs	Polychlorinated Biphenyls

PE	Professional Engineer
PID	Photo Ionization Detector
PRR	Periodic Review Report
QACP	Quality Assurance Control Plan
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
REC	Recognized Environmental Conditions
RI	Remedial Investigation
RMZ	Residual Management Zone
ROI	Radius of Influence
RSRA	Records Search/ Risk Assessment
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SMMP	Soil Materials & Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SSDV	Sub-slab Diagnostic Value
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TIC	Tentatively-Identified Compounds
USGS	United States Geological Survey
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compound

1.0 INTRODUCTION

Tyll Engineering and Consulting, PC (TEC) has prepared this Interim Remedial Measures Work Plan (IRMWP) to address contamination identified in the Phase-II Environmental Subsurface Investigation (Phase-II) dated January 4, 2021 and the Supplemental Remedial Investigation Report (SRIR) dated July 19, 2022 completed by RSK Environmental Group, LLC (RSK), for the site located at 69-34 & 69-36 76th Street, Middle Village, NY 11379 (hereafter referred to as the Site). The Site is not currently listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State, and is instead identified as a "P" or potential site with a Site number of 241266. An order on consent and administrative settlement (index no. CO-2-20230113-31) which was executed on February 16, 2023, which requires submittal of an IRMWP within 60-days of NYSDEC approval of the SRIR.

As part of the executed order on consent, a Site Characterization Work Plan (SCWP) to conduct groundwater sampling was required to help determine if the potential for exposure from groundwater related to soil vapor contamination beneath the site is possible. The SCWP will be completed at a later time, after implementation of the IRM, installation and prior to site redevelopment activities.

This IRMWP provides specific details on implementation of the remedy to meet the remedial objectives and in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation, Technical Guidance for Site Investigation and Remediation (DER-10) (May 2010).

2.0 PROJECT BACKGROUND

2.1 Site Location and Description

The Site is also identified as Block: 3794, Lots: 46 & 47, and is located south of 69th Road, north of 71st Avenue, east of 75th Street and west 76th Street which is situated within a light manufacturing zoning district in Middle Village, NY. A Site Location Map is provided as **Figure 1**. The Site has a combined lot area of approximately 6,728-square feet in size where Lot 46 is developed with an asphalt paved parking lot, and Lot 47 is developed with a concrete and asphalt paved parking lot and a one-story commercial building (no cellar) formerly utilized as an automotive repair garage operated by Always Ready Car Service. The lots are currently enclosed with a chain-link fence and two (2) gates to the east along 76th Street. The building is supplied by public potable water supply and connected to municipal sanitary sewer system and equipped with overhead natural gas-fired heaters. Currently the Site is utilized mainly for storage of empty dumpsters and the building interior was gutted and the concrete floor was demolished and removed. A Site survey is provided as **Figure 2** and pictures of the Site current condition is provided as **Photo Logs**.

2.2 Surrounding Property Use

Surrounding properties are mainly used as mixed-use residential, commercial and a few light industrial properties scattered within a 1-mile radius.

DIRECTION	ADJOINING USE(S)	VICINITY USE(S)
North	Industrial and residential properties • Along 69th Road	Mixed-Use
South	Industrial and institutional properties • Along 71st Avenue	Industrial
East	Industrial and residential properties • Along 76th Street	Mixed-Use
West	Industrial and residential properties • Along 75th Street	Mixed-Use

A Surrounding Land Use Map is provided as **Figure 3**.

2.3 Site Use and History

The primary zoning for the Site is M1-1 which is a light manufacturing zoning district in Middle Village, NY. The Site is adjoining and rectangular-shaped parcels with a combined lot area of approximately 6,728-sq-ft, which is currently developed with a paved parking lot and a one-story building on a slab formerly utilized as an automotive repair garage. Currently the Site is utilized mainly for storage of empty dumpsters and the building interior was gutted and the concrete floor was demolished and removed. The lot area of 69-34 76th Street and 69-36 76th Street is approximately 2,500-sq-ft and 4,228-sq-ft, respectively. The building inhabiting 69-36 76th Street (Lot 47) has a lot coverage of approximately 1,440-sq-ft. According to Sanborn maps, 69-36 76th Street was a formerly a metal works facility circa 1980 and then utilized as an automobile repair garage up to 2020.

A Sanborn Map search identified the surrounding property located at 69-77 75th Street (approximately 85-feet southwest of the Site) was utilized as a historic dry cleaner circa 1987 to 1989. A Surrounding Land Use Map is provided as **Figure 3**.

3.0 SITE PHYSICAL SETTINGS

3.1 Topography

The Site and vicinity characteristics listed below were analyzed utilizing a current USGS 7.5 Minute Topographic Map. This information is useful in determining the grade and topography of the Site. The Site is located at an elevation of approximately 86.94-feet above mean sea level (msl). The general topographic gradient is south-southeast. The slopes on the Site range from 0 to 3 percent.

3.2 Geology and Soils

No bedrock outcroppings were observed at the Site. Near-surface geology in heavily developed areas such as the Site and vicinity is considered "urban land- Greenbelt complex" and is characterized by a non-homogeneous distribution of cemented material till 15-inches of depth, followed by gravelly sand from 15-inches to 79-inches. Excavation and backfilling for building foundations, utility conduits, subway systems and other construction results in a varied subsurface profile. In this setting, estimation of local subsurface parameters such as permeability, moisture content, and organic fraction is not feasible without site-specific testing data.

3.3 Hydrogeology and Hydrology

Groundwater depths and flow gradients are best evaluated by a subsurface investigation involving the installation of at least three (3) groundwater monitoring wells and precise measurements of hydrostatic pressure. Local groundwater ranges between 51-feet to 75-feet as depicted in USGS 2013 map and groundwater gradient is expected to follow with surface topography; therefore, groundwater flow near the Site is expected to flow to the southeast. No monitoring wells currently exists on the Site.

4.0 DESCRIPTION OF PREVIOUS INVESTIGATION

4.1 Phase-I Environmental Site Assessment – November 2021

As part of the due diligence for a real estate transaction, a Phase-I Environmental Site Assessment (Phase-I) was performed by RSK for the Site dated November 20, 2021, which determined that the Site was identified with the following that would represent potential environmental concerns:

- A Sanborn Map search identified that the historic usage of 69-36 76th Street was a metal works facility since circa 1980 and was then utilized as an automobile repair garage.
- At the time of RSK's site inspection, a slop sink was identified in the automobile repair garage and the outflow pipe went into an open floor pit which was in poor condition.
- An EDR radius map search identified a surrounding property located at 69-77 75th Street (approximately 85-feet southwest of the Site) was utilized as a dry cleaner from 1987 to 1989.

RSK recommended that a Phase-II Environmental Subsurface Investigation (Phase-II) be conducted to assess the potential impacts from the historic usage of the Site and offsite with a focus on soil and soil vapor conditions.

4.2 Phase-II Environmental Site Investigation – January 2022

A Phase-II Environmental Site Investigation (Phase-II) was conducted for the Site by RSK, dated January 4, 2022, which consisted of soil sampling and a vapor intrusion assessment (VIA). The following is a summary of the work performed:

- A geophysical survey was conducted as part of the Phase-II where no metallic anomalies consistent with a UST was identified.
- A total of four (4) air samples were collected for the Site utilizing 6-Liter Summa canisters. Two (2) sub-slab air samples identified as SS-1 (front of garage) and SS-2 (rear of garage) were collected, one (1) indoor air sample (identified as IA-1) and one (1) outdoor air sample (identified as OA-1) were collected from the front exterior of the garage, adjacent to 76th Street.
- A total of six (6) soil borings (SB-1 through SB-6) were installed within the garage and open paved lots.
- Analytical results from air sampling indicated elevated concentrations of VOCs, particularly PCE (ranging from 0.7 ug/m3 to 3,500 ug/m3) and Methylene Chloride (ranging from 9.5 ug/m3 to 19 ug/m3), which requires mitigation.
- Analytical results of soil sampling indicated elevated concentrations of several PAHs in SB-2 (northern corner of the Site) at depths ranging from 12-feet to 15-feet and SB-6 (rear of building) at depths ranging from 4-feet to 7-feet. Analytical results for SVOCs for SB-2 (12'-15') and SB-6 (4'-7') detected exceedances above NYSDEC's Restricted Residential Soil Cleanup Objectives (RRSCOs) for Benzo(a)anthracene at 2,400 ug/kg and 4,400 ug/kg, Benzo(a)pyrene at 2,400 ug/kg and 4,200 ug/kg, Benzo(b)fluoranthene at 2,000 ug/kg and

2,800 ug/kg, Benzo(k)fluoranthene at 1,700 ug/kg and 2,600 ug/kg, Chrysene 2500 ug/kg and 4,000 ug/kg, Dibenzo(a,h)anthracene at 420 ug/kg and 390 ug/kg, and Indeno (1,2,3-cd) pyrene at 1,400 ug/kg and 2,200 ug/kg, respectively.

4.3 Supplemental Remedial Investigation – July 2022

A Supplemental RI was conducted for the Site by RSK, dated July 14, 2022, which consisted of soil sampling. The following is a summary of the work performed:

- A total of six (6) soil borings (RI-1 through RI-6) were installed within the garage and paved lot as part of the Supplemental RI.
- Six (6) soil boring locations (RI-1 through RI-4 were installed in the paved lot, and RI-5 and RI-6 were installed within the automotive repair garage). RI-1 encountered refusal at 14-ft., RI-2 and RI-4 encountered refusal at 20-ft., RI-3 encountered refusal at 19-ft., RI-5 encountered refusal at 16-ft., and RI-6 encountered refusal at 12-ft. No groundwater was encountered during the soil boring process. No petroleum contamination was observed visually, and the highest PID reading was 7.2 parts per million response units (PPMRUs) in RI-5.
- Analytical results of the twelve (12) soil samples (RI-1 through RI-6) detected three (3) VOCs above regulatory levels as compared with the NYSDEC's RRSCOs: cis-1,2-Dichloroethene at 560 ug/kg and 550 ug/kg in RI-3 (19') and RI-5 (16'), respectively; Toluene at 840 ug/kg and 730 ug/kg in RI-2 (20') and RI-3 (19'), respectively; and Total Xylenes ranging from 413 ug/kg to 1,250 ug/kg. No exceedances were detected above RRSCOs.

5.0 INTERIM REMEDIAL MEASURES (IRM)

This IRM will consist of the installation of an active sub-slab depressurization system (SSDS) and a composite cover with vapor barrier within the footprint of the existing building on the Site in accordance with the attached figures. A copy of the Proposed Active SSDS Layout is attached as **Figure 7** and a copy of the Proposed Site Wide Cover Details is attached as **Figure 10**. The IRM will also include the startup testing and inspection to confirm that the installation of the system components is in compliance with the industry standards and techniques appropriate for the intended application in mitigating potential sub-slab gases from impacting the indoor air of the subject building.

5.1 Implementation of IRM

The following provides the work-flow components associated with the implementation of the IRM:

- Development and execution of a Construction Health and Safety Plan (CHASP) and Community Air Monitoring Plan (CAMP) for the protection of on-site workers and the nearby community during construction activities;
- Prior to conducting any intrusive field work, a geophysical survey will be conducted to mark out sub-grade utilities. The appropriate ELAP One Call center (U Dig NY 811) will be notified at least 72 hours in advance of any intrusive field work;
- Site mobilization involving setup, equipment mobilization, utility mark outs and marking & staking work areas;
- If feasible, a diagnostics measurement which will involve coring 2½-inch suction holes in the floor and 5/16-inch test holes at various distances from the suction holes, all within the areas of the proposed SSDS. A specialized SSDV capable of up to 200-cfm and a vacuum of 45-inches of water column ("W.C.) or better will be used with a variable speed controller to define the flow and vacuum characteristics of the soil. The information obtained from each vacuum monitoring point will be examined independently to identify the associated ROI for the specified locations during the applied test conditions. The test data from all the suction points will be examined collectively in order to achieve the proposed full-scale SSD system suction points in order to address the area(s) of concern;
- Limited excavation of a trench to a depth of 1-foot bgs and 1-foot wide in a continuous loop for the installation of SSD system. Handling, transportation and off-site disposal of material, as necessary to complete efforts to install an engineering control (i.e., excavate trench for SSDS within the existing building). A copy of the Proposed Limited Excavation Plan is attached as **Figure 4**;
- Continuous screening by a qualified environmental professional/environmental scientist /geologist of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media which will be stockpiled on-site;
- Collection of six (6) post-excavation endpoint soil samples from within the trench excavation for laboratory analysis, *further described in Section 5.2*. A copy of the Proposed Endpoint Sampling Location Plan is attached as **Figure 5**;

- In the event of further contamination, elevated PID readings, or other observational or analytical data collected during the excavation of the trench for the installation of the SSD system, those impacted areas will be further excavated in a safe manner pursuant to the SMMP as provided in ***Appendix A***. All excavated materials will be stored onsite in 20-cubic yards roll off containers lined with double-layered 6-mil plastic sheeting for offsite disposal at regulated disposal facilities;
- If required for structural stability issues, the selected contractor may elect to utilize shoring boxes, sheet-piling systems, etc., to protect the integrity of the on-site building infrastructure. Such activities are the responsibility of the contractor and are not incorporated into this IRMWP;
- If any USTs are encountered during soil/fill removal actions, registration of tank(s) and appropriate closure of these tank will be done in compliance with applicable Local, State, and Federal laws and regulations;
- Upon completion of excavation work, appropriate number of samples will be collected for waste characterization analysis of all excavated soil as required for off-site disposal facilities as described in the SMMP *provided as* ***Appendix A*** and the QA/QC, which is provided in Section 6.0;
- All excavated soils stored in roll off containers will be covered with a double-layer of 6-mil plastic sheeting pending their eventual load out for transport and disposal;
- Upon acceptance of waste disposal from approved disposal facilities, approximately 7-cubic yards of soil/fill will be transported offsite for the proper disposal at an appropriately licensed or permitted facility. A copy of a Truck Route Map is attached as **Figure 6**; and
- Documentation of post remedial excavation endpoint soil sampling and analysis, collected from any remedial excavation areas will be provided to the NYSDEC.

Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

The IRM is the proposed final remedy for the Site and will be performed in accordance with applicable Federal, State, and Local regulations. The estimated IRM implementation schedule is provided as **Appendix B** and the site-specific CHASP is provided as **Appendix C**. The site-specific CAMP is included as **Appendix D**. The NYSDEC will be promptly notified of any proposed changes, delays, and/or deviations from the IRMWP.

5.2 Endpoint Sampling

Upon completion of excavating the proposed trench, a total of six (6) endpoint soil samples will be collected and submitted to a NYSDOH/ELAP certified analytical laboratory for chemical analysis. The six (6) endpoint samples will be analyzed using NYSDEC TCL VOCs plus ten tentatively-identified compounds (TICs) by EPA Method 8260C, NYSDEC TCL SVOCs plus 20 TICs by EPA Method 8270D, Pesticides by EPA Method 8081, Polychlorinated Biphenyls (PCBs) by EPA Method 8082, TAL Metals by EPA Methods 6010 and 7471, PFAS by EPA Method 1633, and 1,4-Dioxane by EPA Method 8270SIM. The protocols for the collection and analyses of the soil

samples are included in the QAPP prepared for the IRMWP. A copy of the Proposed Endpoint Sample Location Plan is attached as **Figure 5**.

The NYSDEC will be provided with preliminary draft analytical data tables/figures indicating the locations and results of the post-excavation, confirmatory soil samples for review prior to continuation of installing the SSDS.

5.3 Import of Soils/Fill Materials

Import of soils/fill materials onto the Site will be in conformance with the Soil/Materials Management Plan (SMMP). A copy of the SMMP is attached as **Appendix A**. The estimated quantity of certified clean ¾-inch crushed blue stone to be imported into the Site for backfilling the trench is approximately 5 cubic yards. In the event excavation at the Site exceeds what is planned; arrangements will be made to import certified clean fill in conformance with the SMMP.

5.4 Installation of Engineering Control

5.4.1 Soil Vapor Migration Pathways

Typical soil vapor migration pathways include entrance into a building through cracks or perforations in the slab or walls, and through openings around sump pumps or where pipes and electrical wires go through the foundation. The vapor movement is primarily a result of a difference between interior and exterior pressures. As established in the NYSDOH Vapor Intrusion Guidance, as updated in May 2017, the basic requirements that must be established with respect to a soil vapor migration program are as follows:

- Methods of mitigation;
- Pilot testing, installation, and design of mitigation system;
- Post-mitigation testing;
- Operation, maintenance, and monitoring of mitigation system;
- Termination of mitigation system operations; and
- Annual certification.

5.4.2 Methods of Mitigation

The most effective mitigation methods for soil vapor include a combination of limiting any infiltration points and actively manipulating the pressure differential between the buildings' interior and exterior. The SSD system proposed can mitigate vapor intrusion into the building envelope from below the building floor slab by creating negative pressure below the floor. A copy of the Proposed Active SSDS Layout is attached as **Figure 7.**

Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.

5.4.3 Proposed Remedial SSD System Design – Building Slab-on Grade

The proposed future use of the building will be a commercial office space. In order to protect occupants of the building from potential vapor intrusion, Karen Tyll, P.E. proposes to install an SSD system within the footprint of the existing building on the Site. The proposed SSD system will induce a vacuum/pressure gradient that will be achieved across and under the entire building. Upon completion of construction, a pressure field extension test will be conducted to confirm the SSD system performance and effectiveness. The SSDS will comprise one (1) horizontal depressurization/extraction piping (loop) installed in the middle of a gas permeable layer beneath the building slab, and reduce soil vapor concentrations which may migrate from both onsite and offsite. The SSD loop will consist of 4-inch horizontal perforated pipes installed within a minimum of a 12-inch layer of crushed blue stone. A minimum of 4-inches of crushed stone will be placed above and below the 4-inch pipes. The crushed stone will be ¾ inch non-angular crushed blue stone with less than 5% fines smaller than ¾ inches. The perforated piping will consist of 4-inch diameter scheduled-40 PVC or approve equivalent perforated pipe. The loop will be outfitted with a vertical 4-inch solid PVC header pipe (riser) that will extend 3-feet beyond the roof line of the building which will be fitted with an appropriately sized extraction fan. The final location of the extraction fan will be verified prior to installation in order to maintain appropriate discharge and comply with 10-feet minimum away from any fresh air intake or windows. The design and installation of the SSD system will be overseen by a New York State Licensed Professional Engineer and certify that the active SSDS was designed and properly installed to establish a vacuum in the gas permeable layer and a negative (decreasing outward) pressure gradient across the building slab to prevent vapor migration into the building. A copy of the Proposed Active SSDS Details Diagram is attached as **Figure 8**.

5.4.4 Proposed Remedial SSD System Monitoring

Access/sampling and vacuum monitoring ports (VMP) will be installed within the building and riser pipes to allow for monitoring/evaluating the effectiveness of the SSD component of the system. Upon completion of system installation, a new 6-inch concrete slab underlain with a 20-mil vapor barrier will be properly installed and sealed to enhance system effectiveness. The SSD system is a permanent engineering control and will be inspected monthly and monitored annually. The system will be inspected, and its performance certified at specified intervals as required by this IRMWP and the Site Management Plan (SMP). Maintenance of the SSD system will be described in the SMP. The effectiveness of the SSD system will be determined via field management of negative pressure at two (2) vacuum monitoring points (VMP-1 and VMP-2) which will be installed within the perimeter of the SSD trench, and appropriately spaced, to ensure adequate negative pressure across the entire building footprint. A copy of the Proposed Active SSDS Layout depicting the Vacuum Monitoring Points (VMPs) is attached as **Figure 7**.

At the time of the system's startup, all components will be inspected to verify good working condition, correct installation and operation as designed. The finished concrete slab and seals will be inspected to verify no cracks or openings exist. Each vacuum monitoring point will also be inspected and then tested utilizing a portable

micromanometer. Readings greater than -0.01-inches of water will be considered evidence of adequate negative pressure and will help determine circumstantial changes within the building. The system inspection and testing results will be documented on a mitigation system installation record with vacuum testing logs which will document the date, installer, system type, suction points, fan and gauge models, communication testing results, as-built site sketch and photographs. A copy of the Proposed Active SSDS Details Diagram is attached as **Figure 8**. During its operation, the system will be inspected monthly and monitored annually, and its performance certified at specified intervals as required by this IRMWP and the SMP.

5.5 Vapor Barrier and Composite Cover

5.5.1 Vapor Barrier

The vapor barrier will be a 20-mil vapor barrier, model VaporBlock® Plus (VBP-20) manufactured by Raven Industries or equivalent. The vapor barrier will be installed prior to pouring the new building concrete slab. The vapor barrier will extend throughout the area occupied by the footprint building and will be installed in accordance with manufacturer specifications. A copy of the Proposed Vapor Barrier Diagram is attached as **Figure 9**. Product specification sheets are provided in **Appendix E**.

5.5.2 Composite Cover

A composite cover is proposed for the entire site. A copy of the Proposed Site Wide Cover Details Plan is attached as **Figure 10**. As per the attached site wide cover figure, Detail A depicts the cover type for the entire building which consists of a new 6-inch concrete slab, underlain with 20-mil Vapor Barrier (VBP-20), and existing building fill. Detail B depicts the cover type for the proposed trench area within the building which consists of a new 6-inch concrete slab, underlain with 20-mil Vapor Barrier (VBP-20), and 12-inch layer of ¾-inch crushed stones. Detail C depicts the cover type for the driveway and parking lot which will consist of a 4-inch layer of asphalt underlain with 6-inch layer of ¾" RCA, and existing fill. Maintenance of this composite cover system will be described in the SMP.

The composite cover system and vapor barrier will be a permanent engineering control. The system will be inspected, and its performance certified at specified intervals as required by this IRMWP and the SMP.

6.0 REPORTING

During remedial action activities, daily status reports will be prepared to include CAMP data where copies are maintained in the field and also submitted to the NYSDEC and the NYSDOH on a daily basis. The final remedy includes long-term maintenance and monitoring of the cover system which will be included in the SMP. Preparation and submission of a Construction Completion Report (CCR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this IRMWP, and describes all Engineering and Institutional Controls to be implemented at the Site together with a SMP for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency. The report and drawings will be certified by a professional engineer registered in New York State.

6.1 Construction Completion Report/Site Management Plan

A Construction Completion Report (CCR)/Site Management Plan (SMP) will be prepared in accordance with DER-10 after the completion of the field work. The CCR/SMP will include the activities listed below that are necessary for the proper and effective management of the engineering/institutional controls and to monitor the effectiveness of the implemented interim remedial measures.

- A CCR will be prepared upon completion of the work outlined in this IRMWP and to include all daily status reports with CAMP data, mitigation system installation record with vacuum testing logs, photographs, disposal manifests, soil/stone importation tickets, all analytical data, as-built drawings, and inspection certificates.
- Institutional and Engineering Control (IEC): Restrictions of on-site access and use will be described in detail in the IEC plan along with steps necessary for its implementation and periodic certification.
- Inspection: Regular inspections (at least monthly at the outset) by a building superintendent to ensure the remedy, including the cover system, remains in place and is effective in preventing human exposure to site contaminants. Annual inspection by a Professional Engineer will be completed to ensure the remedy is effective, monthly inspections are completed, including the cover system maintenance and is effective in preventing human exposure to site contaminants.
- Operation & Maintenance (O&M): The O&M plan will include procedures for routine maintenance requirements to minimize damage to or failure of the implemented remedy.
- Corrective Measures: Procedures for corrective measures such as repairs to/or erosion of the composite cover or damages to the asphalt/concrete surfaces across the building footprint and within the Site boundary.
- Reporting: The results of all inspections, corrective actions and monitoring will be reported in the Periodic Review Report (PRR) for the Site.

7.0 QUALITY ASSURANCE PROJECT PLAN (QAPP)

This QAPP has been prepared by TEC on behalf of S76 Management LLC for the site located at 69-34 76th Street, Middle Village, NY (NYSDEC Site #241266). The QAPP presents data quality objectives (DQO), methods and QA/QC requirements associated with sample collection and laboratory analysis to be performed. This QAPP specifies analytical methods and procedures to be used to ensure that data collected during proposed IRM are precise. Accurate, representative, comparable, complete, and meet sensitivity requirements for the project.

The scope of the IRM Work Plan has been developed to support the excavation, transport, and disposal of soils generated from the proposed trench within the on-site building. The majority of the field and analytical laboratory methodologies to support the IRM were included in the QA/QC procedure. The only additional work-flow component required to support the IRM, which was not included in the existing QA/QC procedure, was the collection of soil samples for waste-characterization purposes prior to the conduct of the excavation activities. The QAPP was prepared in accordance with the NYSDEC DER-10: Technical Guidance for Site Investigation and Remediation, Section 2. The following discusses the assurance procedures that will be followed during sample collection and analysis.

7.1 Project Organization

Remedial Engineer

The Remedial Engineer for this project will be Karen Tyll, P.E., of Tyll Engineering and Consulting, PC. The Remedial Engineer is a registered Professional Engineer licensed by the State of New York and will be responsible for the implementation of the Remedial Action and future remedial programs for the Site. The Remedial Engineer will certify in the Final Interim Remedial Measures Report (IRMR) or CCR that remedial action was observed by the Qualified Environmental Professional, Danny Singh, of RSK Environmental Group LLC (RSK) as well as that the remedial action was performed in accordance with the NYSDEC-approved IRMWP.

RSK QEP and Project Manager

RSK QEP and Project Manager (Drumita Dmello) will be responsible for the day-to-day project management, task leadership and project engineering support for the planning and implementation of IRM activities and providing oversight of all field work performed. The Project Manager is responsible for ensuring that the requirements of the IRMWP are implemented. The Project Manager will also act as the Site Healthy and Safety Officer (HSO). Resumes for the project staff are included as **Appendix F**.

Data Validation

Environmental Data Services, Inc. (EDS) of Palm Beach Gardens, Florida, will serve as the independent third-party data validator for the project. Nancy Weaver from EDS will be contracted to perform data validation and to provide Data Usability Summary Reports (DUSRs) as Category B deliverable for all analytical data obtained from the laboratory during the remedial investigation. The resume of the validator is included as **Appendix G**.

7.2 QA/QC Procedure

QA/QC procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and compatibility associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. QA/QC samples will also include field duplicates, matrix spikes, matrix spike duplicates, field blanks and trip blanks, appropriately at a frequency of 1 per 20 samples.

7.3 Field QA/QC

Field QA/QC will include the following procedures:

- Calibration of field equipment, including PID, on a daily basis;
- Use of dedicated and/or disposable field sampling equipment;
- Proper sample handling and preservation;
- Proper sample chain of custody documentation; and
- Completion of report logs.

The above procedures will be executed as follows:

- Disposable sampling equipment, including acetate sleeves, latex gloves, and disposable bailers (or sample tubing), will be used to minimize cross-contamination between samples;
- For each of the parameters analyzed, a sufficient sample volume will be collected to adhere to the specific analytical protocol, and provide sufficient sample for reanalysis of necessary;
- Because plasticizers and other organic compounds inherent in plastic containers may contaminate samples requiring organic analysis, samples will be collected in glass containers, with the exception of the nitrate-preserved groundwater sample for metals analysis;
- Appropriate sample preservation techniques, including cold temperature storage at 4°C, will be utilized to ensure that the analytical parameters concentrations do not change between the time of sample collection and analysis; and
- Samples will be analyzed prior to the expiration of the respective holding time for each analytical parameter to ensure the integrity of the analytical results.

- Field equipment, when used, will be calibrated daily prior to use, per the manufacturer's specification and will be recorded in the field log.

7.4 Decontamination Procedures

If disposable sampling equipment is not going to be utilized during the sampling event, then the sampling equipment that will be reused during the IRM will be decontaminated prior to each use as follows:

- Set-up of a secondary containment.
- Use laboratory grade glassware detergent (Alconox or similar) and warm water scrub to removal visual contamination;
- Generous tap water rinse;
- Distilled water rinse.

7.5 PFAS Sample Collection

Soil samples collected will be analyzed for per- and polyfluoroalkyl substances (PFAS) in accordance with the NYSDEC guidance sampling, analysis and assessment of per- and polyfluoroalkyl substances under NYSDEC Part 375 Remedial Programs (April 2023).

The following special considerations will apply during collection of samples to be analyzed for PFAS:

- Field equipment will not contain Teflon. Only clean cotton or synthetic clothes will be worn. No Gore-Tex or Tyvek will be worn. Moisturizers or hand creams will not be applied on the day of sampling. No sunblock or insect repellant will be used.
- All sampling material will be made from stainless steel, HDPE, acetate, silicon or polypropylene.
- Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.
- Surface soil samples (e.g., 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless-steel spoon.
- Shallow subsurface soil samples (e.g., 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.
- When the sample is obtained, it should be deposited into a stainless-steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.
- Labels will be printed and applied to sample containers before going to the field. No waterproof field books will be used. No plastic clipboards, binders or spiral hard cover

notebooks will be used. No adhesives will be used. No sharpies or permanent markers will be used, ballpoint pens are acceptable. Aluminum foil will not be used.

- Collect one field duplicate for every sample batch, minimum one (1) duplicate per twenty (20) samples. The duplicate shall consist of an additional sample at a given location. Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum one (1) MS/MSD per twenty (20) samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC.
- Laboratory supplied PFAS-free water will be used for trip, field, and equipment blanks. PFAS samples will be kept in a cooler separate from other samples. Coolers will be filled only with regular ice.

DER has developed a PFAS target analyte list consisting of 21 compounds, At a minimum the laboratory will report the following PFAS compounds:

Perfluorobutanesulfonic acid (PFBs)	Perfluorododecanoic acid (PFDoA)
Perfluorohexanoic acid (PFHxA)	Perfluorotridecanoic acid (PFTrDA)
Perfluoroheptanoic acid (PFHpA)	Perfluorotetradecanoic acid (PFTA)
Perfluorohexanesulfonic acid (PFHxS)	N-MeFOSAA
Perfluorooctanoic acid (PFOA)	N-EtFOSAA
Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanoic acid (PFPeA)
Perfluorononanoic acid (PFNA)	Perfluoro-1-octanesulfonamide (FOSA)
Perfluorodecanoic acid (PFDA)	Perfluoro-1-heptanesulfonic acid (PFHpS)
Perfluoroundecanoic acid (PFUnA)	Perfluoro-1-decanesulfonic acid (PFDS)
Perfluoro-n-butanoic acid (PFBA)	1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)

7.6 Sample Custody

Sample handling in the field will conform to appropriate sample custody procedures. Field custody procedures include proper sample identification, chain-of-custody forms, and packaging and shipping procedures. Sample labels will be attached to all sampling bottles before field activities begin to ensure proper sample identification. Each label will identify the site and sample location. Styrofoam or bubble wrap will be used to absorb shock and prevent breakage of sample containers. Ice or ice packs will be placed in between the plastic bags for sample preservation purposes.

After each sample is collected and appropriately identified, the following information will be entered into the chain-of-custody form:

- Site name and address;
- Sampler(s)' name(s) and signature(s);
- Names and signatures of persons involved in the chain of possession of samples;
- Sample number;
- Number of containers;

- Sample location;
- Date and time of collection;
- Type of sample, sample matrix and analyses requested;
- Preservation used (if any); and
- Any pertinent field data collected (pH, temperature, conductivity, Dissolved Oxygen [DO])

The sampler will sign and date the "Relinquished" blank space prior to removing one copy of the custody form and sealing the remaining copies of the form, in a Ziploc plastic bag taped to the underside of the sample cooler lid. The sample will be sealed with tape prior to delivery or shipment to the laboratory.

7.7 Report Logs

Field logs and boring logs will be completed during the course of this investigation. A field log will be completed on a daily basis which will describe all field activities including:

- Project number, name, manager, and address;
- The date and time;
- The weather conditions;
- On-site personnel and associated affiliations;
- Description of field activities; and
- Pertinent sample collection information including sample identification numbers, description of samples, location of sampling points, number of samples taken, method of sample collection, and any factors that may affect its quality, time of sample collection, name of collector, and field screening results.

7.8 Laboratory QA/QC

An ELAP-certified laboratory will be used for all sample analyses. All samples will be delivered to the laboratory within 24-hours of sample collection. Samples will be received by laboratory personnel, who will inspect the sample cooler(s) to check the integrity of the custody seals. The cooler(s) will then be opened, the samples unpackaged, and the information on the chain-of-custody form examined. If the shipped samples match those described on the chain-of-custody form, the laboratory custodian will sign the form and record problems in the "Remarks" box. The custodian will then immediately notify the Project Manager so appropriate follow-up steps can be implemented on a timely basis. For this project, services from the Phoenix Environmental Laboratories, Inc. (PEL) of Manchester, CT *(NYSDOH certification no. 11301)* and York Analytical Laboratories, Inc. (YAL) of Stratford, CT and Richmond Hill, NY *(NYSDOH certification nos. 10854 & 12058),* will be utilized. See copies of PEL and YAL certifications attached as **Appendix H**.

A record of the information detailing the handling of a particular sample through each stage of analysis will be maintained by the laboratory. The record will include:

- Job reference, sample matrix, sample number, and date sampled;
- Date and time received by laboratory, holding conditions, and analytical parameters;
- Extraction date, time, and extractor's initials (if applicable), analysis date, time, and analyst's initials; and
- QA batch number, date reviewed, and reviewer's initials.

Soil Analytical Methods:

Matrix	Analyte/Analyte Group	Method/SOP	Containers	Preservation	Holding Time
Six (6) Soil samples	TCL VOCs	USEPA 8260C	3 x 40 ml VOAs, glass	1 x methanol 2 x DI water Cool< 4°C	14 days
	TCL SVOCs	USEPA 8270D	1 x 8oz., glass	Cool< 4°C	14 days
	TAL Metals	USEPA 6010D, 7471, 7196			14 months (30 days for Cr; 28 days for Hg)
	PCBs	USEPA 8082A			14 days
	Pesticides	USEPA 8081B			14 days
	PFAS	USEPA 1633	1 x 250 ml, polyethylene		14 days to extract, 28 days for analysis
	1,4-Dioxane	USEPA 8270SIM	1 x 4oz., glass		14 days

- The emerging contaminant sampling and analysis will be conducted using the protocols described in the following NSYDEC document: Sampling, Analysis, and Assessment of Per and Polyfluoroalkyl Substances (PFAS), dated April 2023.
- One (1) set of field duplicate, matrix spike, matrix spike duplicate, field blank for PFAS, and a trip blank during the transport of samples to the laboratory.
- All analytical data will be reported in standard and NYSDEC ASP Category B deliverables.
- As explained in **Section 7.1**, data validation will be completed by Nancy Weaver of EDS of Palm Beach Gardens, FL, who will serve as the independent third-party data validator for the project and generate a DUSR for the laboratory data.

8.0 STANDARDS, CRITERIA AND GUIDANCE (SCGS)

The Site is remediated under Order on Consent Index # CO-2-20230113-31, and is subject to the requirements under NYCRR Part 375 and DER-10 guidelines. The following SCGs are considered for implementation of the selected remedy for the Site.

- **Soil SCGs:** The intent of this remedial effort is to clean up this Site to commercial/industrial use. Any excavation and off-site disposal of contaminated soils will be compliant with the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA) and all other applicable regulations.

- **Soil Vapor SCGs:** Mitigation of soil vapor will be mitigated with the installation of a Sub-Slab Depressurization System (SSDS). Mitigation is required due to the presence of impacted soil vapor and impacted soil beneath the building floor. This assessment takes into consideration the reasonably anticipated use of the Site. The SSDS will create a negative pressure area beneath the building floor slab to mitigate vapor intruding into the occupying space of the building. The soil vapor will be vented through a riser to the roof of the building.

- **Groundwater SCGs:** The Site groundwater is not used as a primary source of drinking water. Groundwater was not encountered during the Phase-II and Supplemental RI activities.

- **Action-Specific SCGs:** Action-specific SCGs are technology or activity-based requirements during remedy implementation. Potential remedial activities for this Site include the installation of an SSD system, soil generated during the installation of the trenches for the SSD system, will be segregated and stockpiled on, at minimum, double layers of 6-mil minimum poly-sheeting, will be kept covered at all times (except when material is being added or removed) with appropriately anchored 6-mil polyethylene sheeting, and will be routinely inspected. These activities have to comply with New York State Land Disposal regulations (6 NYCRR 376), RCRA Treatment, Storage and Disposal Requirements (40 CFR Parts 262 and 264), OSHA regulations (29 CFR Parts 1904, 1910 and 1916), New York State Air Pollution Control regulations (6 NYCRR Chapter 3, Part 212), and Department of Transportation rules for transport of hazardous materials (49 CFR Parts 107, 171 and 712).

9.0 CONSTRUCTION HEALTH AND SAFETY PLAN

A Construction Health and Safety Plan (CHASP) has been prepared and is attached as **Appendix C.** All on-site personnel and visitors involved in the IRMWP will be required to read and sign the CHASP prior to entry of the Site.

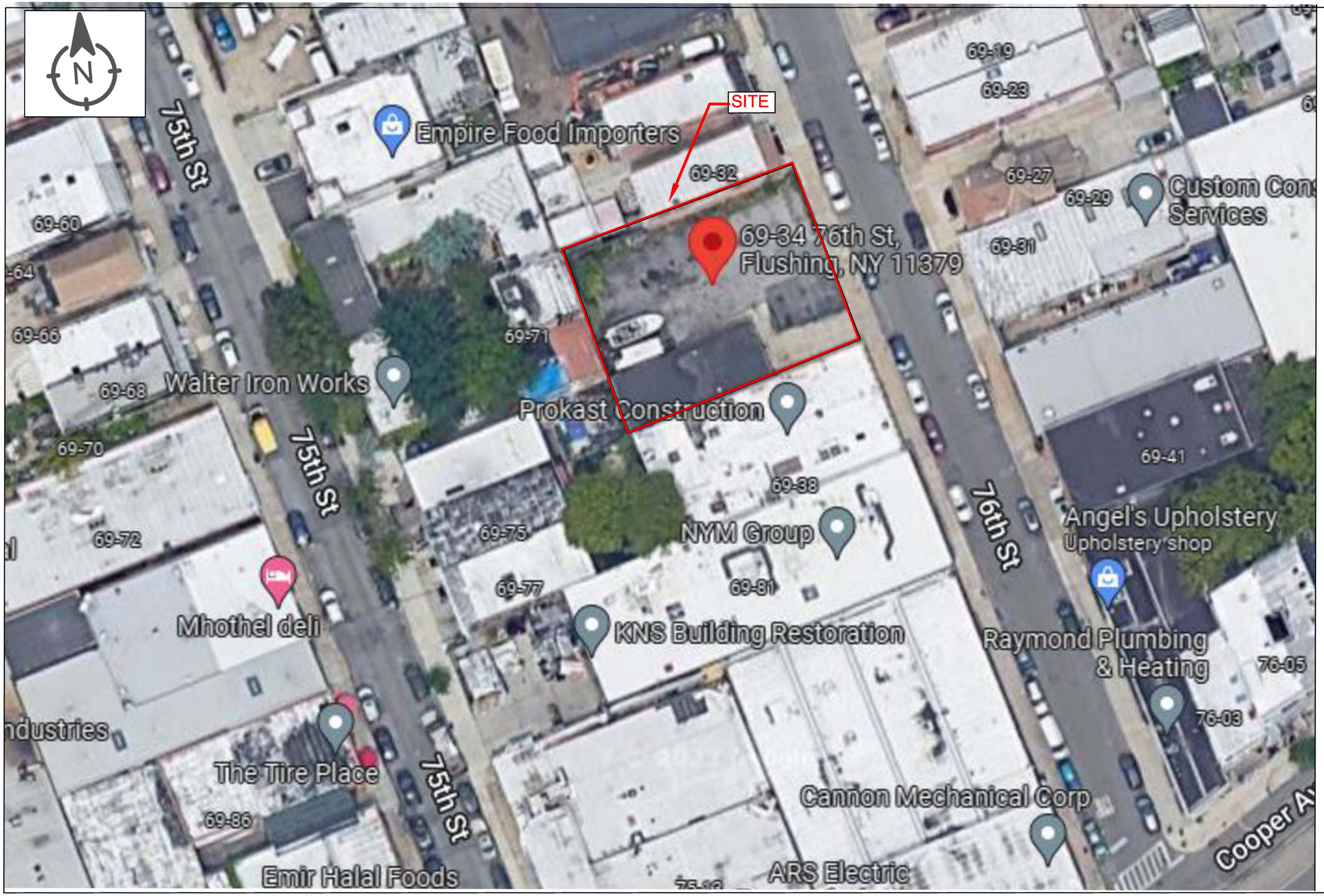
10.0 COMMUNITY AIR MONITORING PLAN

A copy of the Community Air Monitoring Plan (CAMP) is attached as **Appendix D**, in accordance with DER-10 requirements for investigation and remediation. The CAMP sets forth air monitoring procedures that will be utilized to measure airborne emissions during the implementation of the IRMWP, in order to minimize the release of contaminants to off-Site areas.

11.0 REFERENCES

- NYSDEC DER-10 / Technical Guidance for Site Investigation and Remediation;
- 6NYCRR Part 375, Environmental Remediation Programs. December 14, 2006;
- 6NYCRR Part 376, Land Disposal Regulations;
- 40 CFR Parts 262 and 264, RCRA Treatment, Storage and Disposal Requirements;
- 29 CFR Parts 1904, 1910 and 1916OSHA regulations;
- 6 NYCRR Chapter 3, Part 212, New York State Air Pollution Control regulations; and
- 49 CFR Parts 107, 171 and 712, Department of Transportation rules for transport of hazardous materials.
- NYSDEC Sampling, Analysis, and Assessment of Per-and Polyfluoroalkyl Substances (PFAS), April 2023

FIGURES



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(T) : 718-438-2200

PREPARED FOR:

S76 MANAGEMENT LLC
199 LEE AVENUE # 244
BROOKLYN, NY 11211

REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.
AS NOTED:

PROJECT NAME:

69-34 & 69-36 76TH STREET
MIDDLE VILLAGE, NY 11379
(BLOCK: 3794, LOTS: 46 & 47)

DRAWING TITLE:

FIGURE 1:
SITE LOCATION MAP

SEAL & SIGNATURE:

DRAWING DATA:

DATE: 02/06/2023

PROJECT NO:
6936/IRM

DRAWING BY: NK

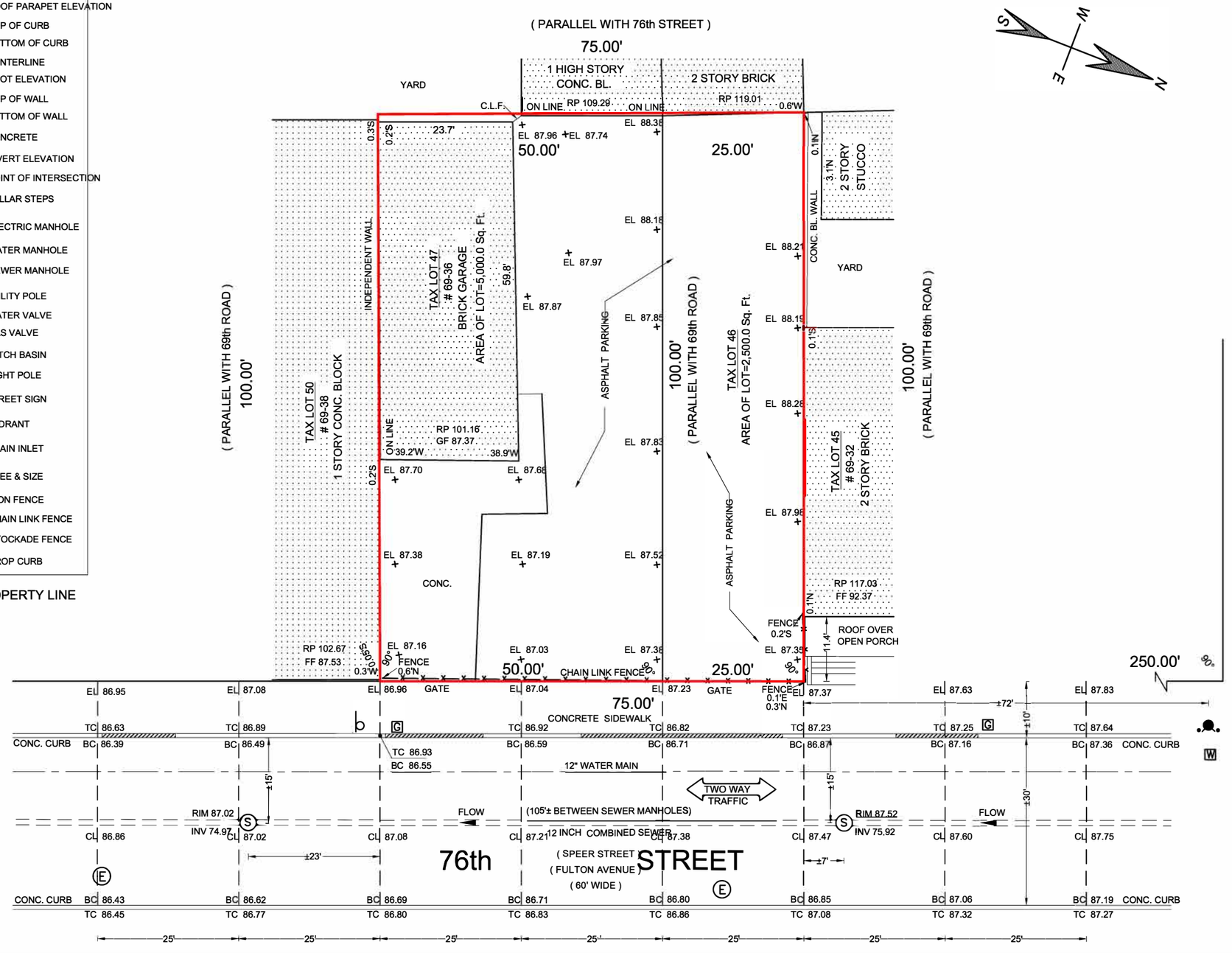
CHECK BY: DS

JOB# CM 2917 ADDRESS: 69-36 76th STREET

LEGEND

FF	FIRST FLOOR ELEVATION
RS	ROOF SOFFIT ELEVATION
RP	ROOF PARAPET ELEVATION
TC	TOP OF CURB
BC	BOTTOM OF CURB
CL	CENTERLINE
EL	SPOT ELEVATION
TW	TOP OF WALL
BW	BOTTOM OF WALL
CONC	CONCRETE
INV	INVERT ELEVATION
PI	POINT OF INTERSECTION
CS	CELLAR STEPS
(E)	ELECTRIC MANHOLE
(W)	WATER MANHOLE
(S)	SEWER MANHOLE
(U)	UTILITY POLE
W	WATER VALVE
G	GAS VALVE
CB	CATCH BASIN
	LIGHT POLE
	STREET SIGN
	HYDRANT
DI	DRAIN INLET
4"	TREE & SIZE
	IRON FENCE
	CHAIN LINK FENCE
	STOCKADE FENCE
	DROP CURB

PROPERTY LINE



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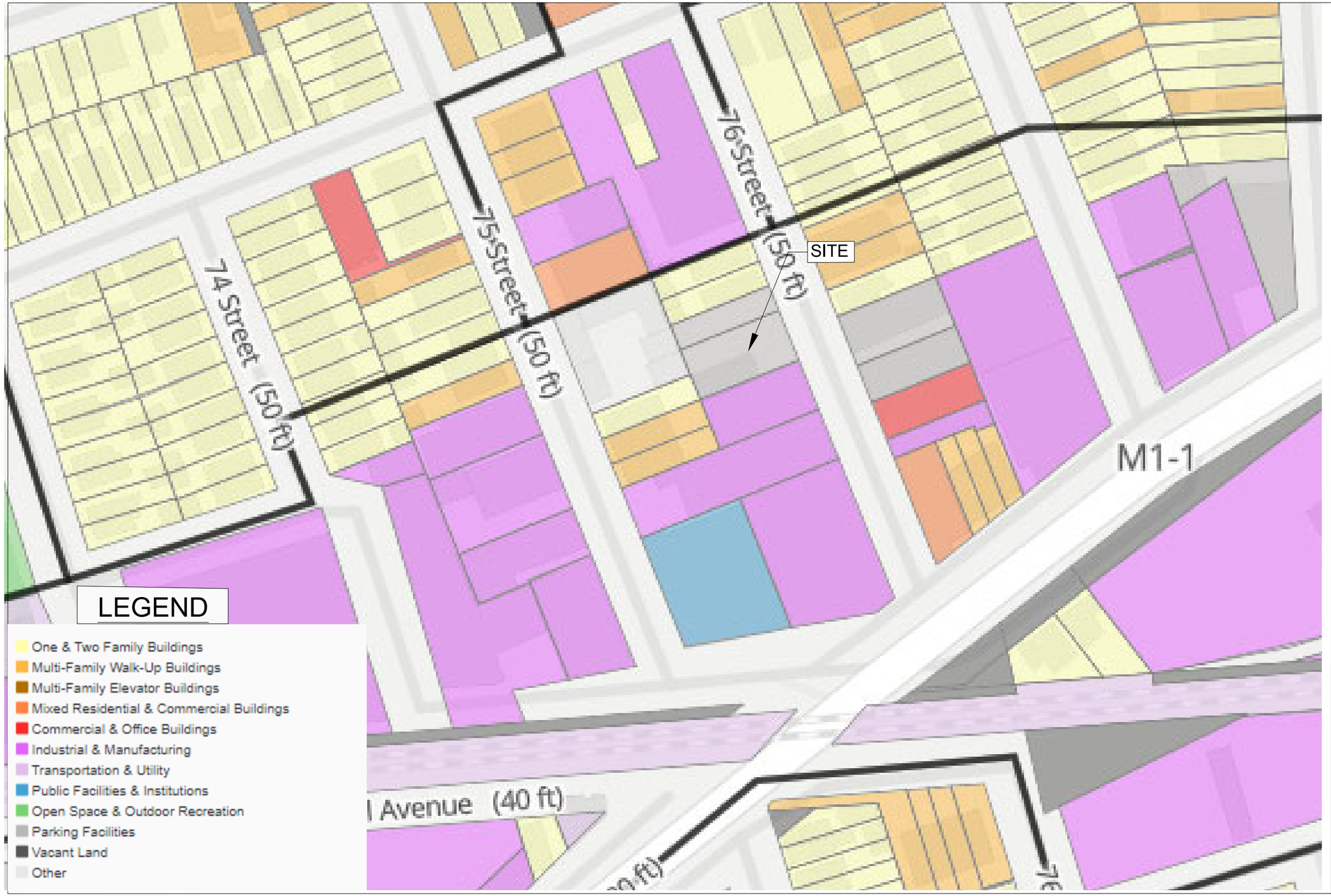
PROJECT NAME:

69-34 & 69-36 76TH STREET
MIDDLE VILLAGE, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 2:
SITE SURVEY

RSK PROJECT NO:
6936/IRM



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REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

PROJECT NAME:

69-34th & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 3:
SURROUNDING LAND USE MAP

SEAL & SIGNATURE:

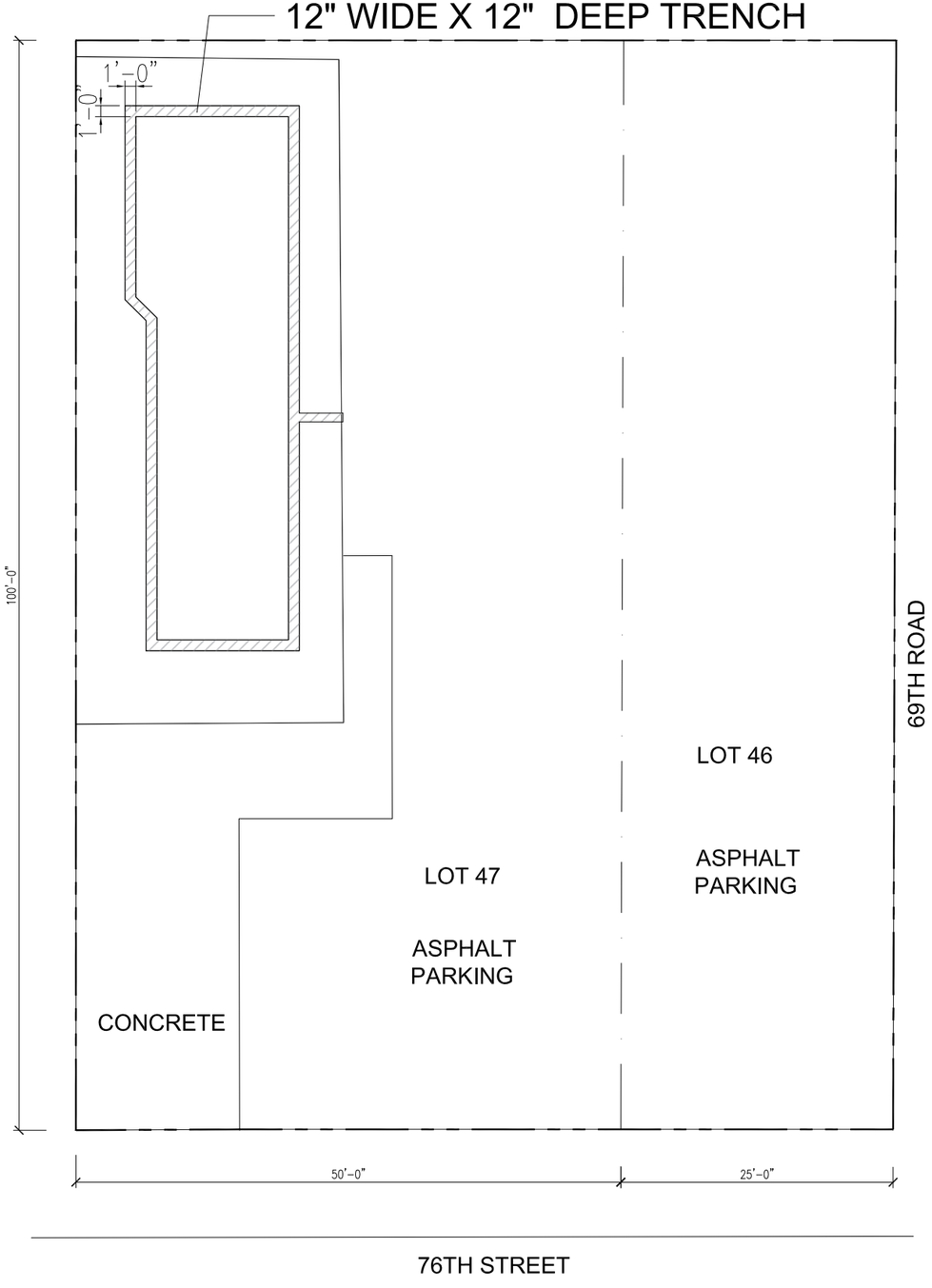
DRAWING DATA:

DATE: 02/06/2023

PROJECT NO:
6936/IRM

DRAWING BY: NK

CHECK BY: DS



LEGEND

- EXISTING BUILDING LINE
- PROPERTY LINE
- LOT BOUNDRY
- 12" TRENCH EXCAVATION

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REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

PROJECT NAME:

69-34th & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 4:
PROPOSED LIMITED EXCAVATION PLAN

SEAL & SIGNATURE:

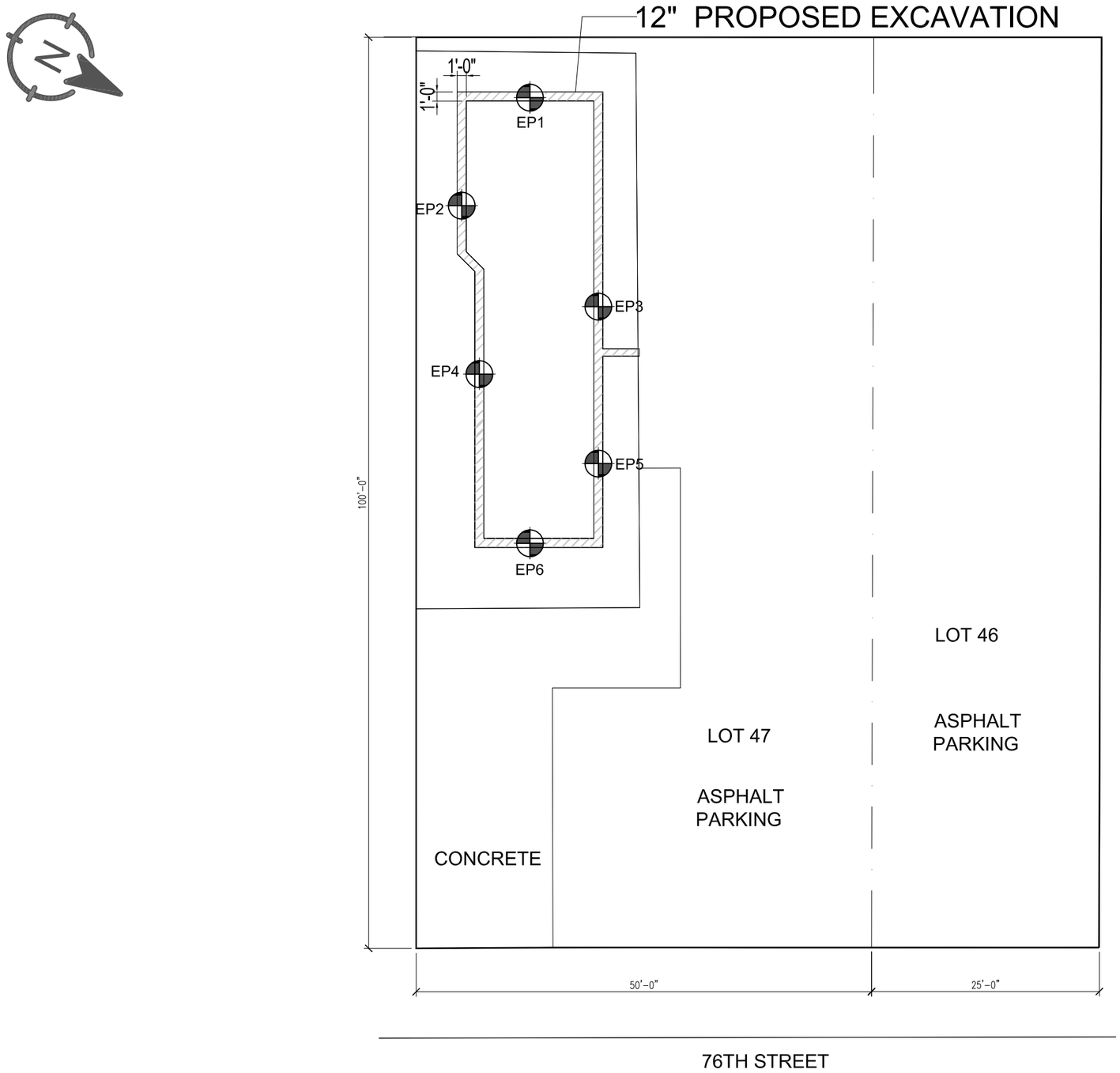
DRAWING DATA:

DATE:6/9/2023

PROJECT NO:
6936/IRM

DRAWING BY: NK

CHECK BY: DS/KT



LEGEND

- EXISTING BUILDING LINE
- PROPERTY LINE
- LOT BOUNDRY
- PROPOSED ENDPOINT SAMPLE LOCATION

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NEW CITY, NY 10956

REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

PROJECT NAME:

69-34 & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 5:
PROPOSED ENDPOINT SAMPLING LOCATION PLAN

SEAL & SIGNATURE:

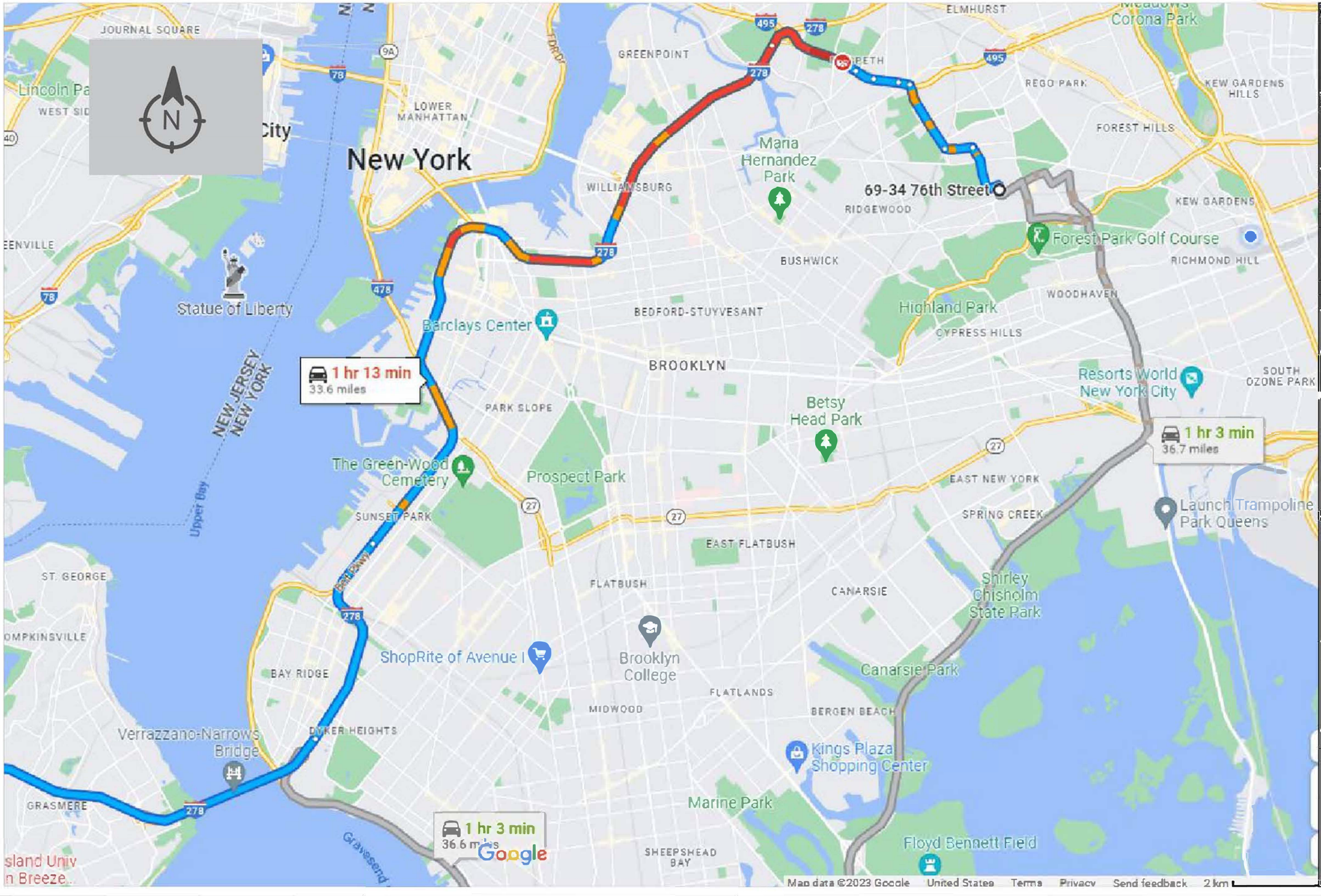
DRAWING DATA:

DATE: 02/20/2023

PROJECT NO:
6936/IRM

DRAWING BY: NK

CHECK BY: DS



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BROOKLYN, NY 11211

REVISION DATA:

REV	DATE	COMMENT	BY

SCALE : N. T. S.

AS NOTED

PROJECT NAME:

69-34 & 69-36 76TH STREET
MIDDLE VILLAGE, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 6:
TRUCK ROUTE MAP

SEAL & SIGNATURE:

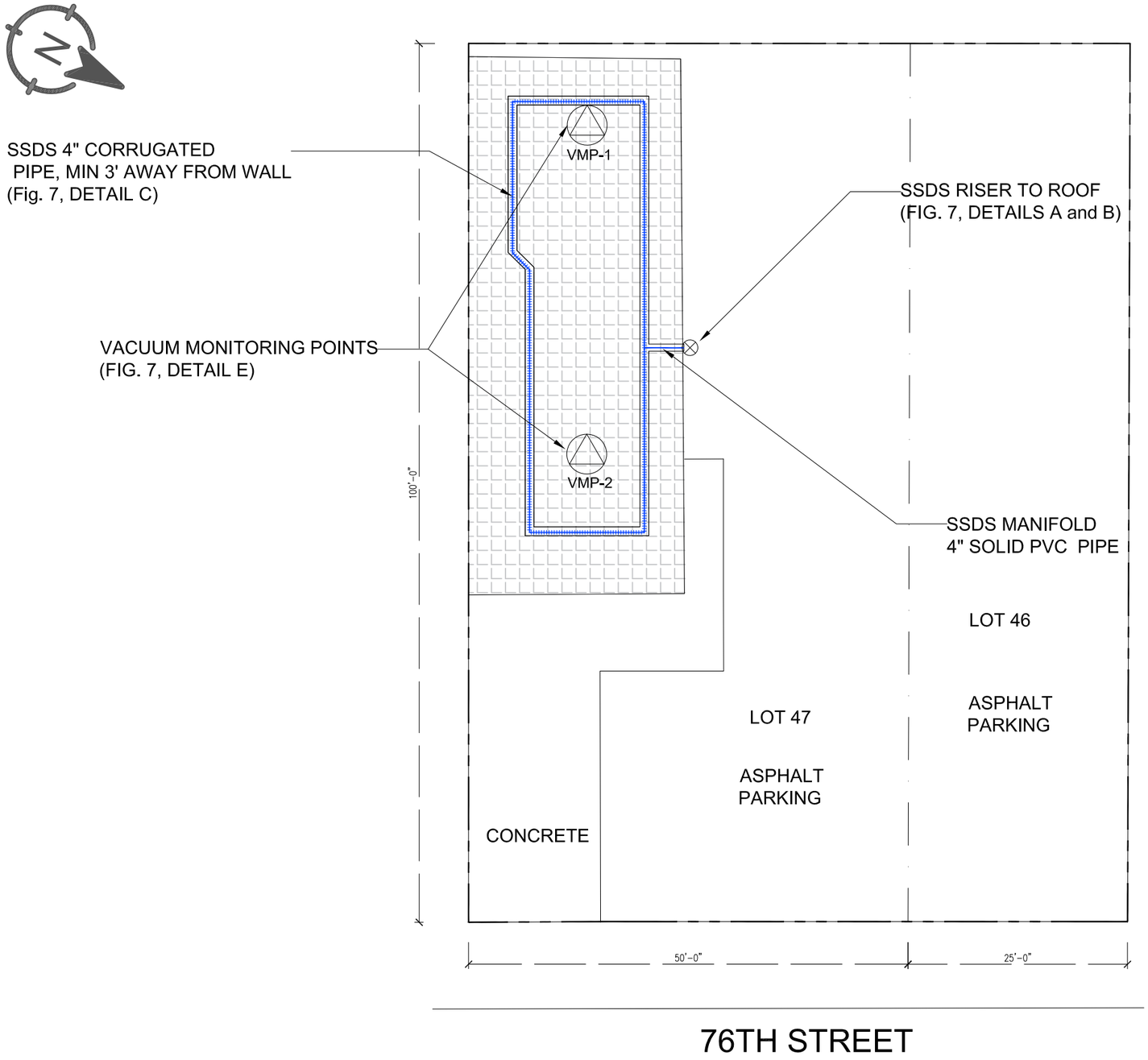
DRAWING DATA:

DATE: 02/20/2023

PROJECT NO: 6936/IRM

DRAWING BY: NK

CHECK BY: DS



LEGEND

- EXISTING BUILDING LINE
- PROPERTY LINE
- SSDS PIPE
- RAVEN VBP 20 VAPOR BARRIER

PREPARED BY:

Tyll Engineering and Consulting
169 Commack Road, Suite H173
Commack, NY 11725
(631)629-5373

PREPARED FOR:

S76 MANAGEMENT LLC
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NEW CITY, NY 10956

REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

PROJECT NAME:

69-34th & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 7
PROPOSED SSDS LAYOUT

SEAL & SIGNATURE:

STATE OF NEW YORK
KAREN GAIL TYLL
079520
LICENSED PROFESSIONAL ENGINEER

DRAWING DATA:

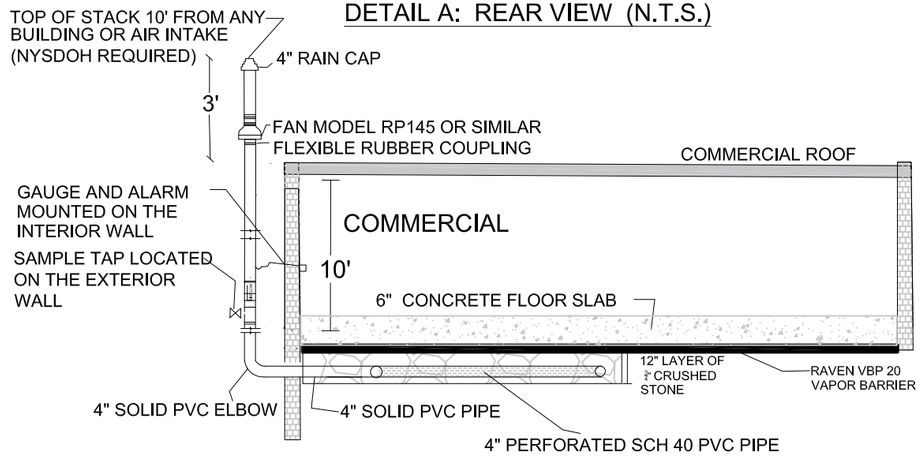
DATE: 06/13/2023

PROJECT NO:
RSK2301

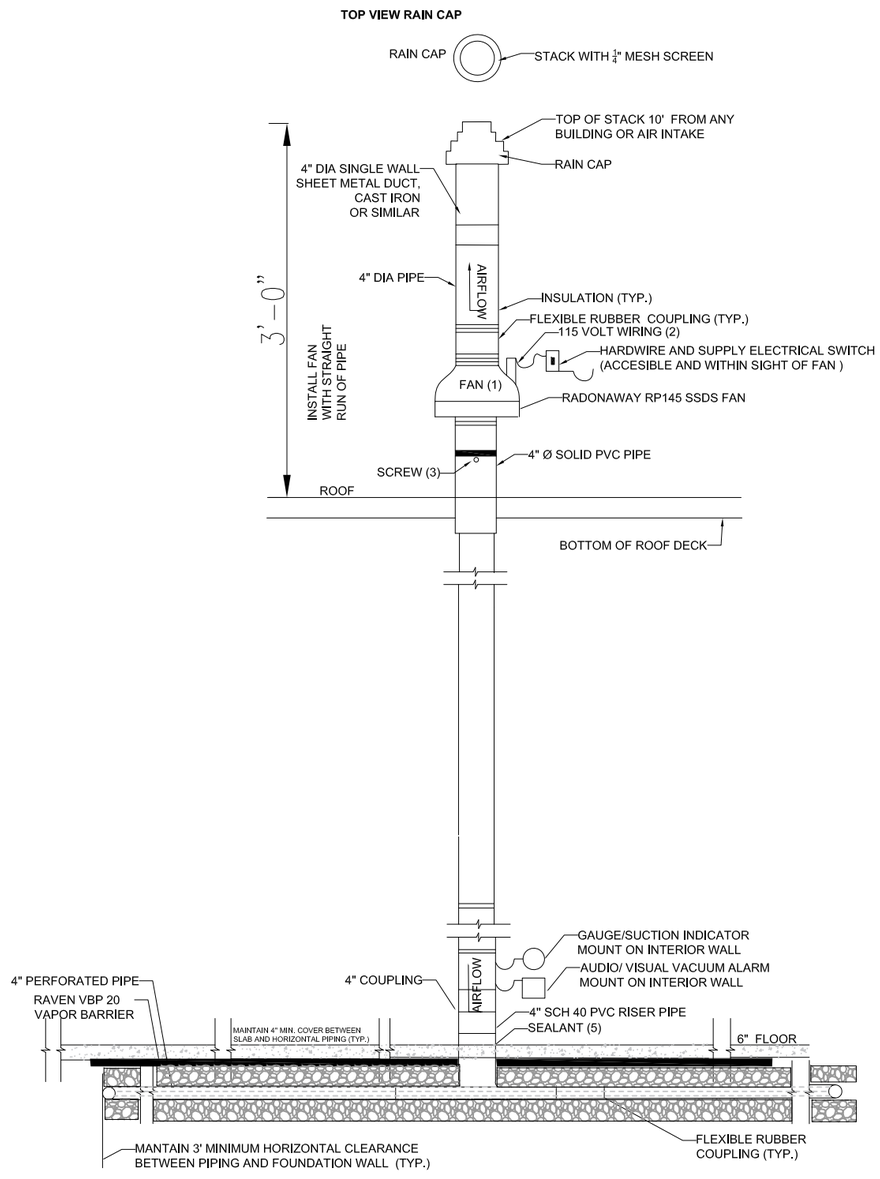
DRAWING BY: NK

CHECK BY: DS/KT

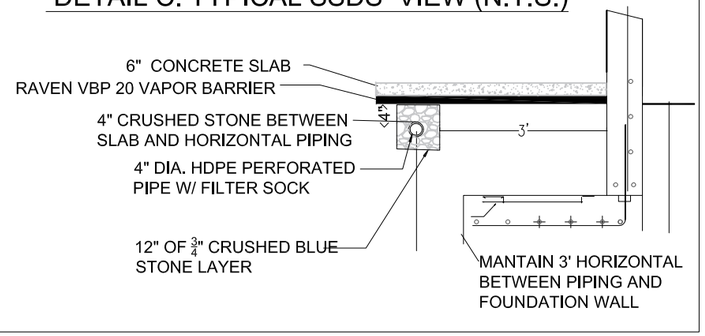
DETAIL A: REAR VIEW (N.T.S.)

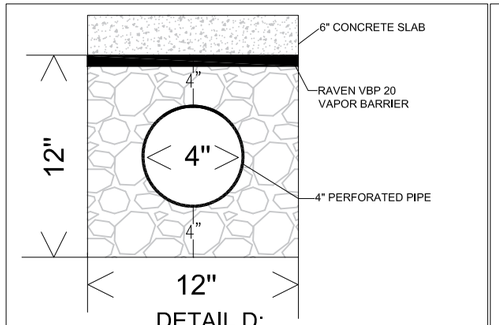


DETAIL B: RISER SIDE VIEW



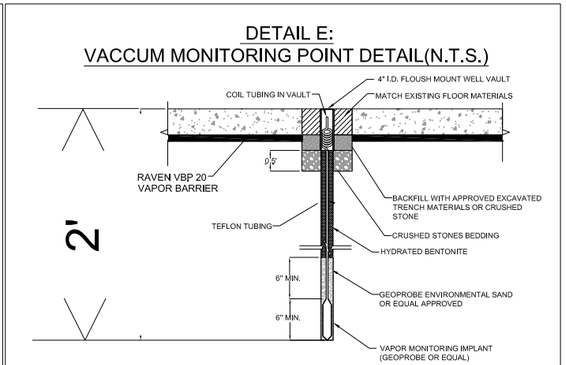
DETAIL C: TYPICAL SSDS VIEW (N.T.S.)





DETAIL D:
SSDS CORRUGATED PIPE
CROSS-SECTION VIEW

DETAIL E:
VACCUM MONITORING POINT DETAIL(N.T.S.)



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REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

PROJECT NAME:

69-34 & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 8
PROPOSED ACTIVE SSDS DETAILS

SEAL & SIGNATURE:

DRAWING DATA:

DATE: 06/12/2023

PROJECT NO:
RSK2301

DRAWING BY: NK

CHECK BY: DS/KT

LEGEND

EXISTING BUILDING LINE

PROPERTY LINE

RAVEN VBP 20
VAPOR BARRIER

PREPARED BY:

Tyll Engineering and Consulting

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Commack, NY 11725
(631)629-5373

PREPARED FOR:

S76 MANAGEMENT LLC
348 BUENA VISTA RD.
NEW CITY, NY 10956

REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

PROJECT NAME:

69-34th & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 9
PROPOSED VAPOR BARRIER
DIAGRAM

SEAL & SIGNATURE:

STATE OF NEW YORK
KAREN GAIL TYLL
079520
LICENSED PROFESSIONAL ENGINEER

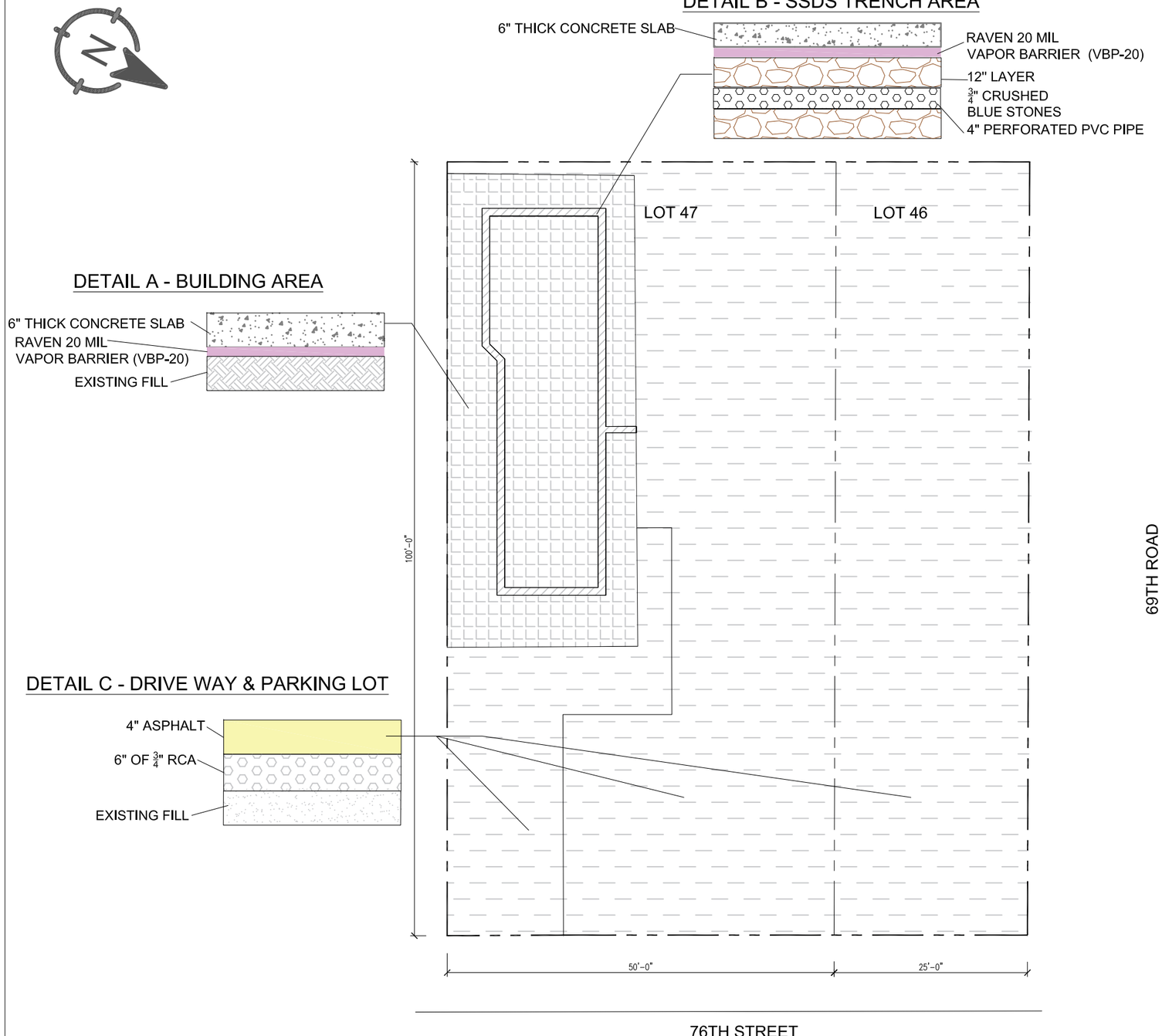
DRAWING DATA:

DATE: 06/06/2023

PROJECT NO:
RSK2301

DRAWING BY: NK

CHECK BY: DS/KT



PREPARED BY:

Tyll Engineering and Consulting
169 Commack Road, Suite H173
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(631)629-5373

PREPARED FOR:

S76 MANAGEMENT LLC
348 BUENA VISTA RD.
NEW CITY, NY 10956

REVISION DATA:

REV	DATE	COMMENT	BY

SCALE: N.T.S.

AS NOTED:

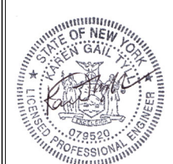
PROJECT NAME:

69-34th & 69-36 76TH STREET
FLUSHING, NY 11379
(BLOCK: 3794, LOTS: 46&47)

DRAWING TITLE:

FIGURE 10:
PROPOSED SITE WIDE COVER SYSTEM & TYP. COVER DETAILS

SEAL & SIGNATURE:



DRAWING DATA:

DATE: 06/13/2023

PROJECT NO:
RSK2301

DRAWING BY: NK

CHECK BY: DS/KT

APPENDICES

Appendix A – Soil/Materials Management Plan (SMMP)

SOIL/MATERIALS MANAGEMENT PLAN

69-34 & 69-36 76th Street, Middle Village, NY 11379
NYSDEC Site No.: 241266 / Spill No.: 2201492

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the Construction Completion Report (CCR). Soil screening will be performed during excavation work and recorded during air monitoring for daily DEC submissions.

1.2 Stockpile Methods

Excavated soil from proposed trenched and/or suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from the clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable or placed into double layers of 6-mil minimum sheeting lined roll off dumpsters (containers). While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by the NYSDEC or NYSDOH. Excavated soils will be stockpiled on, at minimum, double layers of 6-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be in compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50-feet from the property boundaries, where possible. Stockpiles of excavated soils and other materials will be stored inside of the building. Stockpiles of contaminated soils are not anticipated to remain onsite for longer than 60 days. In the event that stockpiles will need to remain onsite longer than 60 days, Karen Tyll, P.E. will coordinate with NYSDEC.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 Materials Excavation, Load-Out, and Departure

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this IMRWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;

- ensure that all loaded outbound trucks are inspected and cleaned, if necessary, before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior NYSDEC approval.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible, in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are described in the remedial report. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 Materials Disposal Off-Site

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the Construction Completion Report (CCR).

The CCR will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the final remedial report.

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the final remedial report. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the final remedial report. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.7 Materials Reuse On-Site

Soil and fill that is derived from the property that meets the Soil Cleanup Objectives (SCOs) established in this plan may be reused on-Site. The SCOs for on-Site reuse are listed in Section 4.2 of this cleanup plan. 'Reuse On-Site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on land with comparable levels of contaminants in soil/fill material, compliant with applicable laws and regulations. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this remedial plan are followed.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 Demarcation

After completion of remedial excavation activities, and/or hotspot removals if encountered after laboratory analysis, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will be placed as a visual reference to easily identify the extent of excavation and backfilled materials; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the CCR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan (SMP).

1.9 Import of Backfill Soil from Off-Site Sources

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet NYSDEC-approved backfill and cover soil quality objectives for this Site. All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this remedial plan. The final remedial report will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

All materials proposed for import onto the Site will be approved by Karen Tyll, P.E. and will be in compliance with provisions in this IRM prior to receipt at the Site. Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

All imported soils will meet NYSDEC approved backfill or cover soil quality objectives for this Site. Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved IRM or its approval by NYSDEC should be construed as an approval for this purpose. Soils that

meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC.

In accordance with DER-10, the following material may be imported, without chemical testing, to be used as backfill beneath pavement, buildings or as part of the final site cover, provided that it contains less than 10% by weight material which would pass through a size 80 sieve and consists of:

- Clean recycled concrete aggregate (RCA) from NYSDEC permitted or registered facilities ..
- gravel, rock, or stone, consisting of virgin material from a NYSDEC permitted mine or quarry.

If used, Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by the NYSDEC. Facilities will be identified in the CCR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for and will not be used as cover material.

1.10 Fluids Management

It is not anticipated that groundwater will be encountered as part of this IRM; however, if encountered, all liquids to be removed from the Site will be handled, transported, and disposed in accordance with applicable laws and regulations. Liquid waste manifests will be reported to NYSDEC in the IRMCR. Dewatering is not expected to be necessary during the IRM activities.
Discharge of water generated during remedial construction to surface waters (i.e., a stream or river) is prohibited without a SPDES permit issued by NYSDEC.

1.11 Stormwater Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this remedial plan (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

1.12 Contingency Plan for Unknown Contamination Sources

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during implementation of the IRM. If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation, sampling will be performed on potentially contaminated source material and surrounding soils and reported to NYSDEC. Chemical analytical work will be for NYSDEC CP-51 Soil Cleanup Guidance Tables 2 and 3, Soil Cleanup Levels for Gas and Fuel Oil Contaminated Soil (CP-51) parameters. In areas where samples will be collected in close proximity to the location of a soil sample in the RI, the full suite of parameters (TCL VOCs, TCL SVOCs, TAL metals, PCBs, pesticides, and herbicides) will be analyzed. Analyses will not be otherwise limited without NYSDEC approval. Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to the NYSDEC Project Manager. These findings will be also included in daily and periodic electronic media reports.

1.13 Odor, Dust, and Nuisance Control

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. During all soil disturbances activities, air monitoring will be implemented as described in the CAMP. VOCs in air will be monitored continuously utilizing portable photoionization detectors (PIDs) both upwind and downwind of the work zone boundaries. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems. Contractor will notify the NYSDEC/NYSDOH of the potential odor control measure to be used and be held on standby in case it is required.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying this remedial plan.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted, and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. NYSDEC will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying this remedial plan.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided during Site clearing and grubbing and during the remedial program, as necessary, to prevent nuisances.

Appendix B – IRM Implementation Schedule

This IRM Work Plan is anticipated to begin in the third quarter of 2023 and will require approximately 3-months to complete. It is anticipated that the actual on-Site duration of major remedial construction tasks will be completed as follows (time frames are not necessarily consecutive):

ACTIVITY	Weeks from Approval Start	DURATION (weeks)
NYSDEC Approval of IRMWP	0	-
Mobilization and Site Preparation	2	1
Limited Excavation activities	3	1
Post excavation endpoint sample laboratory analysis & results	4	2
Installation of Engineering Control	6	2
Restoration	8	2
Demobilization	10	1
Submit IRM Construction Completion Report	15	5

Appendix C – Construction Health and Safety Plan (CHASP)

RSK Environmental Group

BROOKLYN: 3611 14TH AVE. Suite #508B Brooklyn NY 11219 QUEENS: 132-02 89TH AVE. Suite #211 Richmond Hill, NY 11418

SITE-SPECIFIC CONSTRUCTION HEALTH AND SAFETY PLAN

69-34 & 69-36 76th Street,
Middle Village, NY 11379
Block: 3794, Lots: 46 & 47
NYSDEC Site No.: 241266 / Spill No.: 2201492

Prepared for:
S76 Management LLC
199 Lee Avenue, #244
Brooklyn, NY 11211

Prepared by:
RSK Environmental Group, LLC
132-02 89th Avenue, Ste. 222
Richmond Hill, NY 11418
(718) 438-2200

June, 2023

SITE-SPECIFIC HEALTH AND SAFETY PLAN

Client:	**S 76 Management LLC D.B.A. Star Rubbish**
Site Name:	**69-34 76th Street, Middle Village, NY 11379**
Site Address:	**69-34 76th Street, Middle Village, NY 11379 ("Site")**
NYSDEC Site No.:	**241266 / Spill No.: 2201492**
Date Prepared:	**June 5, 2023**
Project Description:	**Interim Remedial Measure Work**

RSK ENVIRONMENTAL GROUP, LLC AND ITS SUBCONTRACTORS DO NOT GUARANTEE THE HEALTH OR SAFETY OF ANY PERSON ENTERING THIS SITE. DUE TO THE NATURE OF THIS SITE AND THE ACTIVITY OCCURRING THEREON, IT IS NOT POSSIBLE TO DISCOVER, EVALUATE, AND PROVIDE PROTECTION FOR ALL POSSIBLE HAZARDS WHICH MAY BE ENCOUNTERED. STRICT ADHERENCE TO THIS HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL HELP REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR ANY INJURY AT THIS SITE. THE HEALTH AND SAFETY GUIDELINES IN THIS PLAN WERE PREPARED SPECIFICALLY FOR THIS SITE AND SHOULD NOT BE USED ON ANY OTHER SITE(S) WITHOUT PRIOR RESEARCH AND EVALUATION.

CONSTRUCTION HEALTH AND SAFETY PLAN

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STATEMENT OF COMMITMENT

This Site-Specific Construction Health and Safety Plan (CHASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during any investigative activities planned specifically for the site located at ***69-34 76th Street, Middle Village, NY*** (the Site). This CHASP, which applies to persons present at the Site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This CHASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. The subcontractors are retained as independent contractors and are responsible for ensuring the health and safety of their own employees. The subcontractor has the option of adopting this CHASP or providing its own for the planned scope of work.

1.0 INTRODUCTION

The Purpose and Policy of this Site-Specific Construction Health and Safety Plan (CHASP) has been developed to comply with the regulations under 26 CFR 1926, Construction, Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER), and COVID-19 Control and Prevention. It addresses safety and health hazards related to subsurface sample collection activities and is based on the best information available with the site work activities to be conducted at **69-34 76th Street, Middle Village, NY 11379** (the Site). This document describes the health and safety guidelines developed by RSK Environmental Group, LLC (RSK) for the implementation of an Interim Remedial Measure Work Plan (IRMWP) for the Site, to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during the subsurface investigation activities. The CHASP may be revised by RSK at the request of the NYSDEC upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by RSK's Project Manager, Site Safety Officer and/or the RSK Health and Safety Consultant.

1.1 Scope

This CHASP addresses the potential hazards related to the Site as described in the IRMWP. The IRMWP activities are as described below:

The proposed remedial action will consist of:

- Development and execution of a Construction Health and Safety Plan (CHASP) and Community Air Monitoring Plan (CAMP) for the protection of on-site workers and the nearby community during remediation and construction activities;
- Prior to conducting any intrusive field work, a geophysical survey will be conducted to mark out sub-grade utilities. The appropriate Dig Safe One Call center will also be notified;
- Site mobilization involving setup, equipment mobilization, utility mark outs and marking & staking work areas;
- If feasible, a diagnostics measurement which will involve coring 2 ½ -inch suction holes in the floor and 5/16-inch test holes at various distances from the suction holes, all within the areas of the proposed SSDS. A specialized SSDV capable of up to 200-cfm and a vacuum of 45-inches of water column ("W.C.) or better will be used with a variable speed controller to define the flow and vacuum characteristics of the soil. The information obtained from each vacuum monitoring point will be examined independently to identify the associated ROI for the specified locations during the applied test conditions. The test data from all the suction points will be examined collectively in order to achieve the proposed full-scale SSD system suction points in order to address the area(s) of concern.
- Limited excavation of a trench to a depth of 1-foot bgs and 1-foot wide in a continuous loop for the installation of SSD system, handling, transportation, and off-site disposal of material, as necessary to complete efforts to install an engineering control (i.e., excavate trench for SSDS within the existing building);
- Continuous screening by an environmental scientist /geologist of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media which will be stockpiled on-site;
- Collection of six (6) post-excavation endpoint soil samples from within the trench excavation for laboratory analysis;
- In the event of further contamination, elevated PID readings, or other observational or analytical data collected during the excavation of the trench for the installation of the SSD system, those impacted areas will be further excavated in a safe manner. All excavated materials will be stored onsite in 20-cubic yards roll off containers lined with double-layered 6-mil plastic sheeting for offsite disposal at regulated disposal facilities;

- If required for structural stability issues, the selected contractor may elect to utilize shoring boxes, sheet-piling systems, etc., to protect the integrity of the on-site building infrastructure. Such activities are the responsibility of the contractor and are not incorporated into the IRMWP;
- If any USTs are encountered during soil/fill removal actions, registration of tank(s) and appropriate closure of these spills in compliance with applicable local, State, and Federal laws and regulations;
- Upon completion of excavation work, appropriate number of samples will be collected for waste characterization analysis of all excavated soil.
- All excavated soils stored in roll off containers will be covered with a double-layer of 6-mil plastic sheeting pending their eventual load out for transport and disposal;
- Upon acceptance of waste disposal from approved disposal facilities, approximately 7-cubic yards of soil/fill will be transported offsite for the proper disposal at an appropriately licensed or permitted facility;
- Documentation of post remedial excavation endpoint soil sampling and analysis, collected from any remedial excavation areas will be provided to the NYSDEC.

1.2 Application

This CHASP applies to all personnel involved in the above tasks who wish to gain access into the active work areas of the Site, including but not limited to:

- RSK employees and subcontractors;
- Client representatives; and
- Federal, state or local representatives.

1.3 Site Safety Plan Acceptance, Acknowledgment and Amendments

The site safety officer is responsible for informing personnel (RSK employees and/or owner or owner's representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included in **Appendix A**. Site conditions may warrant an amendment to this CHASP. Amendments to this CHASP are acknowledged by completing forms included in **Appendix B**.

1.4 Key Personnel - Roles and Responsibilities

Personnel responsible for implementing this Construction Health and Safety Plan are:

Name	Company/Title	Address	Contact Numbers
Katherine Espinoza	RSK Environmental Project Manager	132-02 89th Avenue Ste. #222. Richmond Hill, NY 11418	(718) 438-2200, Ext. 209 (347) 944-9335
Drumita Dmello	RSK Environmental Site Safety Officer	132-02 89th Avenue Ste. #222. Richmond Hill, NY 11418	(718) 438-2200, Ext. 205 (646) 249-6129
Dhanraj Singh	RSK Environmental Sr. Project Manager	132-02 89th Avenue Ste. #222. Richmond Hill, NY 11418	(718) 438-2200, Ext. 202 (347) 728-0768
Ted Yen, P.E.	Ted Yen & Associates, P.E.	217-42 54th Avenue, Oakland Gardens, NY 11364	(917) 584-6299

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this CHASP. The site safety officer will conduct daily (tail gate or toolbox) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health

and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

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

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

2.0 SITE BACKGROUND AND SCOPE OF WORK

The Site is also identified as Block: 3794, Lots: 46 & 47, and is located south of 69th Road, north of 71st Avenue, east of 75th Street and west 76th Street which is situated within a light manufacturing zoning district in Middle Village, Flushing, NY. The Site has a combined lot area of approximately 6,728-square feet in size where lot 47 is developed with a concrete and asphalt paved parking lot and a one-story commercial building slab-on grade formerly utilized as an automotive repair garage operated by Always Ready Car Service, and Lot 46 is developed with and asphalt paved parking lot. The lots are currently enclosed to the east along 76th Street with a chain-link fence and two (2) gates. The building is supplied by public potable water supply and connected to municipal sanitary sewer system and equipped with overhead natural gas-fired heaters.

2.1 Prior Investigations

2.1.1 Phase I Environmental Site assessment

A Phase-I Environmental Site Assessment was performed by RSK Environmental Group for the Site dated November 20, 2021 which determined that the Site was identified with the following that would represent potential environmental concerns:

- A Sanborn Map search identified that the historic usage of 69-36 76th Street was a metal works facility since circa 1980 and was then utilized as an automobile repair garage.
- At the time of RSK's site inspection, a slop sink was identified in the automobile repair garage and the outflow pipe went into an open floor pit which was in poor condition.
- An EDR radius map search identified a surrounding property located at 69-77 75th Street (approximately 85-feet southwest of the Site) was utilized as a dry cleaner from 1987 to 1989.

RSK recommended that a Phase II Environmental Subsurface Investigation (Phase-II) be to assess the potential impacts from the historic usage of the Site and offsite with a focus on soil and soil vapor conditions.

2.1.2 Phase-II Environmental Site Investigation

A Phase-II Environmental Subsurface Investigation (Phase-II) was conducted for the Site by RSK, dated January 4, 2022, which consisted of soil sampling and vapor intrusion assessment (VIA). The following is a summary of the work performed:

- A geophysical survey was conducted as part of the Phase-II where no metallic anomalies consistent with a UST was identified.
- A total of four (4) air samples were collected for the Site utilizing 6-Liter Summa canisters. Two (2) sub-slab air samples identified as SS-1 (front of garage) and SS-2 (rear of garage) were collected, one (1) indoor air sample (identified as IA-1) and one (1) outdoor air sample (identified as OA-1) was collected from the front exterior of the garage, adjacent to 76th Street.
- A total of six (6) soil borings (SB-1 through SB-6) were installed within the garage and open paved lots.
- Analytical results from air sampling indicated elevated concentrations of VOCs, particularly PCE (ranging from 0.7 ug/m3 to 3,500 ug/m3) and Methylene Chloride (ranging from 9.5 ug/m3 to 19 ug/m3), which requires mitigation.
- Analytical results of soil sampling indicated elevated concentrations of several PAHs in SB-2 (northern corner of the Site) at depths ranging from 12-feet to 15-feet and SB-6 (rear of building) at depths ranging from 4-feet to 7-feet. Analytical results for SVOCs for SB-2 (12'-15') and SB-6 (4'-7') detected exceedances above NYSDEC's Restricted Residential Soil Cleanup Objectives (RRSCOs) for Benzo(a)anthracene at 2,400 ug/kg and 4,400 ug/kg, Benzo(a)pyrene at 2,400 ug/kg and 4,200 ug/kg, Benzo(b)fluoranthene at 2,000 ug/kg and 2,800 ug/kg, Benzo(k)fluoranthene at 1,700 ug/kg and 2,600 ug/kg, Chrysene 2500 ug/kg and 4,000 ug/kg, Dibenzo(a,h)anthracene at 420 ug/kg and 390 ug/kg, and Indeno (1,2,3-cd) pyrene at 1,400 ug/kg and 2,200 ug/kg, respectively.

2.1.3 Supplemental Remedial Investigation

A supplemental RI was conducted for the Site by RSK, dated July 14, 2022, which consisted of soil sampling. The following

- A total of six (6) soil borings (RI-1 through RI-6) were installed within the garage and paved lot as part of the Supplemental RI.
- Six (6) soil boring locations (RI-1 through RI-4 were installed in the paved lot, and RI-5 and RI-6 were installed within the automotive repair garage). RI-1 encountered refusal at 14-ft., RI-2 and RI-4 encountered refusal at 20-ft., RI-3 encountered refusal at 19-ft., RI-5 encountered refusal at 16-ft., and RI-6 encountered refusal at 12-ft. No groundwater was encountered during the soil boring process. No petroleum contamination was observed visually, and the highest PID reading was 7.2 parts per million response units (PPMRUs) in RI-5.
- Analytical results of the twelve (12) soil samples (RI-1 through RI-6) detected three (3) VOCs above regulatory levels as compared with the NYSDEC's RRSCOs: cis-1,2-Dichloroethene at 560 ug/kg and 550 ug/kg in RI-3 (19') and RI-5 (16'), respectively; Toluene at 840 ug/kg and 730 ug/kg in RI-2 (20') and RI-3 (19'), respectively; and Total Xylenes ranging from 413 ug/kg to 1,250 ug/kg. No exceedances were detected above RRSCOs.

2.2 Interim Remedial Measure (IRM)

This IRM will consist of the installation of an active sub-slab depressurization system (SSDS) and a cover system with a vapor barrier within the footprint of the existing building on the Site. The IRM will also include the startup testing and inspection to confirm that the installation of the systems components is in compliance with the industry standards and techniques appropriate for the intended application in mitigating potential sub-slab gases from impacting the indoor air of the subject building.

3.0 HAZARD ASSESSMENT

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

3.1 Physical Hazards

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

3.1.2 Climbing Hazards
During site activities, workers may have to work on drilling equipment by climbing. The drilling contractor will conform with any applicable NIOSH and OSHA requirements or climbing activities.

3.1.3 Cuts and Lacerations
Field activities that involve drilling activities usually involve contact with certain technical drilling machinery and tooling. A first aid kit approved by the American Red Cross will be available during all intrusive activities.

3.1.4 Lifting Hazards
Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the drilling program may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.5 Utility Hazards
Before conducting any drilling, the drilling contractor will be responsible for locating and verifying all existing utilities at each boring location.

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

3.1.7 Scaffolding Hazards
Falls are attributed to the lack of guardrails, improper installation of guardrails and failure to use personal fall arrest systems when required. The OSHA standard requires fall protection must be used when work heights reach 10’ or more. OSHA’s standards represent the minimum level of protection; many general contractors require 100% fall protection at 6’ or greater when working on scaffolds. Access in the form of a secured ladder, stair tower, ramp, etc. is required whenever there is 24” vertical change to an upper or lower level. The means of access must be determined before erection of the scaffold and employees are never allowed to climb on cross braces for either vertical or horizontal movement. Many individuals have been injured or killed due to being struck by materials or tools that have fallen from scaffold platforms. OSHA requires that this is done one of two ways. The first is to install toe boards or netting on work platforms to prevent these items from falling to the ground or lower-level work

areas. The other option is to erect barricades that physically prevent individuals from walking under work platforms.
Caution or Danger tape is often used in an attempt to keep people away from overhead hazards but is often disregarded or taken down creating possible struck by hazards. A more robust system such as plastic mesh or wooden barricades is generally more effective and much easier to maintain. When members of the public could potentially move close enough to be struck by falling objects, creating barriers to prevent them from entering the area where objects can fall is a recognized best practice. Regardless of the type of falling object protection used, it is crucial that other individuals on the work site are aware of the overhead work.

3.1.8 Electrical Hazards

A minimum of 10' must be maintained between the scaffold and electrical hazards. If this distance cannot be maintained, then the hazard must be de-energized or properly insulated by the power company. Coordination between the power company and the company erecting / using the scaffold cannot be over stated. Lastly, all employees who work on scaffolds must have documented training. The training topics must include identification and prevention of fall hazards, falling tools and materials hazards, and knowledge of electrical hazards. Due to the dynamic, rugged nature of construction work, normal use of electrical equipment at your site causes wear and tear those results in insulation breaks, short-circuits, and exposed wires. [Flexible Cords and Power Tools] If there is no ground-fault protection, these can cause a ground-fault that sends current through the worker's body, resulting in electrical burns, explosions, fire, or death.

3.2 Work in Extreme Temperatures

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

3.2.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress. The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention
   a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.
   b. Work in Pairs. Individuals should avoid undertaking any activity alone.
   c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
   d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment
   a. Heat Rash (or prickly heat):
      Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.
      Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.
      Treatment: Remove source of irritation and cool skin with water or wet cloths.

   b. Heat Cramps (or heat prostration)

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

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

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

c. Heat Exhaustion

Cause: Profuse perspiration resulting in loss of water and salt accompanied by inadequate replenishment of body water and electrolytes.

Symptoms: Cool, moist skin, heavy sweating, headache, nausea or vomiting, dizziness, light headedness, weakness, thirst, irritability, rapid pulse

Treatment: Provide worker with plenty of cool water or other beverage and sit/lay down in cool, shaded area. Cool worker with cold compresses or ice packs. Call 911 if symptoms worsen or do not improve within 60 minutes. The worker should not return to work for the rest of day.

d. Heat Stroke (hyperthermia)

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

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

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

3.2.2 Heat Exposure

Exposure to hot weather and humid conditions may lead to excessive increases in body heat (hyperthermia). To guard against heat exposure and to prevent heat-related injuries, appropriate clothing should be worn, and a cooling station must be readily available to cool personal protective equipment. Rest periods should be adjusted as needed and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of heat exhaustion and heat stroke (hyperthermia) such as fainting, muscle weakness, reduced coordination, impaired judgement, and fatigue.

3.2.3 Cold Stress

Exposure to cold environments such as combinations of low temperatures, high or cold wind, dampness, or cold water can lower skin and eventually, internal body temperature, resulting in cold stress. The following prevention, recognition, and treatment strategies will be implemented to protect personnel from cold stress. Personnel will be trained to recognize the symptoms of cold stress and to apply the appropriate treatment.

1. Prevention
    a. Dress appropriately. Wear layers of loose-fitting clothing, insulating clothing such as an insulated jacket, gloves, a waterproof hat if necessary, and insulated and waterproof boots. Cotton loses its insulation property when wet while wool retains its insulative properties.
    b. Provide plenty of fluids. Available in the support zone will be a warm 50% solution of fruit punch and water or plain water.
    c. Work in Pairs. Individuals should avoid undertaking any activity alone.
    d. Provide heating devices. A radiant heater or equivalent will be provided to increase body temperature.

e. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the warmest part of the day.

2. Recognition and Treatment
   a. Hypothermia
      Cause: Continuous exposure to cold air, precipitation, perspiration, or immersion in cold water causing normal body temperature (98.6°F) to drop to 95°F or less.
      Symptoms: Alert but shivering initially; shivering stops, confusion, slurred speech, heart rate/ breathing slows, loss of consciousness, death.
      Treatment: Move workers to a warmer place where there is something to block the cold (i.e. tarp, garbage bag) and change into dry clothes if wet. Cover body (including head and neck) with blankets but do not cover the face. Apply heat packs to armpits, sides of chest, neck, and groin. Get medical attention and/or call 911.

   b. Frostbite
      Cause: Continuous exposure to wind chill and cold environments including cold ambient air and immersion in cold water can cause body tissues, such as hands and feet, to freeze. May require amputation of affected area.
      Symptoms: Numbness, reddened skin develops gray/white patches, feels firm/hard, blistering.
      Treatment: Seek medical attention and while doing so: do not rub the frostbitten area, avoid walking on frostbitten feet, do not apply snow/water and do not break blisters, loosely cover and protect area from contact, do not attempt to rewarm area without direction by medical personnel.

   c. Trench (Immersion) Foot
      Cause: Lengthy exposure of feet to cold, wet, and damp environments, even in temperatures as high as 60°F if feet are constantly wet.
      Symptoms: Redness, swelling, numbness, blisters.
      Treatment: Seek medical attention and while doing so: remove wet socks and shoes, dry in warm air, keep affected feet elevated and avoid walking.

3.2.4 Cold Exposure

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

3.3 Chemical Hazards

Chemical hazards will be full list of Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (SVOCs), Pesticides/PCBs, Target Analyte List Metals, and Perfluoroalkyl Substances (PFAS). The primary routes of exposure to the identified contaminants in soil, groundwater or soil vapor to on-site workers are through inhalation, ingestion, and absorption.

Appendix C includes information sheets for chemicals that may be encountered at the site.

3.3.1 Respirable Dust

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

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

3.3.2 Dust Control and Monitoring During Earthwork

Dust generated during site activities or other earthwork may contain contaminants identified in soils at the site. Dust will be controlled by wetting the working surface with water. Calcium chloride may be used if the problem cannot be controlled with water. Air monitoring and dust control techniques are specified in a site-specific Dust Control Plan (if applicable). Site workers will not be required to wear APR's unless dust concentrations are consistently over 150 $\mu g/m^3$ over site-specific background in the breathing zone as measured by a dust monitor unless the site safety officer directs workers to wear APRs. The site safety officer will use visible dust as an indicator to implement the dust control plan.

3.3.3 Organic Vapors

The site safety officer will periodically monitor organic vapors with a Photo-ionization Detector (PID) during site activities to determine whether organic vapor concentrations exceed action levels shown in Section 5 and/or the Community Air Monitoring Plan.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), 1910.132, and COVID-19 requirements. Protective equipment shall be NIOSH approved and respiratory protection including face mask shall conform to OSHA 29 CFR Part 1910.133, 1910.134, and COVID-19 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133 and COVID-19; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection. **It is anticipated that work will be performed in Level D PPE.** In case of exceeding background levels, the work will then be performed in Level C PPE.

4.1 Level D

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

- standard work clothes, coveralls, or Tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses and/or face shield;
- face mask;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

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

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

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

The exact PPE ensemble is decided on a site-by-site basis by the Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 5.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection, engineering controls (i.e., Facing equipment away from the wind and placing site personnel upwind of drilling, active venting, etc.) will be implemented before requiring the use of respiratory protection.

5.0 AIR MONITORING AND ACTION LEVELS

29 CFR 1910.120(h) specifies that monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits or published exposure levels if there are no permissible exposure limits, for hazardous substances.

5.1 Air Monitoring Requirements

If site work is performed, air will be monitored for VOCs with a portable MiniRAE 3000 Photo Ionization Detector (PID), or the equivalent. If necessary, Lower Explosive Limit (LEL) and oxygen will be monitored with a Combustible Gas Indicator (CGI). If appropriate, fugitive dust will be monitored using a MiniRAE Model PDM-3 aerosol monitor. Air will be monitored when any of the following conditions apply:

- initial site entry;
- during any work where a potential IDLH condition or flammable atmosphere could develop;
- work begins on another portion of the site;
- contaminants, other than those previously identified, have been discovered;
- each time a different task or activity is initiated;
- during boring, trenching and/or excavation work.

The designated site safety officer will record air monitoring data and ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. Instruments will be zeroed daily and checked for accuracy. Monitoring results will be recorded in a field notebook and will be transferred to instrument reading logs.

5.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage is exceeded:

1. The SSO will be consulted immediately.
2. All personnel (except as necessary for continued monitoring and contaminant migration, if applicable) will be cleared from the work area (e.g., from the exclusion zone).
3. Monitoring will be continued until intrusive work resumes.

5.3 Action Levels During Site Activities

Instrument readings will be taken in the breathing zone within the Site unless otherwise noted. Each action level is independent of all other action levels in determining responses.

Organic Vapors (PID)	**LEL %**	**Responses**
0-5 ppm above background	0%	• Continue with site drilling activities • Level D protection • Continue monitoring every 10 minutes
6-50 ppm Above Background, Sustained Reading	1-30%	• Continue with site drilling activities • Level D protection • Continue monitoring every 10 minutes
50-250 ppm Above Background, Sustained Reading	30-60%	• Continue with site drilling activities • Level D protection and employ engineering controls

		• Continue monitoring for organic vapors 200 ft downwind • Continuous monitoring for LEL
>250 ppm Above Background, Sustained Reading	>60%	• Discontinue drilling activities, unless PID is only action level exceeded • Employ engineering controls • Continuous monitoring for organic vapors 200 ft downwind.

Notes: Air monitoring will occur in the breathing zone 30 inches above the site grade.

If action levels for any one of the monitoring parameters are exceeded, the appropriate responses listed in the right-hand column should be taken. If instrument readings do not return to acceptable levels after the excavation pit has been vented for a period of greater than one-half hour, a decision will then be made whether or not to seal the pit with suppressant foam.

If, during excavation activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one-half hour, excavation will stop until sustained levels are less than 5 ppm (see Community Air Monitoring Plan).

6.0 SITE CONTROL

6.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the site safety officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The site safety officer will outline these locations before work begins and when zones change. The site safety officer records this information in the site logbook.

Due to the dimensions of the Site and the work area, an exclusion zone is not required. However, in the event of exceeding background levels, an exclusion zone will be assigned afore the building on the Site. All onsite workers during drilling activities must provide evidence of OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training to conduct work within the exclusion zone established by the site safety officer. The exclusion zone is defined by the site safety officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the site Health and Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer, if provided.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is decontaminated. All personnel and equipment exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

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

7.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

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

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

7.1 Emergency Equipment On-site

Private telephones:	Site personnel.
Two-way radios:	Site personnel where necessary.
Emergency Alarms:	On-site vehicle horns*.
First aid kits:	On-site, in vehicles or office.
Fire extinguisher:	On-site, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

7.2 Emergency Telephone Numbers

General Emergencies	911
Fire Department	911
Long Island Jewish Forest Hills	(718) 830-4000
NYSDEC Spills Hotline	(800) 457-7362
National Response Center	(800) 424-8802
Poison Control	(800) 222-1222
Project Manager	(347) 944-9335
Site Safety Officer	(646) 249-6129
Sr. Project Manager	(347) 728-0768

7.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

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

The following key personnel are planned for this project:

- Katherine Espinoza, Field Staff Scientist (347) 944-9335
- Drumita Dmello, Site Safety Officer (646) 249-6129

7.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix D**) must be filled out for any injury.
A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (**Appendix D**) and information on the chemical(s) to which they may have been exposed (**Appendix C**).

7.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

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

7.6 Evacuation Routes

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

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

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

7.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

7.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped.

If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

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

APPENDIX A
SITE SAFETY ACKNOWLEDGEMENT FORM

DAILY BREIFING SIGN-IN SHEET

Date:_____ Person Conducting Briefing:_____

Project Name and Location:_____

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

_____

_____

_____

_____

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

_____

_____

_____

_____

3. ATTENDEES (Print Name):

1.	11.
2.	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

APPENDIX B

SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #: _____

Site Name: _____

Reason for Amendment: _____

_____

_____

_____

_____

Alternative Procedures: _____

_____

_____

_____

Required Changes in PPE: _____

_____

_____

_____

_____

_____ _____

Project Superintendent (signature) Date

_____ _____

Health and Safety Consultant (signature) Date

_____

Site Safety Officer (signature) Date

APPENDIX C
CHEMICAL HAZARDS

CHEMICAL HAZARDS

The attached International Chemical Safety Cards are provided for contaminants of concern that have been identified in soils, and soil gas at the site.

CHLORDANE (TECHNICAL PRODUCT) **ICSC: 0740 (March 1998)**

1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methanoindene
1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene

CAS #: 57-74-9
UN #: 2996
EC Number: 200-349-0

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Use alcohol-resistant foam, powder, carbon dioxide, water spray.

PREVENT GENERATION OF MISTS! STRICT HYGIENE! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN! IN ALL CASES CONSULT A DOCTOR!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	See Ingestion.	Use breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	MAY BE ABSORBED!	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes	Redness. Pain.	Wear safety goggles, face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion	Confusion. Convulsions. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rest. Refer for medical attention .

SPILLAGE DISPOSAL

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

STORAGE

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs, bases and incompatible materials. See Chemical Dangers. Well closed. Keep in a well-ventilated room.

PACKAGING

Do not transport with food and feedstuffs.
Severe marine pollutant.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

Transportation
UN Classification
UN Hazard Class: 6.1; UN Pack Group: III

International Labour Organization
World Health Organization

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

European Commission

CHLORDANE (TECHNICAL PRODUCT) **ICSC: 0740**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
TECHNICAL-GRADE PRODUCT: LIGHT YELLOW-TO-AMBER VISCOUS LIQUID.

Physical dangers

Chemical dangers
Decomposes on burning. Decomposes on contact with bases. This produces toxic fumes including phosgene and hydrogen chloride. Attacks iron, zinc, plastics, rubber and coatings.

Formula: $C_{10}H_6Cl_8$
Molecular mass: 409.8
Boiling point at 0.27kPa: 175°C
Relative density (water = 1): 1.59 - 1.63
Solubility in water: none
Vapour pressure, Pa at 25°C: 0.0013
Octanol/water partition coefficient as log Pow: 2.78

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

Effects of short-term exposure
Exposure at high levels could cause disorientation, tremors, convulsions, respiratory failure and death. Medical observation is indicated.

Inhalation risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying.

Effects of long-term or repeated exposure
The substance may have effects on the liver and immune system. This may result in tissue lesions and liver impairment. This substance is possibly carcinogenic to humans.

OCCUPATIONAL EXPOSURE LIMITS

TLV: (inhalable fraction and vapour): 0.5 mg/m^3, as TWA; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans).
MAK: (inhalable fraction): 0.5 mg/m^3; peak limitation category: II(8); skin absorption (H); carcinogen category: 3

ENVIRONMENT

The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment. Special attention should be given to soil organisms and bees. It is strongly advised not to let the chemical enter into the environment. The substance may cause long-term effects in the aquatic environment.

NOTES

If the substance is formulated with solvent(s) also consult the card(s) (ICSC) of the solvent(s).
Carrier solvents used in commercial formulations may change physical and toxicological properties.
See ICSC 0743.

ADDITIONAL INFORMATION

EC Classification
Symbol: Xn, N; R: 21/22-40-50/53; S: (2)-36/37-60-61

1,2,4-TRIMETHYLBENZENE **ICSC: 1433 (June 2002)**
Pseudocumene

CAS #: 95-63-6
UN #: 1993
EC Number: 202-436-9

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Flammable. Above 44°C explosive vapour/air mixtures may be formed.	NO open flames, NO sparks and NO smoking. Above 44°C use a closed system, ventilation and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	Use alcohol-resistant foam, dry powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

PREVENT GENERATION OF MISTS!			
	SYMPTOMS	**PREVENTION**	**FIRST AID**
Inhalation	Confusion. Cough. Dizziness. Drowsiness. Headache. Sore throat. Vomiting.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	Redness. Dry skin.	Protective gloves.	Rinse skin with plenty of water or shower.
Eyes	Redness. Pain.	Wear safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion	See Inhalation.	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

SPILLAGE DISPOSAL

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Do NOT let this chemical enter the environment.

STORAGE

Fireproof. Separated from strong oxidants. Well closed. Keep in a well-ventilated room.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

Transportation
UN Classification
UN Hazard Class: 3; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

1,2,4-TRIMETHYLBENZENE **ICSC: 1433**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
COLOURLESS LIQUID WITH CHARACTERISTIC ODOUR.

Physical dangers

Chemical dangers
Decomposes on burning. This produces toxic and irritating fumes. Reacts violently with strong oxidants. This generates fire and explosion hazard.

Formula: C_9H_{12}
Molecular mass: 120,2
Boiling point: 169°C
Melting point: -44°C
Relative density (water = 1): 0.88
Solubility in water: very poor
Relative vapour density (air = 1): 4.1
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.01
Flash point: 44°C c.c.
Auto-ignition temperature: 500°C
Explosive limits, vol% in air: 0.9-6.4
Octanol/water partition coefficient as log Pow: 3.8

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation.

Effects of short-term exposure
The substance is irritating to the eyes, skin and respiratory tract. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system.

Inhalation risk
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

Effects of long-term or repeated exposure
The substance defats the skin, which may cause dryness or cracking. Repeated or prolonged inhalation may cause effects on the lungs. This may result in chronic bronchitis. The substance may have effects on the central nervous system and blood. See Notes.

OCCUPATIONAL EXPOSURE LIMITS

EU-OEL: 100 mg/m^3, 20 ppm as TWA.
MAK: 100 mg/m^3, 20 ppm; peak limitation category: II(2); pregnancy risk group: C

ENVIRONMENT

The substance is toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish.

NOTES

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

ADDITIONAL INFORMATION

EC Classification
Symbol: Xn, N; R: 10-20-36/37/38-51/53; S: (2)-26-61

ACETONE **ICSC: 0087 (April 2009)**

2-Propanone
Dimethyl ketone
Methyl ketone

CAS #: 67-64-1
UN #: 1090
EC Number: 200-662-2

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Highly flammable. Vapour/air mixtures are explosive. Heating will cause rise in pressure with risk of bursting.	NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools.	Use powder, alcohol-resistant foam, water, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Sore throat. Cough. Confusion. Headache. Dizziness. Drowsiness. Unconsciousness.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
Eyes	Redness. Pain. Blurred vision.	Wear safety spectacles.	Rinse with plenty of water (remove contact lenses if easily possible). Refer for medical attention.
Ingestion	Nausea. Vomiting. Further see Inhalation.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention .

SPILLAGE DISPOSAL

Remove all ignition sources. Personal protection: filter respirator for organic gases and vapours of low boiling point adapted to the airborne concentration of the substance. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

STORAGE

Fireproof. Separated from : see Chemical Dangers. Store in an area without drain or sewer access.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

Highly flammable liquid and vapour
Causes eye irritation

Transportation
UN Classification
UN Hazard Class: 3; UN Pack Group: II

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

ACETONE **ICSC: 0087**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
COLOURLESS LIQUID WITH CHARACTERISTIC ODOUR.

Physical dangers
The vapour is heavier than air and may travel along the ground; distant ignition possible.

Chemical dangers
Contact with strong oxidants such as acetic acid, nitric acid and hydrogen peroxide generates explosive peroxides. Reacts with chloroform and bromoform under basic conditions. This generates fire and explosion hazard. Attacks plastics.

Formula: C_3H_6O / CH_3-CO-CH_3
Molecular mass: 58.1
Boiling point: 56°C
Melting point: -95°C
Relative density (water = 1): 0.8
Solubility in water: miscible
Vapour pressure, kPa at 20°C: 24
Relative vapour density (air = 1): 2.0
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.2
Flash point: -18°C c.c.
Auto-ignition temperature: 465°C
Explosive limits, vol% in air: 2.2-13
Octanol/water partition coefficient as log Pow: -0.24
Viscosity: 0.34 mm²/s at 40°C

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation.

Effects of short-term exposure
The substance is irritating to the eyes and respiratory tract. Exposure at high levels could cause lowering of consciousness.

Inhalation risk
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C , on spraying or dispersing much faster.

Effects of long-term or repeated exposure
The substance defats the skin, which may cause dryness or cracking. Repeated or prolonged contact with skin may cause dryness and cracking.

OCCUPATIONAL EXPOSURE LIMITS

TLV: 250 ppm as TWA; 500 ppm as STEL; BEI issued; A4 (not classifiable as a human carcinogen).
MAK: 1200 mg/m^3, 500 ppm; peak limitation category: I(2); pregnancy risk group: B.
EU-OEL: 1210 mg/m^3, 500 ppm as TWA

ENVIRONMENT

NOTES

Use of alcoholic beverages enhances the harmful effect.

ADDITIONAL INFORMATION

EC Classification
Symbol: F, Xi; R: 11-36-66-67; S: (2)-9-16-26

NAPHTHALENE **ICSC: 0667 (June 2015)**
Naphthene

CAS #: 91-20-3
UN #: 1334 (solid) UN #: 2304 (molten)
EC Number: 202-049-5

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible. Above 80°C explosive vapour/air mixtures may be formed. Finely dispersed particles form explosive mixtures in air.	NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.	Use water spray, powder, foam, carbon dioxide.

PREVENT DISPERSION OF DUST!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Headache. Weakness. Sweating. Nausea. Vomiting. Further see Ingestion.	Use ventilation (not if powder), local exhaust or breathing protection.	Fresh air. Refer for medical attention.
Skin	See Inhalation.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Seek medical attention if you feel unwell.
Eyes	Redness.	Wear safety spectacles.	Rinse with plenty of water (remove contact lenses if easily possible).
Ingestion	Abdominal pain. Diarrhoea. Sweating. Headache. Fever. Jaundice. Weakness. Dark-coloured urine. Symptoms may be delayed.	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

SPILLAGE DISPOSAL

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Separated from strong oxidants and food and feedstuffs. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.

PACKAGING

Do not transport with food and feedstuffs.
Marine pollutant.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

WARNING

Flammable solid
Harmful if swallowed
May be harmful in contact with skin
Suspected of causing cancer
Very toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 4.1; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

NAPHTHALENE **ICSC: 0667**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
WHITE SOLID IN VARIOUS FORMS WITH CHARACTERISTIC ODOUR.

Physical dangers
Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers
On combustion, forms irritating and toxic gases. Reacts with strong oxidants. This generates fire and explosion hazard.

Formula: $C_{10}H_8$
Molecular mass: 128.18
Boiling point: 218°C
Sublimes at room temperature
Melting point: 80°C
Density: 1.16 g/cm³
Solubility in water at 20°C: very poor
Vapour pressure, Pa at 25°C: 11
Relative vapour density (air = 1): 4.42
Flash point: 80°C c.c.
Auto-ignition temperature: 540°C
Explosive limits, vol% in air: 0.9-5.9
Octanol/water partition coefficient as log Pow: 3.35

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

Effects of short-term exposure
The substance may cause effects on the blood. This may result in lesions of blood cells (haemolysis). See Notes. The effects may be delayed. Ingestion could cause death. Medical observation is indicated.

Inhalation risk
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

Effects of long-term or repeated exposure
The substance may have effects on the blood. This may result in chronic haemolytic anaemia. The substance may have effects on the eyes. This may result in development of cataract. This substance is possibly carcinogenic to humans.

OCCUPATIONAL EXPOSURE LIMITS

TLV: 10 ppm as TWA; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans).
EU-OEL: 50 mg/m^3, 10 ppm as TWA.
MAK: skin absorption (H); carcinogen category: 2; germ cell mutagen group: 3B

ENVIRONMENT

The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment. Bioaccumulation of this chemical may occur along the food chain, for example in fish.

NOTES

ADDITIONAL INFORMATION

EC Classification
Symbol: Xn, N; R: 22-40-50/53; S: (1/2)-26-36/37/39-45-46-60-61

p-CYMENE **ICSC: 0617 (November 1997)**

1-Methyl-4-isopropylbenzene
Dolcymene
Camphogen

CAS #: 99-87-6
UN #: 2046
EC Number: 202-796-7

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Flammable. Above 47°C explosive vapour/air mixtures may be formed.	NO open flames, NO sparks and NO smoking. Above 47°C use a closed system, ventilation and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	Use powder, AFFF, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

PREVENT GENERATION OF MISTS!			
	SYMPTOMS	**PREVENTION**	**FIRST AID**
Inhalation	Dizziness. Drowsiness. Vomiting.	Use ventilation.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.
Skin	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Wear protective gloves when administering first aid.
Eyes	Redness.	Wear safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion	Diarrhoea. Drowsiness. Headache. Nausea. Vomiting. Unconsciousness.	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Rest. Refer for medical attention .

SPILLAGE DISPOSAL

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance.

STORAGE

Fireproof.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

Transportation
UN Classification
UN Hazard Class: 3; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

p-CYMENE **ICSC: 0617**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
COLOURLESS LIQUID WITH CHARACTERISTIC ODOUR.

Physical dangers
The vapour is heavier than air.

Chemical dangers
Reacts with oxidants. Attacks rubber.

Formula: $C_{10}H_{14}$ / $CH_3C_6H_4CH(CH_3)_2$
Molecular mass: 134.2
Boiling point: 177°C
Melting point: -68°C
Relative density (water = 1): 0.85
Solubility in water, g/100ml at 25°C: 0.002
Vapour pressure, Pa at 20°C: 200
Relative vapour density (air = 1): 4.62
Flash point: 47°C c.c.
Auto-ignition temperature: 435°C
Explosive limits, vol% in air: 0.7-5.6
Octanol/water partition coefficient as log Pow: 4.1

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its vapour and by ingestion.

Effects of short-term exposure
The substance is irritating to the eyes and skin. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

Inhalation risk
No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

Effects of long-term or repeated exposure
The substance defats the skin, which may cause dryness or cracking.

OCCUPATIONAL EXPOSURE LIMITS

ENVIRONMENT

NOTES

ADDITIONAL INFORMATION

EC Classification

BENZO(a)PYRENE **ICSC: 0104 (April 2014)**

Benz(a)pyrene
3,4-Benzopyrene
Benzo(d,e,f)chrysene

CAS #: 50-32-8
UN #: 3077
EC Number: 200-028-5

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings, use appropriate extinguishing media.

See Notes. AVOID ALL CONTACT! PREVENT DISPERSION OF DUST!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation		Use closed system and ventilation.	Fresh air, rest.
Skin		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes		Wear safety spectacles or eye protection in combination with breathing protection.	Rinse with plenty of water (remove contact lenses if easily possible).
Ingestion		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Provision to contain effluent from fire extinguishing. Separated from strong oxidants. Store in an area without drain or sewer access. Cool. Dry.

PACKAGING

Marine pollutant.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

May cause an allergic skin reaction
May cause cancer
May cause genetic defects
May damage fertility or the unborn child
Very toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 9; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

BENZO(a)PYRENE **ICSC: 0104**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
PALE YELLOW CRYSTALS.

Physical dangers

Chemical dangers
Reacts with strong oxidants. Decomposes on heating. This produces toxic fumes.

Formula: $C_{20}H_{12}$
Molecular mass: 252.3
Boiling point: 496°C
Melting point: 178.1°C
Density (at 20°C): 1.4 g/cm³
Solubility in water, g/100ml at 20°C: < 0.1 (poor)
Vapour pressure at 20°C: negligible
Octanol/water partition coefficient as log Pow: 6.04

EXPOSURE & HEALTH EFFECTS

Routes of exposure
Exposure mainly occurs via inhalation.

Effects of short-term exposure
See Notes.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of long-term or repeated exposure
Repeated or prolonged contact may cause skin sensitization. This substance is carcinogenic to humans. May cause heritable genetic damage to human germ cells. May cause toxicity to human reproduction or development.

OCCUPATIONAL EXPOSURE LIMITS

TLV: A2 (suspected human carcinogen); BEI issued.
MAK: skin absorption (H); carcinogen category: 2; germ cell mutagen group: 2

ENVIRONMENT

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish, plants and molluscs. The substance may cause long-term effects in the aquatic environment. It is strongly advised not to let the chemical enter into the environment.

NOTES

Do NOT take working clothes home.
Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.
Benzo(a)pyrene is present as a component of polycyclic aromatic hydrocarbons (PAHs) in the environment, usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.

ADDITIONAL INFORMATION

EC Classification
Symbol: T, N; R: 45-46-60-61-43-50/53; S: 53-45-60-61

BENZO(b)FLUORANTHENE **ICSC: 0720 (March 1999)**

Benz(e)acephenanthrylene
2,3-Benzofluoroanthene
Benzo(e)fluoranthene
3,4-Benzofluoranthene

CAS #: 205-99-2

EC Number: 205-911-9

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION			In case of fire in the surroundings, use appropriate extinguishing media.

AVOID ALL CONTACT!			
	SYMPTOMS	**PREVENTION**	**FIRST AID**
Inhalation		Use local exhaust or breathing protection.	Fresh air, rest.
Skin		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes		Wear safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention .

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.	**According to UN GHS Criteria**
STORAGE	**Transportation** **UN Classification**
Provision to contain effluent from fire extinguishing. Well closed.	
PACKAGING	

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

BENZO(b)FLUORANTHENE **ICSC: 0720**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
COLOURLESS CRYSTALS.

Physical dangers

Chemical dangers
Upon heating, toxic fumes are formed. Decomposes on heating. This produces toxic fumes.

Formula: $C_{20}H_{12}$
Molecular mass: 252.3
Boiling point: 481°C
Melting point: 168°C
Solubility in water: none
Octanol/water partition coefficient as log Pow: 6.12

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its aerosol and through the skin.

Effects of short-term exposure

Inhalation risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

Effects of long-term or repeated exposure
This substance is possibly carcinogenic to humans. May cause genetic damage in humans.

OCCUPATIONAL EXPOSURE LIMITS

MAK: skin absorption (H); carcinogen category: 2; germ cell mutagen group: 3B

ENVIRONMENT

This substance may be hazardous to the environment. Special attention should be given to air quality and water quality.

NOTES

Benzo(b)fluoranthene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.
ACGIH recommends environment containing benzo(b)fluoranthene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m³.
TLV Note: Exposure by all routes should be carefully controlled to levels as low as possible.
Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

EC Classification
Symbol: T, N; R: 45-50/53; S: 53-45-60-61

CHRYSENE **ICSC: 1672 (October 2006)**

Benzo[a]phenanthrene
1,2-Benzophenanthrene
1,2,5,6-Dibenzonaphthalene

CAS #: 218-01-9
UN #: 3077
EC Number: 205-923-4

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible. Finely dispersed particles form explosive mixtures in air.	NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.	Use water spray, dry powder, foam, carbon dioxide.

See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE. AVOID ALL CONTACT!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation		Use local exhaust or breathing protection.	Fresh air, rest.
Skin		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes		Wear safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Separated from strong oxidants. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

WARNING

Suspected of causing cancer
Very toxic to aquatic life
Toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 9; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

CHRYSENE **ICSC: 1672**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
COLOURLESS-TO-BEIGE CRYSTALS OR POWDER.

Physical dangers
Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers
Decomposes on burning. This produces toxic fumes. Reacts violently with strong oxidants.

Formula: $C_{18}H_{12}$
Molecular mass: 228.3
Boiling point: 448°C
Melting point: 254 - 256°C
Density: 1.3 g/cm³
Solubility in water: very poor
Octanol/water partition coefficient as log Pow: 5.9

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.

Effects of short-term exposure

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of long-term or repeated exposure
This substance is possibly carcinogenic to humans.

OCCUPATIONAL EXPOSURE LIMITS

TLV: A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued.
MAK: skin absorption (H); carcinogen category: 2

ENVIRONMENT

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in seafood. It is strongly advised not to let the chemical enter into the environment.

NOTES

Depending on the degree of exposure, periodic medical examination is suggested.
Do NOT take working clothes home.
This substance does not usually occur as a pure substance but as a component of polyaromatic hydrocarbon (PAH) mixtures.
Human population studies have associated PAH's exposure with cancer and cardiovascular diseases.
TLV Note: Exposure by all routes should be carefully controlled to levels as low as possible.

ADDITIONAL INFORMATION

EC Classification
Symbol: T, N; R: 45-68-50/53; S: 53-45-60-61

DI(2-ETHYLHEXYL) PHTHALATE **ICSC: 0271 (October 2001)**

Dioctylphthalate
DOP; DEHP
Bis-(2-ethylhexyl)phthalate

CAS #: 117-81-7

EC Number: 204-211-0

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Use water spray, foam, powder, carbon dioxide.

PREVENT GENERATION OF MISTS! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Cough. Sore throat.	Use ventilation, local exhaust or breathing protection.	Fresh air, rest.
Skin		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
Eyes	Redness. Pain.	Wear safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion	Abdominal cramps. Diarrhoea. Nausea.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give one or two glasses of water to drink.

SPILLAGE DISPOSAL

Personal protection: chemical protection suit. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

STORAGE

Separated from strong oxidants, acids, alkalis and nitrates. Cool. Dry. Well closed.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

Transportation
UN Classification

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

DI(2-ETHYLHEXYL) PHTHALATE **ICSC: 0271**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
COLOURLESS-TO-LIGHT COLOURED VISCOUS LIQUID WITH CHARACTERISTIC ODOUR.

Physical dangers

Chemical dangers
Decomposes on heating. This produces irritating fumes. Reacts with strong oxidants, acids, alkalis and nitrates.

Formula: $C_{24}H_{38}O_4$ / $C_6H_4(COOC_8H_{17})_2$
Molecular mass: 390.6
Boiling point: 385°C
Melting point: -50°C
Relative density (water = 1): 0.986
Solubility in water: none
Vapour pressure, kPa at 20°C: 0.001
Relative vapour density (air = 1): 13.45
Flash point: 215°C o.c.
Auto-ignition temperature: 350°C
Octanol/water partition coefficient as log Pow: 5.03

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

Effects of short-term exposure
The substance is irritating to the eyes and respiratory tract.

Inhalation risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying.

Effects of long-term or repeated exposure
The substance may have effects on the testes. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

OCCUPATIONAL EXPOSURE LIMITS

TLV: 5 mg/m^3, as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans).
MAK: (inhalable fraction): 2 mg/m^3; peak limitation category: II(2); skin absorption (H); carcinogen category: 4; pregnancy risk group: C

ENVIRONMENT

Bioaccumulation of this chemical may occur in seafood.

NOTES

ADDITIONAL INFORMATION

EC Classification
Symbol: T; R: 60-61; S: 53-45

INDENO(1,2,3-cd)PYRENE **ICSC: 0730 (March 1999)**

o-Phenylenepyrene
2,3-Phenylenepyrene

CAS #: 193-39-5

EC Number: 205-893-2

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION			In case of fire in the surroundings, use appropriate extinguishing media.

AVOID ALL CONTACT!			
	SYMPTOMS	**PREVENTION**	**FIRST AID**
Inhalation		Use local exhaust or breathing protection.	Fresh air, rest.
Skin		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes		Wear safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention .

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.	**According to UN GHS Criteria**
STORAGE	**Transportation** **UN Classification**
Provision to contain effluent from fire extinguishing. Well closed.	
PACKAGING	

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

INDENO(1,2,3-cd)PYRENE **ICSC: 0730**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
YELLOW CRYSTALS.

Physical dangers

Chemical dangers
Upon heating, toxic fumes are formed. Decomposes on heating. This produces toxic fumes.

Formula: $C_{22}H_{12}$
Molecular mass: 276.3
Boiling point: 536°C
Melting point: 164°C
Solubility in water: none
Octanol/water partition coefficient as log Pow: 6.58

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its aerosol and through the skin.

Effects of short-term exposure

Inhalation risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

Effects of long-term or repeated exposure
This substance is possibly carcinogenic to humans.

OCCUPATIONAL EXPOSURE LIMITS

MAK: skin absorption (H); carcinogen category: 2

ENVIRONMENT

This substance may be hazardous to the environment. Special attention should be given to air quality and water quality. Bioaccumulation of this chemical may occur in fish.

NOTES

Indeno(1,2,3-cd)pyrene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.
ACGIH recommends environment containing Indeno(1,2,3-c,d)pyrene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m³.
Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

EC Classification

ARSENIC **ICSC: 0013 (June 2011)**

Grey arsenic

CAS #: 7440-38-2
UN #: 1558
EC Number: 231-148-6

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with incompatible substances. See Chemical Dangers.	NO open flames. NO contact with strong oxidizing agents. NO contact with hot surfaces. NO contact with incompatible materials: See Notes.	Use water spray, powder, foam, carbon dioxide.

PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	See Ingestion.	Use closed system and ventilation.	Fresh air, rest. Seek medical attention if you feel unwell.
Skin		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes		Wear face shield or eye protection in combination with breathing protection if powder.	Rinse with plenty of water (remove contact lenses if easily possible).
Ingestion	Abdominal pain. Diarrhoea. Nausea. Vomiting. Weakness. Shock or collapse. Unconsciousness.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer immediately for medical attention.

SPILLAGE DISPOSAL

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Separated from strong oxidants, acids, halogens and food and feedstuffs. Well closed. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.

PACKAGING

Do not transport with food and feedstuffs.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

Toxic if swallowed
May cause cancer
Suspected of damaging fertility or the unborn child
Causes damage to the gastrointestinal tract if swallowed
Causes damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 6.1; UN Pack Group: II

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

ARSENIC **ICSC: 0013**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
BRITTLE GREY METALLIC-LOOKING CRYSTALS.

Physical dangers
No data.

Chemical dangers
Upon heating, toxic fumes are formed. Reacts violently with strong oxidants and halogens. This generates fire and explosion hazard. Reacts with reducing agents. This produces toxic and flammable arsine gas (See ICSC 0222).

Formula: As
Atomic mass: 74.9
Sublimation point: 613°C
Density: 5.7 g/cm³
Solubility in water: none
Auto-ignition temperature: 180°C

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

Effects of short-term exposure
The substance may cause effects on the gastrointestinal tract. This may result in severe gastroenteritis, loss of fluids and electrolytes, cardiac disorders, shock and convulsions. Exposure far above the OEL could cause death. The effects may be delayed. Medical observation is indicated.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

Effects of long-term or repeated exposure
The substance may have effects on the skin, mucous membranes, peripheral nervous system, liver and bone marrow. This may result in pigmentation disorders, hyperkeratosis, perforation of the nasal septum, neuropathy, anaemia and liver impairment. This substance is carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

OCCUPATIONAL EXPOSURE LIMITS

MAK: skin absorption (H); carcinogen category: 1; germ cell mutagen group: 3A

ENVIRONMENT

The substance is toxic to aquatic organisms. It is strongly advised not to let the chemical enter into the environment.

NOTES

The substance is combustible but no flash point is available in literature.
Depending on the degree of exposure, periodic medical examination is suggested.
Do NOT take working clothes home.

ADDITIONAL INFORMATION

EC Classification
Symbol: T, N; R: 23/25-50/53; S: (1/2)-20/21-28-45-60-61

BERYLLIUM **ICSC: 0226 (November 2016)**
Glucinium

CAS #: 7440-41-7
UN #: 1567
EC Number: 231-150-7

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible. Gives off irritating or toxic fumes (or gases) in a fire. Finely dispersed particles form explosive mixtures in air.	NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.	Use fine water spray, dry powder, dry sand. NO other agents.

PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Cough. Laboured breathing. Shortness of breath. Sore throat. Symptoms may be delayed. See Notes.	Use closed system.	Fresh air, rest. Half-upright position. Refer for medical attention.
Skin	MAY BE ABSORBED!	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Wear protective gloves when administering first aid.
Eyes		Wear face shield or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention .

SPILLAGE DISPOSAL

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Provision to contain effluent from fire extinguishing. Separated from strong acids, bases, chlorinated solvents and food and feedstuffs. Well closed. Store only in original container. Store in an area without drain or sewer access.

PACKAGING

Unbreakable packaging.
Put breakable packaging into closed unbreakable container.
Do not transport with food and feedstuffs.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

Flammable solid
Fatal if inhaled
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause cancer
Causes damage to lungs if inhaled
Causes damage to the lungs through prolonged or repeated exposure
May cause long lasting harmful effects to aquatic life

Transportation
UN Classification
UN Hazard Class: 6.1; UN Subsidiary Risks: 4.1; UN Pack Group: II

International Labour Organization
World Health Organization

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

European Commission

BERYLLIUM **ICSC: 0226**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
GREY SOLID IN VARIOUS FORMS.

Physical dangers
Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers
Reacts with strong acids and strong bases. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Mixtures with some chlorinated solvents, such as carbon tetrachloride and trichloroethylene are shock-sensitive. On combustion, forms toxic fumes including beryllium oxide (see ICSC 1325).

Formula: Be
Atomic mass: 9.0
Boiling point: >2400°C
Melting point: 1287°C
Density: 1.9 g/cm³
Solubility in water: insoluble

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body in hazardous amounts by inhalation of its aerosol and by ingestion.

Effects of short-term exposure
The substance is irritating to the respiratory tract. Inhalation of dust or fume may cause chemical pneumonitis. The effects may be delayed. Medical observation is indicated. Exposure could cause death.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of long-term or repeated exposure
Sensitization to the substance, through repeated or prolonged inhalation or skin contact, may result in serious granulomatous lung disease (chronic beryllium disease). This substance is carcinogenic to humans.

OCCUPATIONAL EXPOSURE LIMITS

TLV: (inhalable fraction): 0.00005 mg/m^3, as TWA; A1 (confirmed human carcinogen); (skin); (SEN).
MAK: sensitization of respiratory tract and skin (SAH); carcinogen category: 1.
EU-OEL: (inhalable fraction): 0.0002 mg/m^3 as TWA; (skin and respiratory sensitizer); (see Notes)

ENVIRONMENT

The substance may cause long-term effects in the aquatic environment.

NOTES

The substance is combustible but no flash point is available in literature.
The symptoms of acute pneumonitis following a massive short-term exposure do not become manifest until 3 days.
Depending on the degree of exposure, periodic medical examination is suggested.
Do NOT take working clothes home.
Isolate contaminated clothing by sealing in a bag or other container.
An EU-OEL of 0.0006 mg/m^3 is allowed until 11 July 2026.

ADDITIONAL INFORMATION

EC Classification
Symbol: T+; R: 49-25-26-36/37/38-43-48/23; S: 53-45; Note: E

CADMIUM	ICSC: 0020 (April 2005)

CAS #: 7440-43-9
UN #: 2570
EC Number: 231-152-8

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	May ignite spontaneously on contact with air. Gives off irritating or toxic fumes (or gases) in a fire. Finely dispersed particles form explosive mixtures in air.	NO open flames, NO sparks and NO smoking. NO contact with heat or acids. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.	Use dry sand. Use special powder. NO other agents.

PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Cough. Sore throat.	Use local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes	Redness. Pain.	Wear safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion	Abdominal pain. Diarrhoea. Headache. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rest. Refer for medical attention .

SPILLAGE DISPOSAL

Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Remove all ignition sources. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Fireproof. Dry. Keep under inert gas. Separated from ignition sources, oxidants, acids and food and feedstuffs.

PACKAGING

Airtight.
Unbreakable packaging.
Put breakable packaging into closed unbreakable container.
Do not transport with food and feedstuffs.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

Transportation
UN Classification
UN Hazard Class: 6.1

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

CADMIUM **ICSC: 0020**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
SOFT BLUE-WHITE METAL LUMPS OR GREY POWDER. MALLEABLE. TURNS BRITTLE ON EXPOSURE TO 80°C. TARNISHES ON EXPOSURE TO MOIST AIR.

Physical dangers
Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers
Reacts with acids. This produces flammable/explosive gas (hydrogen - see ICSC 0001). The dust reacts with oxidants, hydrogen azide, zinc, selenium and tellurium. This generates fire and explosion hazard.

Formula: Cd
Atomic mass: 112.4
Boiling point: 765°C
Melting point: 321°C
Density: 8.6 g/cm³
Solubility in water: none
Auto-ignition temperature: 250°C (cadmium metal dust)

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

Effects of short-term exposure
The fume is irritating to the respiratory tract. Inhalation of fumes may cause lung oedema. See Notes. Inhalation of fumes may cause metal fume fever. The effects may be delayed. Medical observation is indicated.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

Effects of long-term or repeated exposure
Repeated or prolonged inhalation of dust particles may cause effects on the lungs. The substance may have effects on the kidneys. This may result in kidney impairment. This substance is carcinogenic to humans.

OCCUPATIONAL EXPOSURE LIMITS

TLV: 0.01 mg/m^3, as TWA; A2 (suspected human carcinogen); BEI issued.
MAK: (including its inorganic compounds, inhalable fraction): skin absorption (H); carcinogen category: 1; germ cell mutagen group: 3A.
EU-OEL: (inhalable fraction): 0.001 mg/m^3 as TWA; (see Notes)

ENVIRONMENT

NOTES

Reacts violently with fire extinguishing agents such as water, foam, carbon dioxide and halons.
Depending on the degree of exposure, periodic medical examination is suggested.
The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.
Do NOT take working clothes home.
UN numbers and packing group will vary according to the physical form of the substance.
An EU-OEL of 0.004 mg/m^3 is allowed until 11 July 2027.

ADDITIONAL INFORMATION

EC Classification
Symbol: T+, N; R: 45-26-48/23/25-62-63-68-50/53; S: 53-45-60-61; Note: E

CHROMIUM Chrome	**ICSC: 0029 (October 2004)**
CAS #: 7440-47-3 **EC Number: 231-157-5**	

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible under specific conditions.	If powder: NO open flames Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.	In case of fire in the surroundings, use appropriate extinguishing media.

PREVENT DISPERSION OF DUST!			
	SYMPTOMS	**PREVENTION**	**FIRST AID**
Inhalation	Cough.	Use local exhaust or breathing protection.	Fresh air, rest.
Skin		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
Eyes	Redness.	Wear safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	CLASSIFICATION & LABELLING
Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting.	**According to UN GHS Criteria**
STORAGE	**Transportation** **UN Classification**
PACKAGING	

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

CHROMIUM **ICSC: 0029**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
GREY POWDER.

Physical dangers
Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers
Chromium is a catalytic substance and may cause reaction in contact with many organic and inorganic substances, causing fire and explosion hazard.

Formula: Cr
Atomic mass: 52.0
Boiling point: 2642°C
Melting point: 1900°C
Density: 7.15 g/cm³
Solubility in water: none

EXPOSURE & HEALTH EFFECTS

Routes of exposure

Effects of short-term exposure
May cause mechanical irritation to the eyes and respiratory tract.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of long-term or repeated exposure

OCCUPATIONAL EXPOSURE LIMITS

TLV: (as Cr(0), inhalable fraction): 0.5 mg/m^3, as TWA

ENVIRONMENT

NOTES

The surface of the chromium particles is oxidized to chromium(III)oxide in air.
See ICSC 1531.

ADDITIONAL INFORMATION

EC Classification

COPPER	ICSC: 0240 (November 2016)
CAS #: 7440-50-8 **UN #: 3089** **EC Number: 231-159-6**	

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Combustible. Finely dispersed particles form explosive mixtures in air.	NO open flames.	Use special powder, dry sand. NO other agents. Water may be ineffective.

PREVENT DISPERSION OF DUST!			
	SYMPTOMS	**PREVENTION**	**FIRST AID**
Inhalation	Cough. Headache. Shortness of breath. Sore throat.	Use local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
Skin	Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes	Redness. Pain.	Wear safety goggles.	Rinse with plenty of water (remove contact lenses if easily possible).
Ingestion	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention .

SPILLAGE DISPOSAL

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

See Chemical Dangers.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

Flammable solid
Harmful if swallowed
Very toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 4.1; UN Pack Group: II

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

COPPER **ICSC: 0240**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
SOLID IN VARIOUS FORMS. TURNS GREEN ON EXPOSURE TO MOIST AIR.

Physical dangers
No data.

Chemical dangers
Mixtures with acetylenic compounds, ethylene oxide and azides are shock-sensitive. Reacts with strong oxidants such as chlorates, bromates and iodates. This generates explosion hazard.

Formula: Cu
Atomic mass: 63.5
Boiling point: 2595°C
Melting point: 1083°C
Relative density (water = 1): 8.9
Solubility in water: none
Octanol/water partition coefficient as log Pow: -0.57 (calculated)

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation and by ingestion.

Effects of short-term exposure
Inhalation of fumes may cause metal fume fever. See Notes.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of long-term or repeated exposure
Repeated or prolonged contact may cause skin sensitization. Ingestion may cause effects on the liver.

OCCUPATIONAL EXPOSURE LIMITS

TLV: (fume, as Cu): 0.2 mg/m^3, as TWA.
TLV: (dust and mists, as Cu): 1 mg/m^3, as TWA.
MAK: (respirable fraction): 0.01 mg/m^3; peak limitation category: II(2); pregnancy risk group: C

ENVIRONMENT

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur along the food chain.

NOTES

The symptoms of metal fume fever do not become manifest until a few hours have passed.
UN 3089 refers to METAL POWDERS, FLAMMABLE, (n.o.s.)

ADDITIONAL INFORMATION

EC Classification

LEAD **ICSC: 0052 (November 2019)**
Plumbum

CAS #: 7439-92-1
UN #: 3077 (n.o.s.)
EC Number: 231-100-4

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.	Closed system, ventilation, explosion-proof electrical equipment and lighting.	In case of fire in the surroundings, use appropriate extinguishing media.

PREVENT DISPERSION OF DUST! STRICT HYGIENE!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Cough. Metallic taste. Abdominal pain. Headache. Confusion. Drowsiness. Unconsciousness. Convulsions.	Use local exhaust or breathing protection.	Fresh air, rest. Refer immediately for medical attention. See Notes.
Skin		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
Eyes	Redness.	Wear safety spectacles.	Rinse with plenty of water (remove contact lenses if easily possible).
Ingestion	See Inhalation.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer immediately for medical attention.

SPILLAGE DISPOSAL

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Store only in original container. Separated from food and feedstuffs and incompatible materials. See Chemical Dangers. Store in an area without drain or sewer access.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

Suspected of causing cancer
May damage fertility or the unborn child
May cause harm to breast-fed children
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 9; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

LEAD **ICSC: 0052**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
BLUE SILVERY-WHITE-TO-GREY POWDER.

Physical dangers

Chemical dangers
Upon heating, toxic fumes are formed. Reacts with strong oxidants and strong acids. This generates toxic, fire and explosion hazard.

Formula: Pb
Atomic mass: [207.2]
Boiling point: 1740°C
Melting point: 327.5°C
Density: 11.34 g/cm³
Solubility in water, g/l: (practically insoluble)

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation and by ingestion.

Effects of short-term exposure
Inhalation of high concentrations may cause effects on multiple organs. See Acute Hazards/Symptoms.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of long-term or repeated exposure
The substance may have effects on the blood, bone marrow, nervous system and kidneys. This may result in anaemia, encephalopathy (for example, convulsions), peripheral nerve disease, abdominal cramps, kidney impairment, cardiovascular disorders and hearing loss. See Notes. This substance is possibly carcinogenic to humans. Causes toxicity to human reproduction or development.

OCCUPATIONAL EXPOSURE LIMITS

TLV: 0.05 mg/m^3, as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued.
MAK: carcinogen category: 2; germ cell mutagen group: 3A.
EU-OEL: (binding): 0.15 mg/m^3 as TWA

ENVIRONMENT

The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment. It is strongly advised not to let the chemical enter into the environment.

NOTES

Specific treatment may be necessary in case of poisoning with this substance.
Depending on the degree of exposure, periodic medical examination is suggested.
Do NOT take working clothes home.

ADDITIONAL INFORMATION

EC Classification

MERCURY **ICSC: 0056 (November 2019)**

Quicksilver
Liquid silver

CAS #: 7439-97-6
UN #: 2809
EC Number: 231-106-7

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion.		In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water.

AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Cough. Sore throat. Shortness of breath. Fever. Vomiting. Diarrhoea. Abdominal pain. Headache. Weakness.	Use local exhaust or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer immediately for medical attention.
Skin	MAY BE ABSORBED! Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. See Notes. Rinse and then wash skin with water and soap. Refer for medical attention .
Eyes		Wear face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work. Wash hands before eating.	Refer for medical attention .

SPILLAGE DISPOSAL

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit and filter respirator for mercury adapted to the airborne concentration of the substance. Ventilation. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable non-metallic containers as far as possible. Then store and dispose of according to local regulations.

STORAGE

Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Well closed. Store in an area without drain or sewer access.

PACKAGING

Special material.
Do not transport with food and feedstuffs.
Marine pollutant.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

May be corrosive to metals
Fatal if inhaled
May damage fertility or the unborn child
Causes damage to central nervous system and kidneys
Causes damage to the central nervous system and the kidneys through prolonged or repeated exposure
Very toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 8; UN Subsidiary Risks: 6.1; UN Pack Group: III

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

MERCURY **ICSC: 0056**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
ODOURLESS HEAVY MOBILE SILVERY LIQUID METAL.

Physical dangers

Chemical dangers
Upon heating, toxic fumes are formed. Reacts violently with ammonia, halogens, acetylene and amines. This generates fire and explosion hazard. Attacks aluminium and many other metals. This produces amalgams.

Formula: Hg
Atomic mass: 200.6
Boiling point: 357°C
Melting point: -39°C
Density: 13.5 g/cm³
Solubility in water: none
Vapour pressure, Pa at 20°C: 0.26
Relative vapour density (air = 1): 6.93
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.009

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of its vapour and through the skin also as a vapour.

Effects of short-term exposure
The substance is irritating to the skin. Inhalation of high concentrations of the vapour may cause pneumonitis. This may result in death. The substance may cause effects on the central nervous system and kidneys. This may result in tremors and tissue lesions. The effects may be delayed. Medical observation is indicated.

Inhalation risk
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

Effects of long-term or repeated exposure
The substance may have effects on the central nervous system and kidneys. This may result in irritability, emotional instability, tremors, mental and memory disturbances and speech disorders. May cause inflammation and discoloration of gums. Cumulative effects are possible. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

OCCUPATIONAL EXPOSURE LIMITS

TLV: 0.025 mg/m^3, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued.
EU-OEL: 0,02 mg/m^3 as TWA.
MAK: (inhalable fraction): 0.02 mg/m^3; peak limitation category: II(8); skin absorption (H); sensitization of skin (SH); carcinogen category: 3; pregnancy risk group: D

ENVIRONMENT

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish and seafood.

NOTES

Depending on the degree of exposure, periodic medical examination is suggested.
There is no odour warning even when toxic concentrations are present.
Do NOT take working clothes home.
Isolate contaminated clothing by sealing in a bag or other container.
Other UN number: 3506 Mercury contained in manufactured articles.

ADDITIONAL INFORMATION

EC Classification
H330; H372; H400; H410; H360D

NICKEL **ICSC: 0062 (April 2017)**

Metallic nickel

CAS #: 7440-02-0

EC Number: 231-111-4

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Flammable as dust. Gives off irritating or toxic fumes (or gases) in a fire. Finely dispersed particles form explosive mixtures in air.	Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust.	Use dry sand, dry powder. NO carbon dioxide. NO water.

PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Cough. Shortness of breath.	Use local exhaust or breathing protection.	Fresh air, rest.
Skin	Redness.	Protective gloves. Protective clothing.	Wear protective gloves when administering first aid. Remove contaminated clothes. See Notes. Rinse and then wash skin with water and soap.
Eyes	Redness.	Wear safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.
Ingestion		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

STORAGE

Store only in original packaging. Cool. Well closed. Separated from strong oxidants and acids. Store in an area without drain or sewer access.

PACKAGING

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

May cause an allergic skin reaction
May cause allergy or asthma symptoms or breathing difficulties if inhaled
Suspected of causing cancer if inhaled
Causes damage to the lungs through prolonged or repeated exposure if inhaled
Harmful to aquatic life with long lasting effects

Transportation
UN Classification

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

NICKEL **ICSC: 0062**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
SILVERY METALLIC LUSTROUS SOLID IN VARIOUS FORMS.

Physical dangers
If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc. Dust explosion possible if in powder or granular form, mixed with air.

Chemical dangers
Reacts violently with acids. This produces flammable hydrogen. This generates fire and explosion hazard. Reacts violently with strong oxidants. This generates fire and explosion hazard. This produces toxic fumes of nickel monoxide. See ICSC 0926. On combustion, forms toxic gases and vapours including nickel (II) oxide (see ICSC 0926) and nickel carbonyl (see ICSC 0064).

Formula: Ni
Atomic mass: 58.7
Boiling point: 2730°C
Melting point: 1455°C
Density: 8.9 g/cm³
Solubility in water, mg/l at 37°C: 1.1 (practically insoluble)

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation of dust.

Effects of short-term exposure
May cause mechanical irritation. Inhalation of fume may cause pneumonitis.

Inhalation risk
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

Effects of long-term or repeated exposure
Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation may cause asthma. The substance may have effects on the respiratory tract. This may result in chronic inflammation of the respiratory tract and fibrosis. This substance is possibly carcinogenic to humans if inhaled.

OCCUPATIONAL EXPOSURE LIMITS

TLV: (inhalable fraction): 1.5 mg/m^3, as TWA; A5 (not suspected as a human carcinogen); BEI issued.
MAK: (inhalable fraction): sensitization of respiratory tract and skin (SAH); carcinogen category: 1

ENVIRONMENT

The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

NOTES

At high temperatures, toxic fumes of nickel(II)oxide may be formed (see ICSC 0926).
Depending on the degree of exposure, periodic medical examination is suggested.
The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort.
Anyone who has shown symptoms of sensitization due to this substance should avoid all further contact with nickel, nickel compounds and other metal compounds of e.g. copper, chromium and cobalt.
Isolate contaminated clothing by sealing in a bag or other container.
Do NOT take working clothes home.

ADDITIONAL INFORMATION

EC Classification
Symbol: Xn; R: 40-43; S: (2)-22-36

ZINC POWDER (pyrophoric) **ICSC: 1205 (November 2019)**

Blue powder
Merrillite

CAS #: 7440-66-6
UN #: 1436 (zinc powder or dust)
EC Number: 231-175-3

	ACUTE HAZARDS	PREVENTION	FIRE FIGHTING
FIRE & EXPLOSION	Highly flammable. May ignite spontaneously on contact with air. Many reactions may cause fire or explosion. Finely dispersed particles form explosive mixtures in air. Risk of fire and explosion on contact with water or incompatible substances. See Chemical Dangers.	NO open flames, NO sparks and NO smoking. NO contact with oxidizing agents, acids, bases, water or incompatible substances. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Prevent deposition of dust.	Use special powder, dry sand. NO water. NO foam, carbon dioxide. NO other agents. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact of the substance with water.

PREVENT DISPERSION OF DUST!

	SYMPTOMS	PREVENTION	FIRST AID
Inhalation	Metallic taste. Sore throat. Cough. Weakness. Fever. See Effects of short-term exposure.	Use local exhaust.	Fresh air, rest. Seek medical attention if you feel unwell. See Notes.
Skin	No acute symptoms expected.	Protective gloves.	First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again.
Eyes	Redness.	Wear safety spectacles.	Rinse with plenty of water (remove contact lenses if easily possible).
Ingestion	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention .

SPILLAGE DISPOSAL

Remove all ignition sources. Consult an expert! Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Do NOT wash away into sewer. Sweep spilled substance into covered dry containers. Then store and dispose of according to local regulations.

STORAGE

Fireproof. Well closed. Separated from incompatible materials and : see Chemical Dangers. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing.

PACKAGING

Airtight.
Marine pollutant.

CLASSIFICATION & LABELLING

According to UN GHS Criteria

DANGER

Catches fire spontaneously if exposed to air
In contact with water releases flammable gases which may ignite spontaneously
Very toxic to aquatic life with long lasting effects

Transportation
UN Classification
UN Hazard Class: 4.3; UN Subsidiary Risks: 4.2

Prepared by an international group of experts on behalf of ILO and WHO, with the financial assistance of the European Commission.

ZINC POWDER (pyrophoric) **ICSC: 1205**

PHYSICAL & CHEMICAL INFORMATION

Physical State; Appearance
GREY-TO-BLUE POWDER.

Physical dangers
Ignites in air when finely divided. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

Chemical dangers
On combustion forms zinc oxide fumes. See Notes. The substance is a strong reducing agent. It reacts violently with oxidants, acids and bases. Reacts with water. This produces flammable/explosive gas (hydrogen - see ICSC 0001). Reacts violently with sulfur, halogenated hydrocarbons and many other substances. This generates fire and explosion hazard.

Formula: Zn
Atomic mass: 65.4
Boiling point: 907°C
Melting point: 419°C
Density: 7.1 g/cm³
Solubility in water: reaction
Auto-ignition temperature: 460°C

EXPOSURE & HEALTH EFFECTS

Routes of exposure
The substance can be absorbed into the body by inhalation.

Effects of short-term exposure
May cause mechanical irritation to the eyes and respiratory tract. Inhalation of the respirable fraction may cause metal fume fever. This may result in influenza-like symptoms. The effects may be delayed up to 48 hours.

Inhalation risk
A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered or as fumes.

Effects of long-term or repeated exposure
Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged inhalation may cause effects on the lungs. This may result in reduced lung function .

OCCUPATIONAL EXPOSURE LIMITS

MAK: (as Zn, respirable fraction): 0.1 mg/m^3; peak limitation category: I(4); (as Zn, inhalable fraction): 2 mg/m^3; peak limitation category: I(2); pregnancy risk group: C; (DFG 2019)

ENVIRONMENT

The substance is very toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

NOTES

Zinc oxide fumes formed during combustion may cause metal fume fever (see ICSC 0208).
The symptoms of metal fume fever do not become manifest until hours.
Zinc may contain trace amounts of arsenic, when forming hydrogen, may also form toxic gas arsine (see ICSC0001 and ICSC0222).
Zinc powder stabilized: Combustible solid, UN number: 3077, Hazard class: 9, Packing group: III; GHS: Warning, H400, H410.

ADDITIONAL INFORMATION

EC Classification
H250; H260; H400 / H400; H410

APPENDIX D

HOSPITAL INFORMATION, MAP AND FIELD ACCIDENT REPORT

FIELD ACCIDENT REPORT

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

PROJECT NAME_____ PROJECT. NO._____

Date of Accident_____ Time _____ Report By_____

Type of Accident (Check One):

( ) Vehicular ( ) Personal ( ) Property

Name of Injured_____ DOB or Age_____

How Long Employed_____

Names of Witnesses _____

_____

_____

Description of Accident_____

_____

_____

_____

Action Taken_____

_____

_____

_____

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

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

_____

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

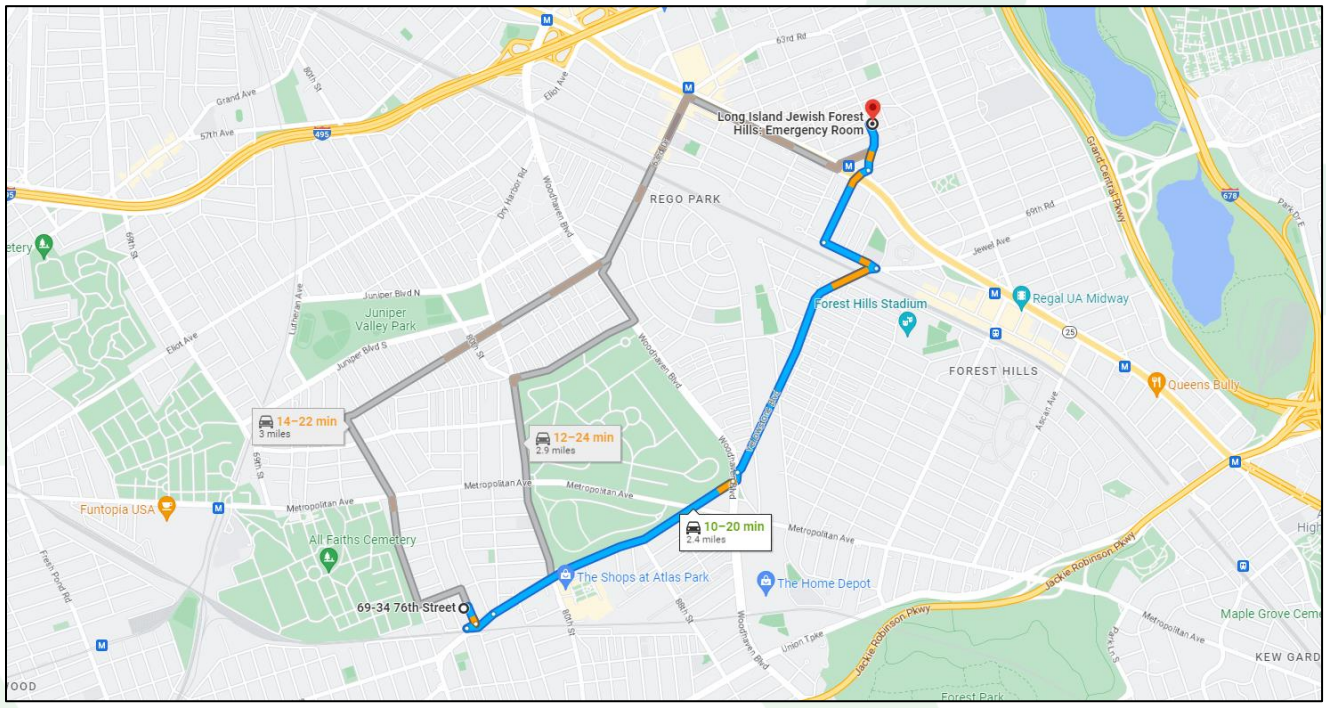
INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

HOSPITAL INFORMATION AND MAP

The hospital nearest the site is:

Long Island Jewish Forest Hills: Emergency Room
102-01 66th Rd. Queens, NY 11375
(718) 830-4000

Figure 1 – Directions



START

1. Head south on 76th St. toward Cooper Ave.
2. Turn right onto Cooper Ave.
3. Sharp left at 71st Ave.
4. Slight right onto Cooper Ave.
5. Turn left onto Woodhaven Blvd.
6. Turn right onto Yellowstone Blvd.
7. Sharp left onto Austin St.
8. Turn right onto 67th Rd.
9. Turn left onto102nd. St.
   102-01 66th Rd., Queens NY 11375

END

Appendix D – Community Air Monitoring Plan (CAMP)

Community Air Monitoring Plan
69-34 & 69-36 76th Street, Flushing, NY 11379
Order of Consent Index # CO2-20230113-31
NYSDEC Site # 241266

NYSDEC Spill # 2201492

1.0 INTRODUCTION

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for total organic vapors and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The intent of this CAMP 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 Site activities) from potential airborne contaminant releases as a direct result of remedial construction work activities and monitoring activities. The action levels specified herein require increased monitoring, corrective actions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities do not spread contamination off-site through the air.

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. Therefore, the monitoring of VOCs will be performed as described below; however, monitoring for particulates (i.e., dust) will not be performed unless a more obtrusive drilling technique is used. In that case, particulates will be monitored as discussed below.

Continuous Monitoring

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

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil samples, groundwater samples, and sub-slab vapor samples. “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 bailing/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.

1.1 PARTICULATE MONITORING

Particulate (e.g., “dust”) emissions will be monitored continuously at the upwind and downwind work zone boundaries. Real time monitoring equipment (e.g., Trak TSI Dust monitors or equivalent), with audible alarms and capable of measuring particulate matter less than 10 micrometers in size (PM-10), will be used. If the wind is calm, the monitors should be placed between each work area and the nearest sensitive

receptors. If the wind is variable, the monitors must be placed accordingly to ensure there is a monitor downwind of each work area at all times. Air monitoring locations will be selected daily based on prevailing wind conditions and specific locations where field-work is to be conducted.

- If the downwind particulate level is 100 micrograms per cubic meter (ug/m³) greater than background (upwind) for a 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression provided that downwind particulate levels do not exceed 150 ug/m³ above upwind levels and provided that no visible dust is migrating from the work area.
- If, after dust suppression techniques, downwind particulate levels are greater than 150 ug/m³ above upwind levels, work will be stopped and a re-evaluation of activities will be initiated. Work will resume, provided that dust suppression measures and other controls are successful in reducing downwind particulate concentrations to within 150 ug/m³ of the upwind level and in preventing visible dust migration.
- All readings must be recorded and be available for State (NYSDEC and NYSDOH) and County Health personnel to review.

1.2 VOC MONITORING

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.

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

For this site, RAE Systems MultiRAE Lite Multi-gas Detectors will be used.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m³, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m³ or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under "Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures" except that in this instance "nearby/occupied structures" would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings, conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, the planned work will be implemented during hours (e.g., weekends or evenings) when building occupancy is at a minimum.

Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

- Reasonable fugitive dust suppression techniques must be employed during all site activities
- which may generate fugitive dust.
- Particulate monitoring must be employed during the handling of waste or contaminated soil or

- when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
- Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:
    - Objects to be measured: Dust, mists, or aerosols.
    - Measurement Ranges: 0.001 to 400 mg/m³ (1 to 400,000: ug/m³);
    - Precision (2-sigma) at constant temperature: +/- 10: g/m³ for one second averaging; and +/- 1.5 g/m³ for sixty second averaging.
    - Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3: m, g= 2.5, as aerosolized).
    - Resolution: 0.1% of reading or 1g/m³, whichever is larger.
    - Particle Size Range of Maximum Response: 0.1-10.
    - Total Number of Data Points in Memory: 10,000.
    - Logged Data: Each data point with average concentration, time/date, and data point number
    - Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number.
    - Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required
    - Operating Time: 48 hours (fully charged Ni-Cd battery); continuously with charger.
    - Operating Temperature: -10 to 50 °C (14 to 122 °F).
    - Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
- In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
- The action level will be established at 150 ug/m³ (15 minutes average). While conservative, Final DER-10 Page 208 of 226 Technical Guidance for Site Investigation and Remediation May 2010 this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m³, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m³ above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m³ continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.
- It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed

leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential-- such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

- The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:
    - Applying water on haul roads.
    - Wetting equipment and excavation faces.
    - Spraying water on buckets during excavation and dumping.
    - Hauling materials in properly tarped or watertight containers.
    - Restricting vehicle speeds to 10 mph.
    - Covering excavated areas and material after excavation activity ceases; and
    - Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m³ action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

- The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

Appendix E – SSDS Components and Vapor Barrier Specification Sheets

VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

RAVEN

PRODUCT DESCRIPTION

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon, and other harmful VOCs. Tested and verified for unsurpassed protection against BTEX, HS, TCE, PCE, methane, radon, other toxic chemicals and odors.

VaporBlock® Plus™ 20 multi-layer gas barrier is manufactured with the latest EVOH barrier technology to mitigate hazardous vapor intrusion from damaging indoor air quality, and the safety and health of building occupants. VBP20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001 Certified Management System.

PRODUCT USE

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

SIZE & PACKAGING

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.

Under-Slab Vapor/Gas Retarder

PRODUCT	PART #
VaporBlock® Plus™ 20	VBP20

APPLICATIONS

- Radon Barrier
- Methane Barrier
- VOC Barrier
- Brownfields Barrier
- Vapor Intrusion Barrier
- Under-Slab Vapor Retarder
- Foundation Wall Vapor Retarder

VaporBlock® Plus™
UNDERSLAB VAPOR RETARDER / GAS BARRIER

VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

PROPERTIES	TEST METHOD	VAPORBLOCK® PLUS™ 20 IMPERIAL	VAPORBLOCK® PLUS™ 20 METRIC
Appearance		White/Gold	
Thickness, Nominal		20 mil	0.51 mm
Weight		102 lbs/MSF	498 g/m^2
Classification	ASTM E 1745	CLASS A, B & C	
[3] Tensile Strength	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
Impact Resistance	ASTM D 1709	2600 g	
Permeance (new material)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft^2·hr·in·Hg)	0.0064 Perms g/(24hr·m^2·mm Hg)
Permeance (after conditioning) (same measurement as above permeance)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0052 0.0052 0.0064 0.0074
WVTR	ASTM E 96 Procedure B	0.0040 grains/hr-ft^2	0.0028 gm/hr-m^2
Benzene Permeance	See Note [6]	1.13 x 10^{-10} m^2/sec or 3.62 x 10^{-13} m/s	
Toluene Permeance	See Note [6]	1.57 x 10^{-10} m^2/sec or 1.46 x 10^{-13} m/s	
Ethylbenzene Permeance	See Note [6]	1.23 x 10^{-10} m^2/sec or 3.34 x 10^{-14} m/s	
M & P-Xylenes Permeance	See Note [6]	1.17 x 10^{-10} m^2/sec or 3.81 x 10^{-14} m/s	
O-Xylene Permeance	See Note [6]	1.10 x 10^{-10} m^2/sec or 3.43 x 10^{-14} m/s	
Hydrogen Sulfide	See Note [9]	1.92E^{-09} m/s	
Trichloroethylene (TCE)	See Note [6]	7.66 x 10^{-11} m^2/sec or 1.05 x 10^{-14} m/s	
Perchloroethylene (PCE)	See Note [6]	7.22 x 10^{-11} m^2/sec or 1.04 x 10^{-14} m/s	
Radon Diffusion Coeffiecient	K124/02/95	< 1.1 x 10^{-13} m^2/s	
Methane Permeance	ASTM D 1434	3.68E^{-12} m/s Gas Transmission Rate (GTR): 0.32 mL/m^2•day•atm	
Maximum Static Use Temperature		180° F	82° C
Minimum Static Use Temperature		- 70° F	- 57° C

[3] Tests are an average of machine and transverse directions.

[5] Raven Industries performs seam testing at 20" per minute.

[6] Aqueous Phase Film Permeance.
Permeation of Volatile Organic Compounds through EVOH Thin Film Membranes and Coextruded LLDPE/EVOH/LLDPE Geomembranes, McWatters and Rowe, Journal of Geotechnical and Geoenvironmental Engineering© ASCE/ September 2015. (Permeation is the Permeation Coefficient adjusted to actual film thickness - calculated at 1 kg/m^3.) The study used to determine PCE and TCE is titled: Evaluation of diffusion of PCE & TCE through high performance geomembranes by Di Battista and Rowe, Queens University 8 Feb 2018.

[9] The study used to determine diffusion coefficients is titled: Hydrogen Sulfide (H_2S) Transport through Simulated Interim Covers with Conventional and Co-Extruded Ethylene-Vinyl Alcohol (EVOH) Geomembranes.

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed.

Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located at www.ravenefd.com.

ASTM E-1643 also provides general installation information for vapor retarders.

VaporBlock® Plus™ UNDERSLAB VAPOR RETARDER / GAS BARRIER

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.

Scan QR Code to download current technical data sheets via the Raven website.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at www.RavenEFD.com

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www.ravenefd.com

RAVEN

RadonAway
The world's leading radon fan manufacturer

RP PRO SERIES

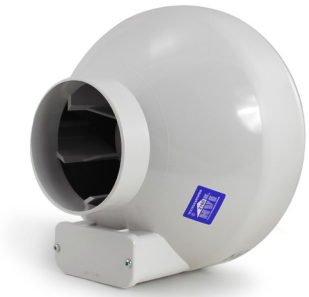
Installs white, stays white

Radon Mitigation Fan

All RadonAway® fans are specifically designed for radon mitigation. RP Series Fans provide superb performance, run ultra-quiet and are attractive. They are ideal for most sub-slab radon mitigation systems.

Features

- Eternalast™ polycarbonate plastic housing
- Energy efficient
- Ultra-quiet operation
- Meets all electrical code requirements
- Water-hardened motorized impeller
- Seams sealed to inhibit radon leakage (RP140 & RP145 double snap sealed)
- ETL Listed - for indoor or outdoor use
- Thermally protected motor
- Rated for commercial and residential use
- HVI certified fan performance



Model	A	B	C
RP140	4.5”	9.7”	8.5”
RP145	4.5”	9.7”	8.5”
RP260	6”	11.75”	8.6”
RP265	6”	11.75”	8.6”
RP380	8”	13.41”	10.53”

MODEL	P/N	FAN DUCT DIAMETER	WATTS	RECOM. MAX. OP. PRESSURE “WC	TYPICAL CFM vs. STATIC PRESSURE WC					
					0”	.2”	.5”	1.0”	1.5”	2.0”
RP140†	28460	4”	14-19	0.6	152	120*	64*	-	-	-
RP145	28461	4”	34-66	1.7	169	150*	124*	81*	42	4
RP260	28462	6”	47-65	1.3	251	210*	157	70	-	-
RP265	28463	6”	96-136	2.3	375	340*	282*	204*	140	70
RP380	28464	8”	96-138	2.0	531	490*	415*	268*	139	41

*HVI Certified Values. †Energy Star® Rated.

MADE IN USA

ETL Listed
Intertek

5 YEAR WARRANTY
All RadonAway® inline radon fans are covered by our 5-year, hassle-free warranty.

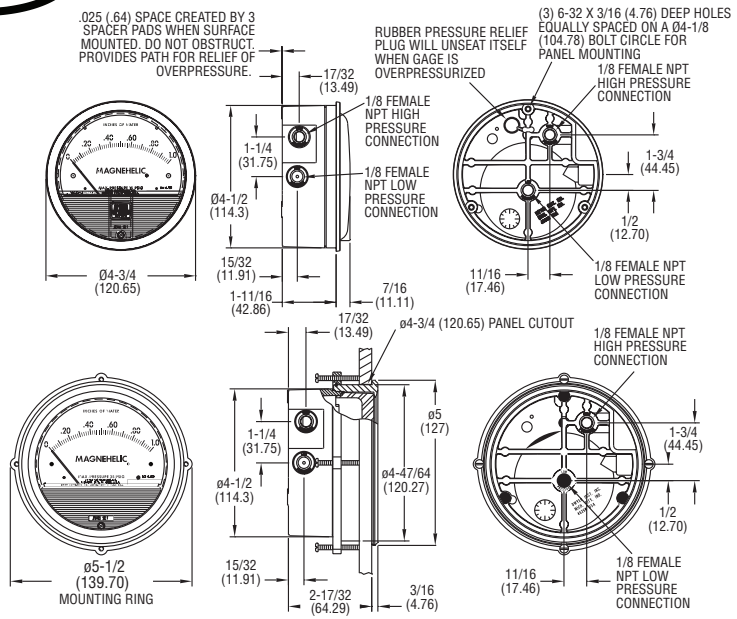
ENERGY STAR
RP140 Only

For Further Information, Contact Your Radon Professional:

Rev G 0322
P/N 02047

Bulletin A-27

Magnehelic® Differential Pressure Gage



**The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models, or on gages which require an elastomer other than silicone for the diaphragm.*

STANDARD GAGE ACCESSORIES: Two 1/8″ NPT plugs for duplicate pressure taps, two 1/8″ pipe thread to rubber tubing adapters and three flush mounting adapters with screws.

MP AND HP GAGE ACCESSORIES: Mounting ring and snap ring retainer substituted for 3 adaptors, 1/4" compression fittings replace 1/8" pipe thread to rubber tubing adaptors.

OVERPRESSURE PROTECTION: Standard Magnehelic® Differential Pressure Gages are rated for a maximum pressure of 15 psig and should not be used where that limit could be exceeded. Models employ a rubber plug on the rear which functions as a relief valve by unseating and venting the gage interior when over pressure reaches approximately 25 psig (excludes MP and HP models). To provide a free path for pressure relief, there are four spacer pads which maintain .023″ clearance when gage is surface mounted. Do not obstruct the gap created by these pads.

SPECIFICATIONS

Service: Air and non-combustible, compatible gases. (Natural Gas option available.)
Wetted Materials: Consult factory.
Housing: Die cast aluminum case and bezel, with acrylic cover. (MP model has polycarbonate cover).
Accuracy: ±2% of full scale (±3% on - 0, -100 Pa, -125 Pa, 10MM and ±4% on -00, - 00N, -60 Pa, -6MM ranges), throughout range at 70°F (21.1°C).
Pressure Limits: -20″ Hg to 15 psig.† (-0.677 bar to 1.034 bar); MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).
Overpressure: Relief plug opens at approximately 25 psig (1.72 bar), standard gages only. The blowout plug is not used on models above 180 inches of water pressure, medium or high pressure models, or on gages which require an elastomer other than silicone for the diaphragm.
Temperature Limits: 20 to 140°F (-6.67 to 60°C). *Low temperature models available as special option.
Size: 4″ (101.6 mm) diameter dial face.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.
Process Connections: 1/8″ female NPT duplicate high and low pressure taps - one pair side and one pair back.
Weight: 1 lb 2 oz (510 g), MP & HP 2 lb 2 oz (963 g).
Agency Approvals: RoHS.

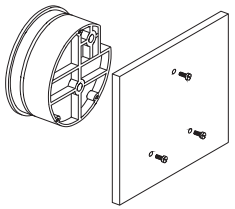
†For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See Medium and High pressure options.

Note: May be used with hydrogen when ordering Buna-N diaphragm. Pressure must be less than 35 psi.

INSTALLATION

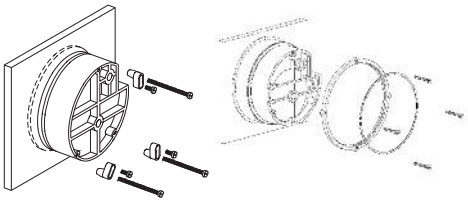
Select a location free from excessive vibration and where the ambient temperature will not exceed 140°F (60°C). Also, avoid direct sunlight which accelerates discoloration of the clear plastic cover. Sensing lines may be run any necessary distance. Long tubing lengths will not affect accuracy but will increase response time slightly. Do not restrict lines. If pulsating pressures or vibration cause excessive pointer oscillation, consult the factory for ways to provide additional damping.
All standard Magnehelic® Differential Pressure Gages are calibrated with the diaphragm vertical and should be used in that position for maximum accuracy. If gages are to be used in other than vertical position, this should be specified on the order. Many higher range gages will perform within tolerance in other positions with only rezeroing. Low range models of 0.5" w.c. plus 0.25" w.c. and metric equivalents must be used in the vertical position only.

SURFACE MOUNTING



Locate mounting holes, 120° apart on a 4-1/8" dia. circle. Use No. 6-32 machine screws of appropriate length.

FLUSH MOUNTING



Provide a 4-9/16" dia. (116 mm) opening in panel. Provide a 4-3/4" dia. (120 mm) opening for MP and HP models. Insert gage and secure in place with No. 6-32 machine screws of appropriate length, with adapters, firmly secured in place.

PIPE MOUNTING

To mount gage on 1-1/4" - 2" pipe, order optional A-610 pipe mounting kit.

TO ZERO GAGE AFTER INSTALLATION

Set the indicating pointer exactly on the zero mark, using the external zero adjust screw on the cover at the bottom. Note that the zero check or adjustment can only be made with the high and low pressure taps both open to atmosphere.

OPERATION

Positive Pressure: Connect tubing from source of pressure to either of the two high pressure ports. Plug the port not used. Vent one or both low pressure ports to atmosphere.
Negative Pressure: Connect tubing from source of vacuum or negative pressure to either of the two low pressure ports. Plug the port not used. Vent one or both high pressure ports to atmosphere.
Differential Pressure: Connect tubing from the greater of two pressure sources to either high pressure port and the lower to either low pressure port. Plug both unused ports.
When one side of the gage is vented in dirty, dusty atmosphere, we suggest an A-331 Filter Vent Plug be installed in the open port to keep inside of gage clean.

A. For portable use of temporary installation use 1/8" pipe thread to rubber tubing adapter and connect to source of pressure with flexible rubber or vinyl tubing.
B. For permanent installation, 1/4" O.D., or larger, copper or aluminum tubing is recommended.

MAINTENANCE

No lubrication or periodic servicing is required. Keep case exterior and cover clean. Occasionally disconnect pressure lines to vent both sides of gage to atmosphere and re-zero. Optional vent valves should be used in permanent installations. The Series 2000 is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.

WARNING

Attempted field repair may void your warranty. Recalibration or repair by the user is not recommended.

TROUBLE SHOOTING TIPS

Gage won't indicate or is sluggish.

1. Duplicate pressure port not plugged.
2. Diaphragm ruptured due to overpressure.
3. Fittings or sensing lines blocked, pinched, or leaking.
4. Cover loose or "O"ring damaged, missing.
5. Pressure sensor, (static tips, Pitot tube, etc.) improperly located.
6. Ambient temperature too low. For operation below 20°F (-7°C), order gage with low temperature, (LT) option.

DWYER INSTRUMENTS, INC.
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RadonAway
The world's leading radon fan manufacturer

AIR FLOW ALARM

RADON SYSTEM OPERATION MONITOR

RadonAway's battery-powered air flow alarm (P/N 28421) monitors radon system operation. It mounts directly onto the system pipe to alert users of a low or no air flow condition. A thin, field-trimmable vane installed within the pipe operates in air flow as low as 10 CFM in a 3" pipe and 15 CFM in a 4" pipe. An audible buzzer alternates with bright, flashing red LED light when there is no air flow in the pipe.

This monitor does not measure radon levels.

FEATURES

- Easy Installation (indoor use only)
- For use on 3" or 4" pipe
- Battery-Operated
- Visual Alarm (Red LED light)
- Audible Alarm
- Low Battery Warning

PACKAGE INCLUDES

- RadonAway Air Flow Alarm
- Battery
- Trimmable Vane
- Installation Instructions
- Alarm Information Sticker

SPECIFICATIONS

Actuation Point: 15 CFM (4″ Pipe) / 10 CFM (3″ Pipe) on decrease in flow

Audible Alarm: At least 85 dB @ 1' distance

Visual Alarms: Red LED for no flow alarm; Yellow LED for low battery

Wetted Materials: ABS, Polycarbonate, Rare Earth Magnet

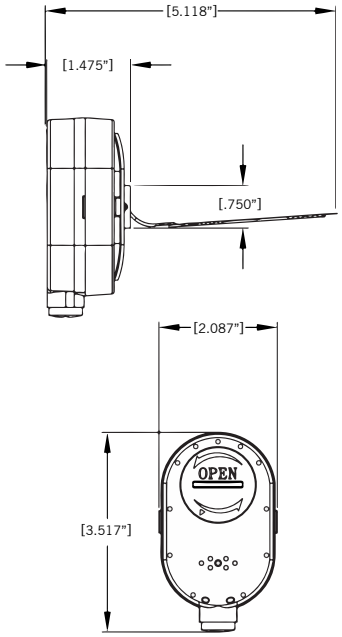
Power Requirements: Lithium battery (CR2450)

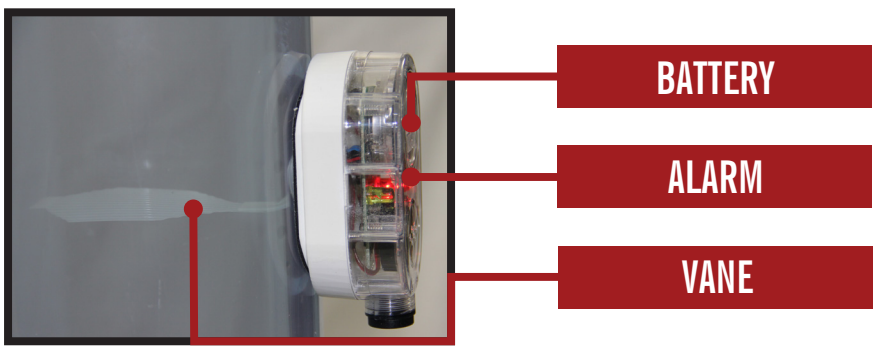
Battery Life: 5 years steady state / 48 hours during alarm condition

Temperature Limits: 32 to 122°F (0 to 50°C)

Application Limits: Corrosive environments

Weight: 4 oz (113.4 g)

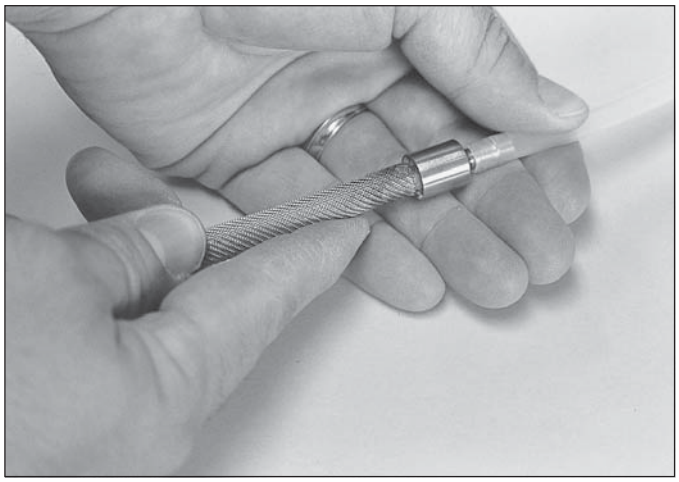




Implants Operation

from Geoprobe Systems®

www.geoprobe.com
1-800-436-7762



Attaching polyethylene tubing to the sampling implant.

Sampling Implants – Operation

Installation Instructions for Soil Gas Implants

1. Drive probe rods to the desired depth using a Point Holder (AT-13B) and an Implant Anchor/Drive Point (PR-14). DO NOT disengage the drive point when depth has been reached.

2. Attach appropriate tubing to the implant **(Figure 1)**. If tubing is pre-cut, allow it to be approximately 48 in. (1219 mm) longer than the required depth of the implant. Cover or plug the open end of the tubing.

3. Remove pull cap and lower the implant and tubing down inside the diameter of the probe rods until the implant hits the top of the Anchor/Drive Point. Note the length of the tubing to assure that proper depth has been reached.

4. Rotate tubing counterclockwise while exerting a gentle downward force to engage the PRT threads **(Figure 2)**. Pull up on the tubing lightly to test the connection. DO NOT cut excess tubing.

5. Position a Probe Rod Pull Plate or Manual Probe Rod Jack on the top probe rod. Exert downward pressure on the tubing while pulling the probe rods up. Pull up about 12 in. (305 mm).

6. If using 1/4-in. (6,4 mm) O.D. tubing or smaller, thread the excess tubing through the Implant Funnel and position it over the top probe rod. If using larger tubing, it may not be possible to install the glass beads.

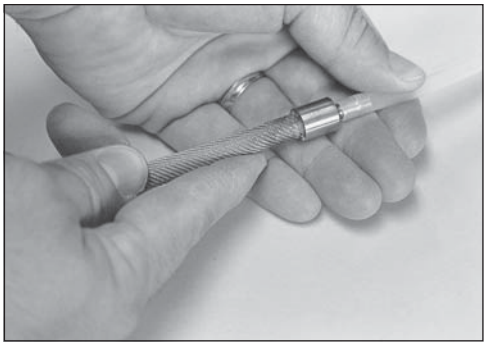


Figure 1. Attaching tubing to the sampling implant.

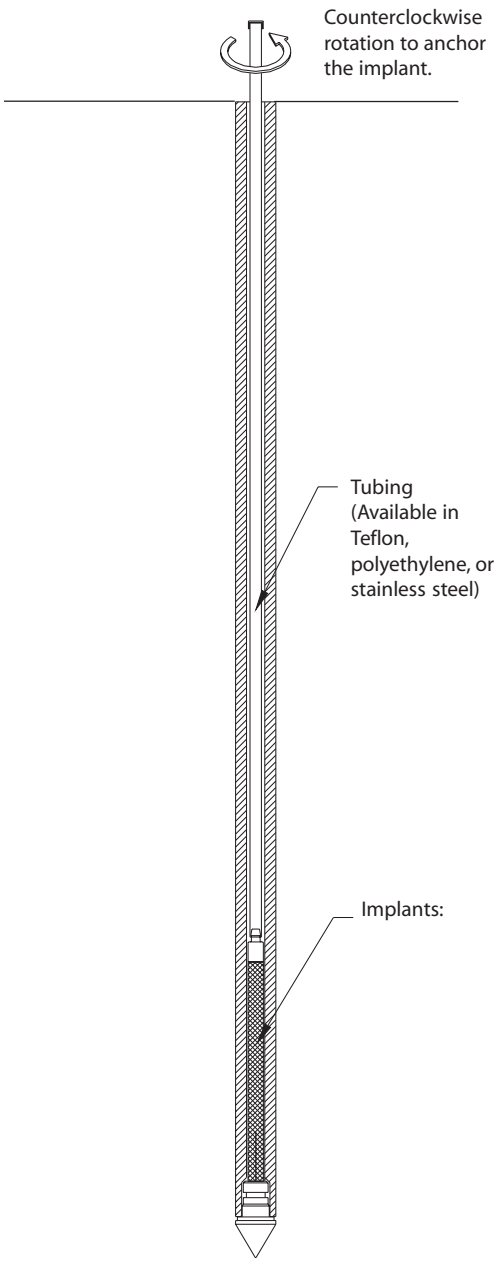


Figure 2. Once depth is achieved, the selected implant and tubing are inserted through the rods. The tubing is rotated to lock the implant into the drive point.

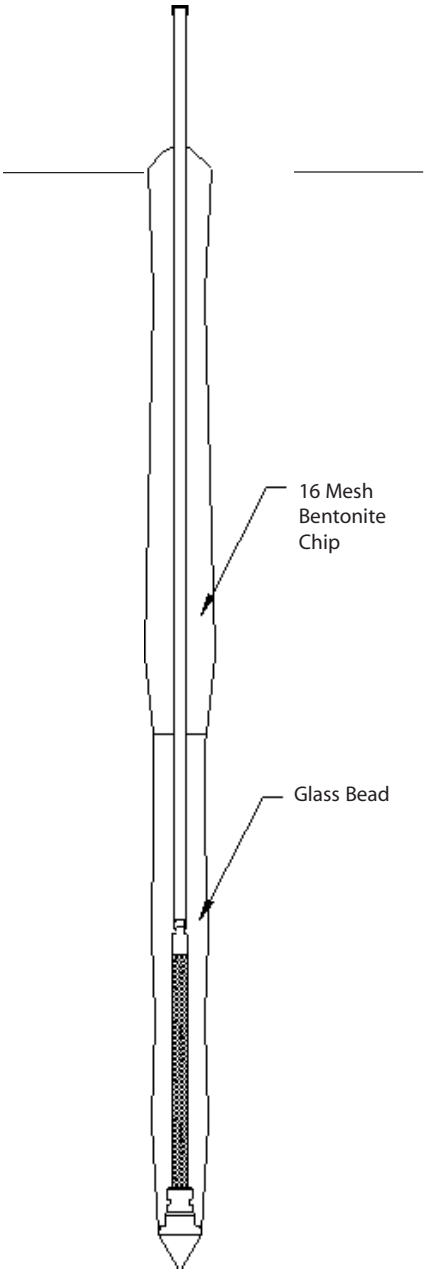


Figure 4. After the implant has been secured, the rods are removed and the annulus backfilled as appropriate.

7. Pour glass beads down the inside diameter of the probe rods around the outside of the tubing. Use the tubing to "stir" the glass beads into place around the implant. Do not lift up on tubing. It should take less than 150 mL of glass beads to fill the space around the implant.

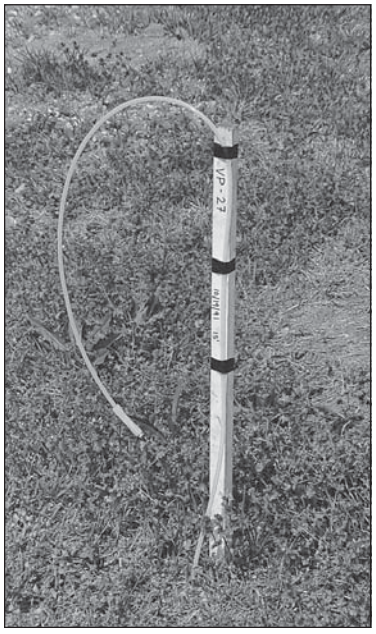
   NOTE: Backfilling through the rods with glass beads or glass beads/bentonite mixes can only be performed in the Vadose Zone, not below the water table.

8. Lift up an additional 18 to 24 in. (457 to 610 mm) and pour the bentonite seal mixture into place as in Step 7. The volume to be filled is about 154 mL per foot. It may be necessary to "chase" the seal mixture with distilled water to initiate the seal.

9. Pull the remaining rods out of the hole as in Step 5. Backfilling with sackcrete (cement/sand) or bentonite/sand may be done while removing the rods **(Figure 4)**. If the PR-14 Implant Anchor is used, the tubing may be cut flush with the top probe rod and a regular pull cap may be used to remove the remaining probe rods after Step 8.

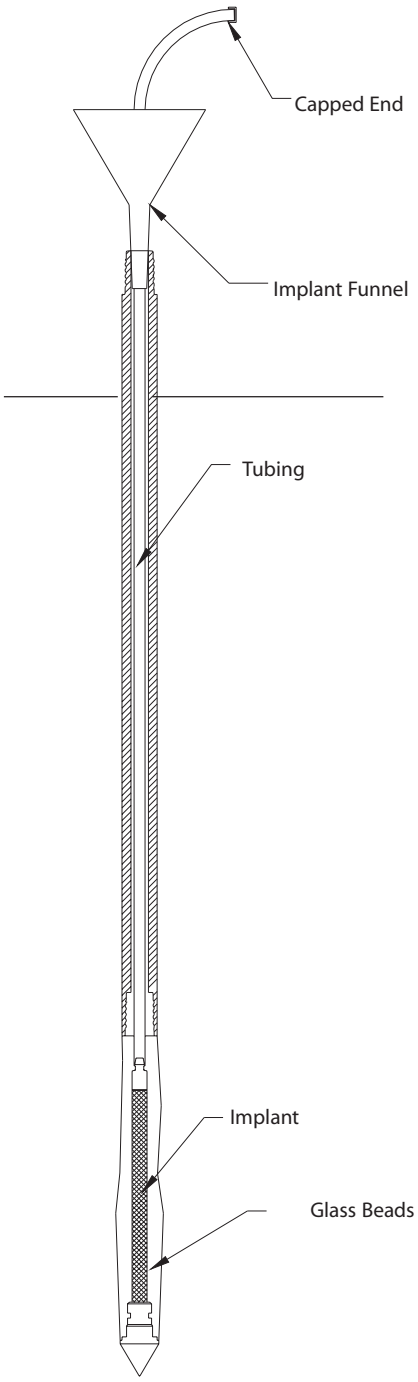
10. After the probe rods have been removed, cut the tubing at the surface, attach a connector or plug, and mark the location with a pin flag or stake. The point is ready for sampling now.

Figure 3. Glass Beads create a permeable layer around vapor sample implants.

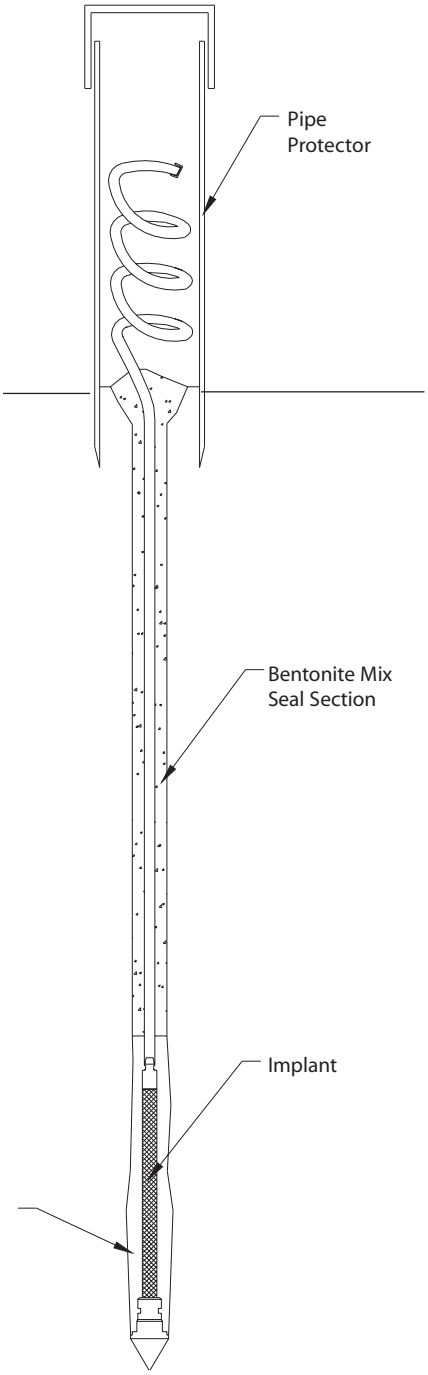


A vapor implant location.

Sampling Implants – Operation



Backfill materials include glass beads and bentonite sealants.



Example of completed permanent soil gas monitoring point.

Appendix F – Resumes for the Project Staff

Dhanraj D. Singh

251 Vincent Drive | East Meadow, NY 11554 | 347-728-0768 | dhanrajdsingh@gmail.com

Objective

To find a challenging career in an established organization so that I may grow professionally, while earning a good reputation amongst my peers.

PROFESSIONAL EXPERIENCE

DC Environmental Services, Inc. (*Brooklyn, NY*) **2004 – 2015**

- Managed the operations and productivity of the division of environmental remediation
- Performed and prepare Environmental Phase I and II (ESA) reports
- Planning, coordinating and implementation of environmental Phases I, II and III
- Preparation and review of Closure Reports for BCP/VCP/Rezoned development projects
- Preparation of Site-Specific Health and Safety Plans
- Preparation of Remedial/Corrective Action Plans
- Oversight/implementation of Site-Specific Health and Safety Plans with job oversight, toolbox meetings
- Environmental Site Assessments and Remediation Costing
- Direct communicational with clients, Case Managers of NYSDEC, NYCDEP & NYCOER
- Performed Geoprobe investigations and Ground Penetrating Radar survey
- Collection of soil, groundwater and soil gas samples; performed field-screening
- Collection of Asbestos sampling; prepare inspection reports based on findings

BSD Environmental Group (*Brooklyn, NY)* **2015 – 2018**

D.b.a. RSK Environmental Group (*Brooklyn, NY)* **2018 - present**

- Managed the operations and productivity
- Perform Environmental Phase I and II (ESA) reports
- Planning, coordinating and implementation of environmental Phases I, II and III
- Preparation and review of Closure Reports for BCP/VCP/Rezoned development projects
- Preparation of Site-Specific Health and Safety Plans
- Preparation of Remedial/Corrective Action Plans
- Oversight and implementation of Site-Specific Health and Safety Plans; job oversight, toolbox meetings
- Environmental Site Assessments and Remediation Costing
- Direct communicational with clients, Case Managers of NYSDEC, NYCDEP & NYCOER
- Performed Geoprobe investigations and Ground Penetrating Radar survey
- Collection of soil, groundwater and soil gas samples; performed field-screening
- Collection of Asbestos sampling; prepare inspection reports based on findings
- Perform Lead-based paint survey.

EDUCATION

NYC College of Technology (*Brooklyn, NY*) **2008**

St. Georges College & School of Business and Computer Science (*Trinidad, W.I.*) **1990 - 1999**

Certification and Training **2005 - 2022**

- 62 Hour SST Supervisor approved by New York City Department of Buildings
- 30 Hour OSHA Construction Safety and Health - 29 CFR 1926
- 40 Hour plus annual refresher - OSHA HAZWOPER 29 CFR 1910.120
- 8 Hour plus annual refresher - OSHA HAZWOPER Site Supervisor 29 CFR 1910.120(e)(4)
- NYSDOL Asbestos Inspector
- OSHA Confined Space Awareness - 29 CFR 1910.146
- 4-Hour Supported Scaffolding Safety - 29 CFR 1926.451
- Mold Inspection and Assessment
- Lead-based Paint Inspector EPA – TSCA Section 402/40 CFR Part 745.226
- EPA Lead Safe Certified Renovator
- NYSDEC Class A/B Operator – 6 NYCRR 613.25 & 6 NYCRR 598.12
- Mt. Vernon Fire Department – Supervise and/or install oil burner equipment
- Yonkers Fire Department – Tank Pump Installer Permit
- NCDOH Certificate of Fitness – Article 12, Section 1.9(j) Tank Installer/Remover

DRUMITA GABRIEL DMELLO

dgdmello389@gmail.com | +1(646)249-6129 | www.linkedin.com/in/drumita-dmello/

A proficient Environmental Consultant reflecting skillful individuality in solo and team projects, and dedication to a career with an ability to adapt to new situations and grasp new software/techniques. 3+ years of experience in the capacity of an Environmental Consultant within a dynamic workspace. Directly led several NYS & NYC projects assigned in Voluntary Cleanup Program (VCP) and Brownfield Cleanup Program (BCP) from the initial stage of Phase-I Site Assessment to the final stage (Phase-III) of Remedial Cleanup and reporting.

EDUCATION

University of New Haven, West Haven, CT — May 2020
Master of Science, Environmental Science — GPA: 3.73/4
Concentration: Geographical Information Systems (GIS)

St. Xavier's College, Ahmedabad, Gujarat — April 2017
Bachelor of Science, Chemistry — GPA: 7/10

WORK EXPERIENCE

RSK Environmental Group LLC: Environmental Consultant
October 2020 – Present

- Experience in preparation of Environmental Assessment Reports (Phase 1, 2, 3) in compliance with NYS & NYC Environmental Rules & Regulations (NYSDEC Part 375 and DER-10).
- Management of cost estimation, and budgeting during the initiation of a project along with efficient client organization and sub-contractor communication and oversight during field activities.
- Implementing project work plans and on-site health and safety monitoring during site activities.
- Reading engineering plans and creating remedial investigation and remedial action diagrams utilizing AutoCAD 2022.
- Organizing staff briefing, and safety procedure run-through prior to field activities.
- Oversight and handling of soil samples, collection of samples utilizing spoons/macro-core liners in lab-provided glassware; groundwater collection utilizing grab sample technique/low-flow pumps and air sample collection utilizing 2 and 8-hour flow controllers.
- Participation in NY state and city staff meetings, project planning, and conflict resolution.
- Planning and compiling technical reports (Phase-I Reports, Remedial Investigation work plans and reports (RIWP, RIR), Remedial Action Work plans and reports (RAWP, RAR), Site Characterization Report (SCR), Tank Closure Reports (TCR) and Spill Closure Reports for local clients, city, and state projects.

Walkspan, Inc.: GIS and Data Specialist
August 2020 – July 2021

- Collected and projected GIS data according to a particular coordinate system in ArcGIS Pro, QGIS and ArcGIS Map Products & Online for map-making and feasibility analysis.
- Analyzed the GIS data for Urban mapping of three (3) US cities, namely New York City, Seattle, and Phoenix.
- Designed ArcGIS Story Map for the city of Seattle to showcase the importance and reach of sidewalks.
- Designed web viewing applications utilizing ArcGIS Online to outline the overall idea of Walkability for New York City.

City of West Haven, Mayor's Office: Sustainability Intern
June 2019 – August 2019

- Achieved "Bronze" certification of sustainable town for West Haven awarded by Sustainable CT and worked with the municipal team to plan and analyze the city management and zoning documents.
- Created outlined professional GIS Web Maps for the City of West Haven as inventories for Open Spaces, Brownfield Sites, and Natural Resources using Web GIS and ArcGIS.
- Exercised remote work to gain knowledge about the city's demographics, Natural Diversity, present Environmental Protection Laws, and city placemaking projects and ideas.

ADDITIONAL

- **Technical Expertise**: Environmental Impact Site Assessments and reports, OSHA, USEPA RCRA, CERCLA, NYSDEC Rules and Regulation, NYC Rules and Regulations, Environmental Pollution Dynamics, Toxicology, and Chemistry.
- **Certification**: Associate Project Management, 8-hour OSHA HAZWOPER Refresher (Ongoing), 8-hour OSHA Supervisor Initial.

Karen G. Tyll, P.E.

President

Fields of Competence

Ms. Tyll applies her knowledge of civil and environmental engineering to remediation design, stormwater management, forensic investigations, environmental compliance, and environmental permitting/complaince. Ms. Tyll's background is an interesting mix of remedial design, site grading, drainage and utility design, environmental investigations, forensic engineering, and permitting/ regulatory compliance.

Experience Summary

Twenty five years of experience: President with Tyll Engineering and Consulting PC, Senior Engineer with J.R. Holzmacher, PE LLC, Senior Engineer with Roux Associates, Inc./Remedial Engineering, P.C.; Senior and Project Engineer at P.W. Grosser Consulting; Project Engineer at Vollmuth & Brush; Project Engineer at Anderson & Associates.

Credentials

B.S.C.E., Civil Engineering with Environmental Option, Virginia Tech
Professional Engineer: New York (079520), North Carolina (044315), Florida (81892)
OSHA Health & Safety 40 Hour Training and 8 hour annual refresher.
NYC OER Turbo Training Gold/Bronze Certification
NYC OER Brownfield Incentive Grant Qualified Vendor

Professional Affiliations

American Society of Civil Engineers
National Society of Professional Engineers
Society of Women Engineers, Section Treasurer 1999-2002
Society of Women Engineers, Section President, 2002-2005
Engineers Joint Committee of Long Island, Rube Goldberg Contest Chair

Key Projects

Remediation:

- Providing professional engineering services to assist other environmental consulting firms' clients and directly to land owners to fulfill needs for PE involvement with NYSDEC, NYCOER, and NYCDEP driven projects.
- Completed inspection of Vapor Barrier system (VBS) design and inspection of the installation and Sub-slab Depressurization System (SSDS) design and inspection. Train and troubleshoot the installation of VBS with Contractors.
- Completed outdoor, ambient, and sub-slab air sampling for office building with passive SSDS in Melville, NY. Completed design to turn passive system to active system, completed necessary reports, and supported consent order issues.
- Project Manager to complete investigation and remediation at historic aircraft part facility in New Jersey. Oversaw staff that completed multiple, large sampling events, test pits, and reporting to the NJDEP.
- Project Manager on multiple remediation sites requiring investigations, tank removals, remedial action activities, compliance reporting, and monitoring.

Stormwater Experience:

- Senior Engineer to design stormwater collection structures during design upgrades to 10 acres of an existing storm drain system at a former fuel terminal in Buffalo, New York. Responsible for laying out system, selecting sizes based upon angles and minimum distances between pipes.
- Senior Engineer to design an alternative Part 360 cap for an industrial landfill near Albany, New York. The cap incorporated lined swales and ponds, trees planted for phytoremediation purposes. An education center was also designed for the Site and was responsible for designing a cistern system that would capture both rainwater and treated effluent from a groundwater treatment system.
- Project Engineer to complete a computer hydraulic model and evaluation of a stormwater collection system at a national laboratory facility in Upton, NY. The storm drain study included multiple modeling and design scenarios to evaluate flood reduction. Potential solutions included the installation of additional dry wells and the removal of paved parking areas to increase infiltration.
- Senior Engineer to design a second overflow weir which would help to regulate the height of water in a stormwater wetland, to provide an additional outfall to prevent flooding, and to revegetate a wetlands area in the receiving creek. This project involved the evaluation of the 12 square mile watershed area that contributed to the stormwater wetland, the design of the weir structure, apron, and spillway to route the water between two bridge abutments, and the

analysis to determine the height of water over each of the weirs during various storm events.

- Senior Engineer to complete multiple smaller investigations regarding stormwater management at residential, commercial, and industrial facilities.
- Senior Engineer to complete multiple Stormwater Pollution Prevention Plans (SWPPP) and their required inspections. Completed multiple State Pollution Discharge Elimination System (SPDES) permit packages for new systems and modifications.

Forensic Engineering/Expert Witness:

- Engineer to complete over two hundred post-storm forensic investigations from 2011 to the present to assist insurance companies in assigning coverage to Insureds. Responsible for determining cause and origin of damage and wind vs. water determinations in flooding situations.
- Engineer to complete multiple residential and commercial forensic investigations not related to storms. Claim matters included stormwater drainage from off-site sources causing flooding, wood floor damage, pipe breaks, and pool failure (both gunite and vinyl lined).
- Have been involved with multiple cases as expert witness where the subject of the claims are SuperStorm Sandy, environmental contamination, or personal injury related.

Permitting/Compliance:

- Project Manager for providing engineering and environmental services to four machining facilities that specialize in the manufacturing of parts for aircraft. Responsible for completing Suffolk County Department of Health Services toxic and hazardous waste storage permits, assisting with RCRA Hazardous Material storage issues and reporting, preparing and participating in SCDHS variance hearing, strategizing with client to come up with best solutions for the facility permits, completing Emergency Action Plan and SPCC Plans, providing training for employees as required by the SPCC Plan, revising the SPCC plans when required due to facility changes or ownership changes, assisting in with follow up tasks from in house third party audits, and assisting facility environmental personnel with day-to-day issues.
- Interim Environmental Health and Safety (EHS) Officer for large laboratory/R&D facility undergoing large construction project. Acted as EHS Officer by being onsite two days a week and being available by phone and email, when not on-site. Was responsible for maintaining compliance with local, state and federal compliance and reporting requirements, reviewing chemicals, attending construction meetings, completing Stormwater Pollution Prevention Plan (SWPPP) inspections, completing a State Pollution Discharge Elimination System (SPDES) modification, participating in an ISO 14001 audit, interfaced with laboratory and facility personnel to complete internal projects, completed bi-weekly construction safety inspections, and provided facility with strategy regarding compliance needs for both long term and short term. Completed SPCC Plan revisions and training for facility.
- Senior Engineer to complete the facility's air facility registration form and accompanying data for their Hauppauge, NY location. Responsibilities included completing a site visit, preparing a spreadsheet to compute the facility emissions, preparing a site plan of the facility including the emissions points, interfacing with the client, facility contact, and regulator.
- Senior Engineer to complete state facility permit modification for bulk fuel supplier in Westchester, NY. Responsibilities included devising methodology for determining VOC emissions previously used in permit due to former gasoline operations, preparing complex spreadsheet for multiple alternatives, reviewing the current permit to verify that all current conditions are beneficial to the Client, provided professional engineering requirements for the submittal, coordinating with NYSDEC case manager and prepare responses to comments from NYSDEC.
- Environmental Compliance Audit team member for numerous healthcare facilities in New York. Coordinated with the facilities' environmental staff to develop audit scope of work and reporting format. Assessed facilities' compliance with federal, state and local regulations including CAA, CWA, EPCRA, RCRA, SARA Title III, and TSCA. A specialized software tool, Dakota Auditor, was utilized to help complete the audits and to stay abreast of the changing regulations.
- Project Manager for the completion of the Emergency Planning and Community Right-to-Know Act's (EPCRA) Toxic Release Inventory (TRI) reporting for nine, airport-based, aviation-

fueling facilities as required by the USEPA for the reporting years 1998 - 2001. The project included the identification and quantification of chemical and petroleum usage at each facility, a review of the facility's MSDS sheets, and the determination of the threshold levels of each of the EPCRA Section 313-listed chemicals found in the fuel. Tank and fugitive emissions were calculated using the tank and fueling system information supplied by the client. Stormwater discharge quantities were calculated and reported using analytical data. The resulting information was compiled, and the necessary forms were completed.

- Project Manager to complete SPCC Plan for individual Manhasset hospital in major healthcare system on Long Island. Completed original SPCC plan in 2006 and then was asked to complete revision in 2018.
- Project Engineer to complete a Facility Response Plan (FRP) to be submitted and approved by the USEPA for an aviation fueling facility in San Juan, Puerto Rico. The FRP preparation included a site visit to collect site data, review of the applicable regulations, and preparation of site, evacuation, and drainage drawings.
- Senior Engineer to complete the joint permit application and associated documents for a maintenance dredging project in a small incorporated village on the north fork of Long Island. Tasks included digitally determining dredging volumes, preparing sediment sampling plan, preparing site drawings, preparation of application and associated documents, and coordination with agencies, Owners, and contractors.

Project Management

- Project Manager for a comprehensive audit program for an airport services company with locations in the United States and Canada. The audits covered environmental, health and safety aspects of the operations (fueling, maintenance, food services). Responsibilities included interfacing with the client and attorneys, devising an audit report template, coordinating team deployments, review audit findings and audit reports, and supported follow up work to resolve findings.
- Senior Engineer to oversee installation of a sub-slab depressurization system on a former manufacturing facility in Hicksville, New York. Responsible for overseeing the survey completed before the initial indoor, outdoor and sub-slab testing.
- Project Manager for the design and construction management of a new filtration system for the jet fuel to be stored at the bulk fuel storage facility at a NYC airport. The project included preparation of detailed design drawings and specifications, which included piping schematics, system layout plans, concrete design, and system details in accordance with NYC building code and the Port Authority of New York and New Jersey's requirements.

Design Experience:

- Senior Engineer responsible for the design of retention pond to be constructed inside former industrial lagoons to store stormwater from the former industrial facility near Albany, New York. The project included the optimization of the design (varying shape, slopes, and depths) to provide the necessary volume of storage for a 25 year 24 hour storm, overseeing the preparation of the specifications, coordinating with the landscape architects, and completing volume calculations to determine the different quantities of soil needed for the bid documents.
- Senior Engineer for the design of stormwater and sanitary sewers at and around a former fuel terminal in Brooklyn, New York. Responsible for laying out the existing utilities confirming their locations using over a hundred paper maps and laying out the proposed piping as per New York City Department of Environmental Protection
- Project Engineer responsible for completing the site and utility design for the first phase of athletic fields, the associated parking lots, and access road for a private school being built on the East End of Long Island. The project included the coordination with the architects, contractors, the owner's representatives, and local governmental agencies. Responsibilities also included the design and planning of the associated traffic controls, water supply, drainage, and sanitary systems.

Appendix G – Resume for the DUSR Validator

Nancy Weaver

Education

B.S., Chemistry, University of Colorado, Denver, Colorado

Certifications and Training

State of New York Department of Environmental Conservation certified Asbestos Inspector

40-Hour OSHA Hazardous Waste Training

8-Hour Health and Safety Supervisor Training for Hazardous Waste Operations

Relevant Experience

- More than 20 years combined laboratory, data validation and project management experience
- Experienced in writing Quality Assurance Project Plans (QAPPs), managing subcontracted analytical laboratories, performing laboratory audits, and analyzing samples in a laboratory.

Experience Overview

Ms. Weaver has over twenty years combined laboratory, data validation and project management experience. She is the President and co-founder of EDS and is responsible for the technical data review and validation of laboratory data. Ms. Weaver has performed data validation on thousands of data validation projects. She has extensive knowledge in applying the various regional and project specific data validation guidelines and QAPPs. Her experience also includes writing Quality Assurance Project Plans (QAPPs), managing subcontracted analytical laboratories, performing laboratory audits, participating in field sampling activities and analyzing samples in a laboratory.

Relevant Project Experience

Principal/Senior Chemist, Environmental Data Services, Inc., Williamsburg, Virginia, August 1994 - Present. As the Principal Chemist at Environmental Data Services, Inc., Ms. Weaver has provided Level IV data review on more than 6000 Sample Delivery Groups (SDGs) generated through site investigations and/or remediations. These SDGs have included every analytical fraction possible including VOC, SVOC, pesticides, PCBs, herbicides, DRO, GRO, dioxin/furans, PCB congeners, metals, wet chemistry and radiological parameters. Sample matrices include water, soil, sediment, wipe, concrete and air. The SDGs have included CLP data packages produced under the CLP SOWs and CLP-like data packages with samples analyzed under SW-864 methodologies. Sample quantities validated may reach upwards of 120,000 per fraction over the past 20 years. Ms. Weaver has been using the USEPA National Functional Data Validation Guidelines since 1993 and has provided Level IV (full) and Level III (cursory) validation. Specifically validated PCB congeners by EPA Method 1668 and dioxin/furans by EPA Method 1613 using the USEPA National Functional Guidelines, USEPA Region I and USEPA Region III data validation guidelines. Validated radiological parameters analyzed by alpha and gamma spectrometry using the USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance.

Chemist-Analyst Specialist, City & County of Denver, Denver, Colorado, June 1992 - August 1994. As a Chemist-Analyst Specialist for the City and County of Denver, Ms. Weaver supervised performance and compliance sampling for O & M requirements at groundwater treatment facility. She provided assessment of analytical data for quarterly reports to local regulatory agencies. She also acted as liaison between the technical group and laboratory to coordinate sampling events and resolve problems with analyses. While in this capacity, she performed data validation for organic, inorganic and radiological analyses. Ms. Weaver reviewed over 2000 VOC, SVOC, pesticide, PCB, TPH, metals and wet chemistry samples. Ms. Weaver managed the database for groundwater and treatment plant sampling events and performed environmental site assessments for commercial and residential properties. She provided technical review and recommendations of Phase I and Phase II site investigations performed by outside consultants. She also analyzed policy and interpreted city, state and federal environmental regulations.

Data Validation Specialist, C.C. Johnson & Malhotra, Lakewood, Colorado, January 1990 to June 1992. While a Data Validation Specialist at C.C. Johnson & Malhorta, Ms. Weaver performed data validation and interpretation of organic analytical data generated from the EPA Contract Laboratory Program (CLP). Data analysis included VOC,

SVOC, pesticides, PCBs, metals and wet chemistry. Ms. Weaver reviewed more than 600 SDGs and 9000 samples. She interpreted gas chromatograms, gas chromatography/mass spectral data and verified mathematical calculations.

Environmental Chemist, The Anschutz Corporation - SP Environmental Systems, Inc., Denver, Colorado, July 1990 to January 1992. As an Environmental Chemist for The Anschutz Corporation - SP Environmental Systems, Inc., Ms. Weaver assisted in the management of site investigations and remediation for Southern Pacific Transportation Company properties. In this capacity, she performed environmental audits and site assessments and conducted site investigations at potential Superfund sites with state and federal agencies. She researched and prepared responses to regulatory agencies for non-compliant sites and defined the needs for hazardous waste disposal including the analysis required and disposal. Ms. Weaver also supervised the removal of underground storage tanks and remediation. She prepared closure reports for UST removals, as well as annual waste summary forms for TSD facilities throughout the state of Texas. She also constructed, developed, and sampled groundwater monitoring wells.

Environmental Specialist, Martin Marietta Astronautics Group, Denver, Colorado, January 1988 to January 1990. While with Martin Marietta Astronautics Group as an Environmental Specialist, Ms. Weaver performed organic analysis and sampling of wastewater, groundwater, and drinking water in support of NPDES permit. She operated and maintained laboratory instrumentation including GC and GC/MS for volatile, semi-volatile, and pesticide/PCB analysis. Ms. Weaver also coordinated sample collection and preparation activities, developed and authored standard operating procedures for laboratory analysis, and followed EPA protocol for QA/QC requirements for analysis. She calculated and interpreted data and reported results.

Environmental Chemist, Camp, Dresser, & McKee, Boston, Massachusetts, April 1986 to October 1987. As an Environmental Chemist with Camp, Dresser, & McKee, Ms. Weaver analyzed water/wastewater for organic compounds. She operated and maintained laboratory instrumentation including GC and infrared spectrophotometer for volatile, pesticide/PCB, and petroleum hydrocarbon analysis. She also calculated and interpreted data and reported results. Ms. Weaver analyzed more than 2000 samples.

Employment History

Environmental Data Services, Inc.	Principal/Senior Chemist	1994–Present
City & County of Denver	Chemist-Analyst Specialist	1992–1994
C.C. Johnson & Malhorta	Contractor/Data Validation Specialist	1990–1992
The Anschutz Corporation - SP Environmental Systems, Inc.	Environmental Chemist	1990–1992
Martin Marietta Astronautics Group	Environmental Specialist	1988–1990
Camp, Dresser, & McKee	Environmental Chemist	1986–1987

Appendix H – PEL and YAL Certifications

Phoenix Environmental
Laboratories
NYS Certifications

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2024
Issued April 01, 2022
Revised March 30, 2023

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. PHYLLIS SHILLER
PHOENIX ENVIRONMENTAL LABS
587 EAST MIDDLE TURNPIKE
MANCHESTER, CT 06040

NY Lab Id No: 11301

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Bacteriology

Coliform, Total / E. coli (Qualitative)	SM 21, 23 9222A,B,C
	SM 20, 21-23 9223B (-04) (Colilert)
E. coli (Enumeration)	SM 21, 23 9222A,B,C
	SM 20, 21-23 9223B (-04) (Colilert)
Enterococci	SM 23 9230D (Enterolert)
Heterotrophic Plate Count	SM 20, 21-23 9215B (-04)

Chlorinated Acids

2,4,5-TP (Silvex)	EPA 515.3
2,4-D	EPA 515.3
Dalapon	EPA 515.3
Dicamba	EPA 515.3
Dinoseb	EPA 515.3
Pentachlorophenol	EPA 515.3
Picloram	EPA 515.3

Disinfection By-products

Bromochloroacetic acid	EPA 552.2
Dibromoacetic acid	EPA 552.2
Dichloroacetic acid	EPA 552.2
Monobromoacetic acid	EPA 552.2
Monochloroacetic acid	EPA 552.2
Trichloroacetic acid	EPA 552.2

Fuel Additives

Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2

Metals I

Arsenic, Total	SM 19, 21-23 3113B (-04,-10)

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Metals I

Arsenic, Total	EPA 200.9 Rev. 2.2
	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.5
	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.5
	SM 19, 21-23 3113B (-04,-10)
	EPA 200.9 Rev. 2.2
	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	SM 19, 21-23 3113B (-04,-10)
	EPA 200.9 Rev. 2.2
	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

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Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Antimony, Total	SM 19, 21-23 3113B (-04,-10)
	EPA 200.9 Rev. 2.2
	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	SM 19, 21-23 3113B (-04,-10)
	EPA 200.9 Rev. 2.2
	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Metals III

Boron, Total	EPA 200.7 Rev. 4.4
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4
Uranium (Mass)	EPA 200.8 Rev. 5.4

Methylcarbamate Pesticides

3-Hydroxy Carbofuran	EPA 531.2
Aldicarb	EPA 531.2

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Methylcarbamate Pesticides

Aldicarb Sulfone	EPA 531.2
Aldicarb Sulfoxide	EPA 531.2
Carbaryl	EPA 531.2
Carbofuran	EPA 531.2
Methomyl	EPA 531.2
Oxamyl	EPA 531.2

Microextractables

1,2,3-Trichloropropane, Low Level	EPA 504.1
1,2-Dibromo-3-chloropropane, Low Le	EPA 504.1
1,2-Dibromoethane, Low Level	EPA 504.1

Miscellaneous

1,4-Dioxane	EPA 522
Benzo(a)pyrene	EPA 525.3
Bis(2-ethylhexyl) phthalate	EPA 525.3
Di (2-ethylhexyl) adipate	EPA 525.3
Diquat	EPA 549.2
Glyphosate	EPA 547
Hexachlorobenzene	EPA 525.3
Hexachlorocyclopentadiene	EPA 525.3
Odor	SM 21-23 2150 B (-97)
Organic Carbon, Dissolved	SM 21-23 5310B (-00)
Organic Carbon, Total	SM 21-23 5310B (-00)
Surfactant (MBAS)	SM 21-23 5540C (-00)
Turbidity	SM 21-23 2130 B (-01)
UV 254	SM 21-23 5910B (-00,-11)

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Non-Metals

Alkalinity	SM 21-23 2320B (-97)
Calcium Hardness	EPA 200.7 Rev. 4.4
	SM 18-22 2340B (-97)
Chloride	EPA 300.0 Rev. 2.1
	SM 21-22 4500-Cl- E (-97)
Color	SM 21-23 2120B (-01)
Cyanide	EPA 335.4 Rev. 1.0
Fluoride, Total	EPA 300.0 Rev. 2.1
	SM 21-23 4500-F C (-97)
Nitrate (as N)	EPA 353.2 Rev. 2.0
	EPA 300.0 Rev. 2.1
Nitrite (as N)	EPA 353.2 Rev. 2.0
	EPA 300.0 Rev. 2.1
Orthophosphate (as P)	SM 19, 21-23 4500-P F (-99)
	SM 19, 21-23 4500-P E (-99)
Solids, Total Dissolved	SM 21-23 2540C (-97)
Specific Conductance	SM 21-23 2510B (-97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
	SM 19, 21-23 4500-SO4 D (-97)

Organohalide Pesticides

Alachlor	EPA 525.3
Aldrin	EPA 525.3
Atrazine	EPA 525.3
Butachlor	EPA 525.3
Chlordane Total	EPA 525.3
Dieldrin	EPA 525.3
Endrin	EPA 525.3

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Organohalide Pesticides

Heptachlor	EPA 525.3
Heptachlor epoxide	EPA 525.3
Lindane	EPA 525.3
Methoxychlor	EPA 525.3
Metolachlor	EPA 525.3
Metribuzin	EPA 525.3
Propachlor	EPA 525.3
Simazine	EPA 525.3
Toxaphene	EPA 525.3

Polychlorinated Biphenyls

PCB Screen	EPA 508

Trihalomethanes

Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2

Volatile Aromatics

1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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MS. PHYLLIS SHILLER
PHOENIX ENVIRONMENTAL LABS
587 EAST MIDDLE TURNPIKE
MANCHESTER, CT 06040

NY Lab Id No: 11301

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Volatile Aromatics

4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2

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Volatile Halocarbons

2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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Acrylates

Acrolein (Propenal)	EPA 8260D
	EPA 8260C
	EPA 624.1
Acrylonitrile	EPA 8260D
	EPA 8260C
	EPA 624.1

Amines

1,2-Diphenylhydrazine	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Nitroaniline	EPA 8270D
	EPA 8270E
3-Nitroaniline	EPA 8270D
	EPA 8270E
4-Chloroaniline	EPA 8270D
	EPA 8270E
4-Nitroaniline	EPA 8270D
	EPA 8270E
Aniline	EPA 625.1
	EPA 8270D
	EPA 8270E
Carbazole	EPA 625.1
	EPA 8270D
	EPA 8270E
Pyridine	EPA 625.1
	EPA 8270D
	EPA 8270E

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Bacteriology

Coliform, Fecal	SM 9222D-2015
	Colilert-18
Coliform, Total	SM 9222B-2015
E. coli (Enumeration)	m-Coliblue24
	Colilert-24
	SM 9223B-2016
	Colilert-18
Enterococci	SM 9230D-2013 (Enterolert)
Heterotrophic Plate Count	SM 18-21 9215B

Benzidines

3,3'-Dichlorobenzidine	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzidine	EPA 625.1
	EPA 8270D
	EPA 8270E

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081B
	EPA 608.3
4,4'-DDE	EPA 8081B
	EPA 608.3
4,4'-DDT	EPA 8081B
	EPA 608.3
Aldrin	EPA 8081B
	EPA 608.3
alpha-BHC	EPA 8081B

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Chlorinated Hydrocarbon Pesticides

alpha-BHC	EPA 608.3
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 8081B
	EPA 608.3
Chlordane Total	EPA 8081B
	EPA 608.3
delta-BHC	EPA 8081B
	EPA 608.3
Dieldrin	EPA 8081B
	EPA 608.3
Endosulfan I	EPA 8081B
	EPA 608.3
Endosulfan II	EPA 8081B
	EPA 608.3
Endosulfan sulfate	EPA 8081B
	EPA 608.3
Endrin	EPA 8081B
	EPA 608.3
Endrin aldehyde	EPA 8081B
	EPA 608.3
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
	EPA 608.3
Heptachlor epoxide	EPA 8081B
	EPA 608.3
Lindane	EPA 8081B

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Chlorinated Hydrocarbon Pesticides

Lindane	EPA 608.3
Methoxychlor	EPA 8081B
	EPA 608.3
PCNB	EPA 8270D
	EPA 8270E
Toxaphene	EPA 8081B
	EPA 608.3

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260D
	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
	EPA 8270E
1,2,4-Trichlorobenzene	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Chloronaphthalene	EPA 625.1
	EPA 8270D
	EPA 8270E
Hexachlorobenzene	EPA 8081B
	EPA 625.1
	EPA 8270D
	EPA 8270E
Hexachlorobutadiene	EPA 625.1
	EPA 8270D
	EPA 8270E
Hexachlorocyclopentadiene	EPA 625.1
	EPA 8270D

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Chlorinated Hydrocarbons	
Hexachlorocyclopentadiene	EPA 8270E
Hexachloroethane	EPA 625.1
	EPA 8270D
	EPA 8270E
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
2,4-DB	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
Pentachlorophenol	EPA 8151A
Demand	
Biochemical Oxygen Demand	SM 5210B-2016
Carbonaceous BOD	SM 5210B-2016
Chemical Oxygen Demand	SM 5220D-2011
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260D
	EPA 8260C
Ethanol	EPA 8260D
	EPA 8260C
	EPA 8015D
Methyl tert-butyl ether	EPA 8260D
	EPA 8260C

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Fuel Oxygenates

Methyl tert-butyl ether	EPA 624.1
tert-amyl alcohol	EPA 8260D
	EPA 8260C
tert-amyl methyl ether (TAME)	EPA 8260D
	EPA 8260C
tert-butyl alcohol	EPA 8260D
	EPA 8260C
tert-butyl ethyl ether (ETBE)	EPA 8260D
	EPA 8260C

Haloethers

2,2'-Oxybis(1-chloropropane)	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Bromophenylphenyl ether	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Chlorophenylphenyl ether	EPA 625.1
	EPA 8270D
	EPA 8270E
Bis(2-chloroethoxy)methane	EPA 625.1
	EPA 8270D
	EPA 8270E
Bis(2-chloroethyl)ether	EPA 625.1
	EPA 8270D
	EPA 8270E

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Low Level Halocarbons

1,2,3-Trichloropropane, Low Level	EPA 8011
1,2-Dibromo-3-chloropropane, Low Le	EPA 8011
1,2-Dibromoethane, Low Level	EPA 8011

Low Level Polynuclear Aromatics

Acenaphthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Acenaphthylene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Anthracene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(a)anthracene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(a)pyrene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(b)fluoranthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(k)fluoranthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Chrysene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Fluoranthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Fluorene Low Level	EPA 8270D SIM

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Low Level Polynuclear Aromatics

Fluorene Low Level	EPA 8270E SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Naphthalene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Phenanthrene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Pyrene Low Level	EPA 8270D SIM
	EPA 8270E SIM

Metals I

Barium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Cadmium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.8, Rev. 5.4 (1994)
Calcium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

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Metals I

Chromium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Copper, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Iron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Lead, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.8, Rev. 5.4 (1994)
Magnesium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

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Metals I

Manganese, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Nickel, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Potassium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Silver, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.8, Rev. 5.4 (1994)
Sodium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

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Metals I

Strontium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 200.8, Rev. 5.4 (1994)

Metals II

Aluminum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Antimony, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.8, Rev. 5.4 (1994)
Arsenic, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.8, Rev. 5.4 (1994)
Beryllium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

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Metals II

Beryllium, Total	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Chromium VI	EPA 7196A
	SM 3500-Cr B-2011
Mercury, Total	EPA 245.1, Rev. 3.0 (1994)
	EPA 7470A
Selenium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.8, Rev. 5.4 (1994)
Vanadium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Zinc, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

Metals III

Cobalt, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

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Metals III

Cobalt, Total	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Gold, Total	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Molybdenum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Thallium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 7010
	SM 3113B-2010
	EPA 200.9 Rev. 2.2 (1994)
	EPA 200.8, Rev. 5.4 (1994)
Tin, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Titanium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)

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Issued April 01, 2022
Revised March 30, 2023

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. PHYLLIS SHILLER
PHOENIX ENVIRONMENTAL LABS
587 EAST MIDDLE TURNPIKE
MANCHESTER, CT 06040

NY Lab Id No: 11301

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Mineral

Acidity	SM 2310B-2011
Alkalinity	SM 2320B-2011
Calcium Hardness	SM 2340B-2011
Chloride	EPA 300.0, Rev. 2.1 (1993)
	SM 4500-Cl- E-2011
Hardness, Total	SM 2340B-2011
Sulfate (as SO4)	EPA 300.0, Rev. 2.1 (1993)
	SM 4500-SO4 D-2011

Miscellaneous

Boron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Bromide	EPA 300.0, Rev. 2.1 (1993)
Color	SM 2120B-2011
Cyanide, Total	EPA 335.4, Rev. 1.0 (1993)
	EPA 9012B
Formaldehyde	EPA 8315A
non-Polar Extractable Material (TPH)	EPA 1664A
Oil and Grease Total Recoverable	EPA 1664A
	EPA 1664B
	EPA 9070A (Solvent:Hexane)
Organic Carbon, Total	SM 5310B-2014
Phenols	EPA 420.4, Rev. 1.0 (1993)
Specific Conductance	SM 2510B-2011
Sulfide (as S)	SM 4500-S2- D-2011
Surfactant (MBAS)	SM 5540C-2011
Turbidity	SM 2130 B-2011

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Nitroaromatics and Isophorone

2,4-Dinitrotoluene	EPA 625.1
	EPA 8270D
	EPA 8270E
2,6-Dinitrotoluene	EPA 625.1
	EPA 8270D
	EPA 8270E
Isophorone	EPA 625.1
	EPA 8270D
	EPA 8270E
Nitrobenzene	EPA 625.1
	EPA 8270D
	EPA 8270E

Nitrosoamines

N-Nitrosodimethylamine	EPA 625.1
	EPA 8270D
	EPA 8270E
N-Nitrosodi-n-propylamine	EPA 625.1
	EPA 8270D
	EPA 8270E
N-Nitrosodiphenylamine	EPA 625.1
	EPA 8270D
	EPA 8270E

Nutrient

Ammonia (as N)	EPA 350.1, Rev. 2.0 (1993)
Kjeldahl Nitrogen, Total	EPA 351.1 (Rev. 1978)
Nitrate (as N)	EPA 353.2, Rev. 2.0 (1993)

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Nutrient	
Nitrate (as N)	EPA 300.0, Rev. 2.1 (1993)
Nitrate-Nitrite (as N)	EPA 353.2, Rev. 2.0 (1993)
	EPA 300.0, Rev. 2.1 (1993)
Nitrite (as N)	EPA 353.2, Rev. 2.0 (1993)
	EPA 300.0, Rev. 2.1 (1993)
Orthophosphate (as P)	SM 4500-P E-2011
	SM 4500-P F-2011 or G-2011
Phosphorus, Total	EPA 200.7, Rev. 4.4 (1994)
	SM 4500-P E-2011
Organophosphate Pesticides	
Atrazine	EPA 8141B
	EPA 8270D
	EPA 8270E
Azinphos methyl	EPA 8141B
Diazinon	EPA 8141B
Disulfoton	EPA 8141B
Malathion	EPA 8141B
Parathion ethyl	EPA 8270D
	EPA 8270E
Simazine	EPA 8141B
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Phthalate Esters	
Benzyl butyl phthalate	EPA 625.1
	EPA 8270D

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Phthalate Esters

Benzyl butyl phthalate	EPA 8270E
Bis(2-ethylhexyl) phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Diethyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Dimethyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Di-n-butyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Di-n-octyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E

Polychlorinated Biphenyls

Aroclor 1016 (PCB-1016)	EPA 8082A
	EPA 608.3
Aroclor 1221 (PCB-1221)	EPA 8082A
	EPA 608.3
Aroclor 1232 (PCB-1232)	EPA 8082A
	EPA 608.3
Aroclor 1242 (PCB-1242)	EPA 8082A
	EPA 608.3
Aroclor 1248 (PCB-1248)	EPA 8082A
	EPA 608.3

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Polychlorinated Biphenyls

Aroclor 1254 (PCB-1254)	EPA 8082A
	EPA 608.3
Aroclor 1260 (PCB-1260)	EPA 8082A
	EPA 608.3
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A
PCB 101	EPA 8082A
PCB 105	EPA 8082A
PCB 118	EPA 8082A
PCB 128	EPA 8082A
PCB 138	EPA 8082A
PCB 153	EPA 8082A
PCB 170	EPA 8082A
PCB 18	EPA 8082A
PCB 180	EPA 8082A
PCB 183	EPA 8082A
PCB 184	EPA 8082A
PCB 187	EPA 8082A
PCB 195	EPA 8082A
PCB 206	EPA 8082A
PCB 209	EPA 8082A
PCB 28	EPA 8082A
PCB 44	EPA 8082A
PCB 49	EPA 8082A
PCB 52	EPA 8082A
PCB 66	EPA 8082A
PCB 8	EPA 8082A

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Polychlorinated Biphenyls

PCB 87	EPA 8082A
PCB Congeners, Total	EPA 8082A

Polynuclear Aromatics

Acenaphthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Acenaphthylene	EPA 625.1
	EPA 8270D
	EPA 8270E
Anthracene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(a)anthracene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(a)pyrene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(b)fluoranthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(g,h,i)perylene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(k)fluoranthene	EPA 625.1
	EPA 8270D
	EPA 8270E

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Polynuclear Aromatics

Chrysene	EPA 625.1
	EPA 8270D
	EPA 8270E
Dibenzo(a,h)anthracene	EPA 625.1
	EPA 8270D
	EPA 8270E
Fluoranthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Fluorene	EPA 625.1
	EPA 8270D
	EPA 8270E
Indeno(1,2,3-cd)pyrene	EPA 625.1
	EPA 8270D
	EPA 8270E
Naphthalene	EPA 625.1
	EPA 8270D
	EPA 8270E
Phenanthrene	EPA 625.1
	EPA 8270D
	EPA 8270E
Pyrene	EPA 625.1
	EPA 8270D
	EPA 8270E

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270D
	EPA 8270E

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Priority Pollutant Phenols

2,4,5-Trichlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4,6-Trichlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4-Dichlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4-Dimethylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4-Dinitrophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,6-Dichlorophenol	EPA 8270D
	EPA 8270E
2-Chlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Methyl-4,6-dinitrophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Nitrophenol	EPA 625.1

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Priority Pollutant Phenols

2-Nitrophenol	EPA 8270D
	EPA 8270E
3-Methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Chloro-3-methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Nitrophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
Cresols, Total	EPA 625.1
	EPA 8270D
	EPA 8270E
Pentachlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
Phenol	EPA 625.1
	EPA 8270D
	EPA 8270E

Residue

Settleable Solids	SM 2540 F-2015
Solids, Total	SM 2540 B-2015
Solids, Total Dissolved	SM 2540 C-2015

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Residue

Solids, Total Suspended	SM 2540 D-2015
Solids, Volatile	SM 2540 E-2015

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
	EPA 8270E
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
2-Methylnaphthalene	EPA 625.1
	EPA 8270D
	EPA 8270E
Acetophenone	EPA 8270D
	EPA 8270E
alpha-Terpineol	EPA 625.1
Benzaldehyde	EPA 8270D
	EPA 8270E
Benzoic Acid	EPA 8270D
	EPA 8270E
Benzyl alcohol	EPA 8270D
	EPA 8270E
Caprolactam	EPA 8270D
	EPA 8270E
Dibenzofuran	EPA 8270D
	EPA 8270E

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Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260D
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,2-Dichlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
1,3,5-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
1,4-Dichlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
2-Chlorotoluene	EPA 8260D
	EPA 8260C
4-Chlorotoluene	EPA 8260D
	EPA 8260C
Benzene	EPA 8260D
	EPA 8260C
	EPA 624.1
Bromobenzene	EPA 8260D
	EPA 8260C
Chlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1

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Volatile Aromatics

Ethyl benzene	EPA 8260D
	EPA 8260C
	EPA 624.1
Isopropylbenzene	EPA 8260D
	EPA 8260C
m/p-Xylenes	EPA 8260D
	EPA 8260C
	EPA 624.1
Naphthalene, Volatile	EPA 8260D
	EPA 8260C
	EPA 624.1
n-Butylbenzene	EPA 8260D
	EPA 8260C
n-Propylbenzene	EPA 8260D
	EPA 8260C
o-Xylene	EPA 8260D
	EPA 8260C
	EPA 624.1
p-Isopropyltoluene (P-Cymene)	EPA 8260D
	EPA 8260C
sec-Butylbenzene	EPA 8260D
	EPA 8260C
Styrene	EPA 8260D
	EPA 8260C
	EPA 624.1
tert-Butylbenzene	EPA 8260D
	EPA 8260C

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Volatile Aromatics

Toluene	EPA 8260D
	EPA 8260C
	EPA 624.1
Total Xylenes	EPA 8260D
	EPA 8260C
	EPA 624.1

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1,2,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1,2-Trichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1-Dichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1-Dichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1

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Volatile Halocarbons

1,1-Dichloropropene	EPA 8260D
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromoethane	EPA 8260D
	EPA 8260C
1,2-Dichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,2-Dichloropropane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,3-Dichloropropane	EPA 8260D
	EPA 8260C
2,2-Dichloropropane	EPA 8260D
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260D
	EPA 8260C
	EPA 624.1
Bromochloromethane	EPA 8260D
	EPA 8260C
Bromodichloromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Bromoform	EPA 8260D

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Volatile Halocarbons

Bromoform	EPA 8260C
	EPA 624.1
Bromomethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Carbon tetrachloride	EPA 8260D
	EPA 8260C
	EPA 624.1
Chloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Chloroform	EPA 8260D
	EPA 8260C
	EPA 624.1
Chloromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
cis-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
cis-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
	EPA 624.1
Dibromochloromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Dibromomethane	EPA 8260D

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Volatile Halocarbons

Dibromomethane	EPA 8260C
Dichlorodifluoromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Hexachlorobutadiene, Volatile	EPA 8260D
	EPA 8260C
Methyl iodide	EPA 8260D
	EPA 8260C
Methylene chloride	EPA 8260D
	EPA 8260C
	EPA 624.1
Tetrachloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
trans-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
trans-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
	EPA 624.1
trans-1,4-Dichloro-2-butene	EPA 8260D
	EPA 8260C
Trichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
Trichlorofluoromethane	EPA 8260D
	EPA 8260C

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MS. PHYLLIS SHILLER
PHOENIX ENVIRONMENTAL LABS
587 EAST MIDDLE TURNPIKE
MANCHESTER, CT 06040

NY Lab Id No: 11301

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Halocarbons

Trichlorofluoromethane	EPA 624.1
Vinyl chloride	EPA 8260D
	EPA 8260C
	EPA 624.1

Volatiles Organics

1,4-Dioxane	EPA 8260D
	EPA 8260C
	EPA 8270D
	EPA 8270D SIM
	EPA 8270E
	EPA 8270E SIM
2-Butanone (Methylethyl ketone)	EPA 8260D
	EPA 8260C
2-Hexanone	EPA 8260D
	EPA 8260C
2-Nitropropane	EPA 8260D
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260D
	EPA 8260C
Acetone	EPA 8260D
	EPA 8260C
	EPA 624.1
Carbon Disulfide	EPA 8260D
	EPA 8260C
Cyclohexane	EPA 8260D
	EPA 8260C
Di-ethyl ether	EPA 8260D

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Volatiles Organics

Di-ethyl ether	EPA 8260C
Ethylene Glycol	EPA 8015D
Isobutyl alcohol	EPA 8015D
Methyl acetate	EPA 8260D
	EPA 8260C
Methyl cyclohexane	EPA 8260D
	EPA 8260C
Propylene Glycol	EPA 8015D
Vinyl acetate	EPA 8260D
	EPA 8260C

Sample Preparation Methods

	SM 4500-P B(5)-2011
	EPA 5030C
	SM 4500-CN B-2016 and C-2016
	EPA 3010A
	EPA 3005A
	EPA 3510C
	EPA 3520C
	EPA 3020A
	EPA 9010C
	SM 4500-S2- B,C-2011

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Acrylates	
Acrolein (Propenal)	EPA 8260D
	EPA 8260C
Acrylonitrile	EPA 8260D
	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
	EPA 8270E
2-Nitroaniline	EPA 8270D
	EPA 8270E
3-Nitroaniline	EPA 8270D
	EPA 8270E
4-Chloroaniline	EPA 8270D
	EPA 8270E
4-Nitroaniline	EPA 8270D
	EPA 8270E
Aniline	EPA 8270D
	EPA 8270E
Carbazole	EPA 8270D
	EPA 8270E
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270D
	EPA 8270E
Benzidine	EPA 8270D
	EPA 8270E
Characteristic Testing	
Corrosivity (pH)	EPA 9045D

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Characteristic Testing

Free Liquids	EPA 9095B
Ignitability	EPA 1010B
	EPA 1010A
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
Atrazine	EPA 8270D
	EPA 8270E
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
delta-BHC	EPA 8081B
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B
Endrin	EPA 8081B
Endrin aldehyde	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B

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Chlorinated Hydrocarbon Pesticides

Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Mirex	EPA 8081B
Pentachloronitrobenzene	EPA 8270D
	EPA 8270E
Simazine	EPA 8141B
Toxaphene	EPA 8081B

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260D
	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
	EPA 8270E
1,2,4-Trichlorobenzene	EPA 8270D
	EPA 8270E
2-Chloronaphthalene	EPA 8270D
	EPA 8270E
Hexachlorobenzene	EPA 8270D
	EPA 8270E
Hexachlorobutadiene	EPA 8270D
	EPA 8270E
Hexachlorocyclopentadiene	EPA 8270D
	EPA 8270E
Hexachloroethane	EPA 8270D
	EPA 8270E

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A

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Chlorophenoxy Acid Pesticides

2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
2,4-DB	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
MCPA	EPA 8151A
MCPP	EPA 8151A
Pentachlorophenol	EPA 8151A

Haloethers

2,2'-Oxybis(1-chloropropane)	EPA 8270D
	EPA 8270E
4-Bromophenylphenyl ether	EPA 8270D
	EPA 8270E
4-Chlorophenylphenyl ether	EPA 8270D
	EPA 8270E
Bis(2-chloroethoxy)methane	EPA 8270D
	EPA 8270E
Bis(2-chloroethyl)ether	EPA 8270D
	EPA 8270E

Low Level Polynuclear Aromatic Hydrocarbons

Acenaphthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Acenaphthylene Low Level	EPA 8270D SIM
	EPA 8270E SIM

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Low Level Polynuclear Aromatic Hydrocarbons

Anthracene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(a)anthracene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(a)pyrene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(b)fluoranthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Benzo(k)fluoranthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Chrysene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Fluoranthene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Fluorene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Naphthalene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Phenanthrene Low Level	EPA 8270D SIM
	EPA 8270E SIM
Pyrene Low Level	EPA 8270D SIM

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Low Level Polynuclear Aromatic Hydrocarbons

Pyrene Low Level	EPA 8270E SIM

Metals I

Barium, Total	EPA 6010C
	EPA 6010D
Cadmium, Total	EPA 6010C
	EPA 6010D
Calcium, Total	EPA 6010C
	EPA 6010D
Chromium, Total	EPA 6010C
	EPA 6010D
Copper, Total	EPA 6010C
	EPA 6010D
Iron, Total	EPA 6010C
	EPA 6010D
Lead, Total	EPA 6010C
	EPA 6010D
Magnesium, Total	EPA 6010C
	EPA 6010D
Manganese, Total	EPA 6010C
	EPA 6010D
Nickel, Total	EPA 6010C
	EPA 6010D
Potassium, Total	EPA 6010C
	EPA 6010D
Silver, Total	EPA 6010C
	EPA 6010D
Sodium, Total	EPA 6010C

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Metals I

Sodium, Total	EPA 6010D
Strontium, Total	EPA 6010C
	EPA 6010D

Metals II

Aluminum, Total	EPA 6010C
	EPA 6010D
Antimony, Total	EPA 6010C
	EPA 6010D
Arsenic, Total	EPA 6010C
	EPA 6010D
Beryllium, Total	EPA 6010C
	EPA 6010D
Chromium VI	EPA 7196A
Mercury, Total	EPA 7471B
Selenium, Total	EPA 6010C
	EPA 6010D
Vanadium, Total	EPA 6010C
	EPA 6010D
Zinc, Total	EPA 6010C
	EPA 6010D

Metals III

Cobalt, Total	EPA 6010C
	EPA 6010D
Molybdenum, Total	EPA 6010C
	EPA 6010D
Thallium, Total	EPA 6010C

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Metals III	
Thallium, Total	EPA 6010D
Tin, Total	EPA 6010C
	EPA 6010D
Titanium, Total	EPA 6010C
	EPA 6010D
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9056A
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010C
	EPA 6010D
Cyanide, Total	EPA 9012B
Formaldehyde	EPA 8315A
Organic Carbon, Total	Lloyd Kahn Method
	EPA 9060A
Phenols	EPA 9066
Specific Conductance	EPA 9050A
Sulfide (as S)	EPA 9034
Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 8270D
	EPA 8270E
2,6-Dinitrotoluene	EPA 8270D
	EPA 8270E
Isophorone	EPA 8270D

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Nitroaromatics and Isophorone	
Isophorone	EPA 8270E
Nitrobenzene	EPA 8270D
	EPA 8270E
Pyridine	EPA 8270D
	EPA 8270E
Nitrosoamines	
N-Nitrosodimethylamine	EPA 8270D
	EPA 8270E
N-Nitrosodi-n-propylamine	EPA 8270D
	EPA 8270E
N-Nitrosodiphenylamine	EPA 8270D
	EPA 8270E
Nutrients	
Nitrite (as N)	EPA 9056A
Organophosphate Pesticides	
Azinphos methyl	EPA 8141B
Diazinon	EPA 8141B
Disulfoton	EPA 8141B
Malathion	EPA 8141B
Parathion ethyl	EPA 8270D
	EPA 8270E
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Oil and Grease Total Recoverable	EPA 9071B (Solvent:Hexane)

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Phthalate Esters

Benzyl butyl phthalate	EPA 8270D
	EPA 8270E
Bis(2-ethylhexyl) phthalate	EPA 8270D
	EPA 8270E
Diethyl phthalate	EPA 8270D
	EPA 8270E
Dimethyl phthalate	EPA 8270D
	EPA 8270E
Di-n-butyl phthalate	EPA 8270D
	EPA 8270E
Di-n-octyl phthalate	EPA 8270D
	EPA 8270E

Polychlorinated Biphenyls

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1016 (PCB-1016) in Oil	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1221 (PCB-1221) in Oil	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1232 (PCB-1232) in Oil	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1242 (PCB-1242) in Oil	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1248 (PCB-1248) in Oil	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1254 (PCB-1254) in Oil	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1260 (PCB-1260) in Oil	EPA 8082A

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Polychlorinated Biphenyls

Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1262 (PCB-1262) in Oil	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A
Aroclor 1268 (PCB-1268) in Oil	EPA 8082A
PCB 101	EPA 8082A
PCB 105	EPA 8082A
PCB 118	EPA 8082A
PCB 128	EPA 8082A
PCB 138	EPA 8082A
PCB 153	EPA 8082A
PCB 170	EPA 8082A
PCB 18	EPA 8082A
PCB 180	EPA 8082A
PCB 183	EPA 8082A
PCB 184	EPA 8082A
PCB 187	EPA 8082A
PCB 195	EPA 8082A
PCB 206	EPA 8082A
PCB 209	EPA 8082A
PCB 28	EPA 8082A
PCB 44	EPA 8082A
PCB 49	EPA 8082A
PCB 52	EPA 8082A
PCB 66	EPA 8082A
PCB 8	EPA 8082A
PCB 87	EPA 8082A
PCB Congeners, Total	EPA 8082A

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Polynuclear Aromatic Hydrocarbons

Acenaphthene	EPA 8270D
	EPA 8270E
Acenaphthylene	EPA 8270D
	EPA 8270E
Anthracene	EPA 8270D
	EPA 8270E
Benzo(a)anthracene	EPA 8270D
	EPA 8270E
Benzo(a)pyrene	EPA 8270D
	EPA 8270E
Benzo(b)fluoranthene	EPA 8270D
	EPA 8270E
Benzo(g,h,i)perylene	EPA 8270D
	EPA 8270E
Benzo(k)fluoranthene	EPA 8270D
	EPA 8270E
Chrysene	EPA 8270D
	EPA 8270E
Dibenzo(a,h)anthracene	EPA 8270D
	EPA 8270E
Fluoranthene	EPA 8270D
	EPA 8270E
Fluorene	EPA 8270D
	EPA 8270E
Indeno(1,2,3-cd)pyrene	EPA 8270D
	EPA 8270E
Naphthalene	EPA 8270D

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Polynuclear Aromatic Hydrocarbons

Naphthalene	EPA 8270E
Phenanthrene	EPA 8270D
	EPA 8270E
Pyrene	EPA 8270D
	EPA 8270E

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270D
	EPA 8270E
2,4,5-Trichlorophenol	EPA 8270D
	EPA 8270E
2,4,6-Trichlorophenol	EPA 8270D
	EPA 8270E
2,4-Dichlorophenol	EPA 8270D
	EPA 8270E
2,4-Dimethylphenol	EPA 8270D
	EPA 8270E
2,4-Dinitrophenol	EPA 8270D
	EPA 8270E
2,6-Dichlorophenol	EPA 8270D
	EPA 8270E
2-Chlorophenol	EPA 8270D
	EPA 8270E
2-Methyl-4,6-dinitrophenol	EPA 8270D
	EPA 8270E
2-Methylphenol	EPA 8270D
	EPA 8270E
2-Nitrophenol	EPA 8270D

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. PHYLLIS SHILLER
PHOENIX ENVIRONMENTAL LABS
587 EAST MIDDLE TURNPIKE
MANCHESTER, CT 06040

NY Lab Id No: 11301

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Priority Pollutant Phenols

2-Nitrophenol	EPA 8270E
3-Methylphenol	EPA 8270D
	EPA 8270E
4-Chloro-3-methylphenol	EPA 8270D
	EPA 8270E
4-Methylphenol	EPA 8270D
	EPA 8270E
4-Nitrophenol	EPA 8270D
	EPA 8270E
Pentachlorophenol	EPA 8270D
	EPA 8270E
Phenol	EPA 8270D
	EPA 8270E

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
	EPA 8270E
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
2-Methylnaphthalene	EPA 8270D
	EPA 8270E
Acetophenone	EPA 8270D
	EPA 8270E
Benzaldehyde	EPA 8270D

Serial No.: 66336

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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Semi-Volatile Organics

Benzaldehyde	EPA 8270E
Benzoic Acid	EPA 8270D
	EPA 8270E
Benzyl alcohol	EPA 8270D
	EPA 8270E
Caprolactam	EPA 8270D
	EPA 8270E
Dibenzofuran	EPA 8270D
	EPA 8270E

Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260D
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,2-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,4-Dichlorobenzene	EPA 8260D
	EPA 8260C
2-Chlorotoluene	EPA 8260D
	EPA 8260C
4-Chlorotoluene	EPA 8260D
	EPA 8260C
Benzene	EPA 8260D

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Volatile Aromatics

Benzene	EPA 8260C
Bromobenzene	EPA 8260D
	EPA 8260C
Chlorobenzene	EPA 8260D
	EPA 8260C
Ethyl benzene	EPA 8260D
	EPA 8260C
Isopropylbenzene	EPA 8260D
	EPA 8260C
m/p-Xylenes	EPA 8260D
	EPA 8260C
Naphthalene, Volatile	EPA 8260D
	EPA 8260C
n-Butylbenzene	EPA 8260D
	EPA 8260C
n-Propylbenzene	EPA 8260D
	EPA 8260C
o-Xylene	EPA 8260D
	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260D
	EPA 8260C
sec-Butylbenzene	EPA 8260D
	EPA 8260C
Styrene	EPA 8260D
	EPA 8260C
tert-Butylbenzene	EPA 8260D
	EPA 8260C

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All approved analytes are listed below:

Volatile Aromatics

Toluene	EPA 8260D
	EPA 8260C
Total Xylenes	EPA 8260D
	EPA 8260C

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260D
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethene	EPA 8260D
	EPA 8260C
1,1-Dichloropropene	EPA 8260D
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromoethane	EPA 8260D
	EPA 8260C

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Volatile Halocarbons

1,2-Dichloroethane	EPA 8260D
	EPA 8260C
1,2-Dichloropropane	EPA 8260D
	EPA 8260C
1,3-Dichloropropane	EPA 8260D
	EPA 8260C
2,2-Dichloropropane	EPA 8260D
	EPA 8260C
Bromochloromethane	EPA 8260D
	EPA 8260C
Bromodichloromethane	EPA 8260D
	EPA 8260C
Bromoform	EPA 8260D
	EPA 8260C
Bromomethane	EPA 8260D
	EPA 8260C
Carbon tetrachloride	EPA 8260D
	EPA 8260C
Chloroethane	EPA 8260D
	EPA 8260C
Chloroform	EPA 8260D
	EPA 8260C
Chloromethane	EPA 8260D
	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260D

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Volatile Halocarbons

cis-1,3-Dichloropropene	EPA 8260C
Dibromochloromethane	EPA 8260D
	EPA 8260C
Dibromomethane	EPA 8260D
	EPA 8260C
Dichlorodifluoromethane	EPA 8260D
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260D
	EPA 8260C
Methylene chloride	EPA 8260D
	EPA 8260C
Tetrachloroethene	EPA 8260D
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260D
	EPA 8260C
Trichloroethene	EPA 8260D
	EPA 8260C
Trichlorofluoromethane	EPA 8260D
	EPA 8260C
Vinyl chloride	EPA 8260D
	EPA 8260C

Volatile Organics

1,4-Dioxane	EPA 8260D

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All approved analytes are listed below:

Volatile Organics

1,4-Dioxane	EPA 8260C
	EPA 8270D SIM
	EPA 8270E SIM
2-Butanone (Methylethyl ketone)	EPA 8260D
	EPA 8260C
2-Hexanone	EPA 8260D
	EPA 8260C
2-Nitropropane	EPA 8260D
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260D
	EPA 8260C
Acetone	EPA 8260D
	EPA 8260C
Carbon Disulfide	EPA 8260D
	EPA 8260C
Cyclohexane	EPA 8260D
	EPA 8260C
Di-ethyl ether	EPA 8260D
	EPA 8260C
Ethylene Glycol	EPA 8260D
	EPA 8260C
	EPA 8015D
Isobutyl alcohol	EPA 8015D
Methyl acetate	EPA 8260D
	EPA 8260C
Methyl cyclohexane	EPA 8260D
	EPA 8260C

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All approved analytes are listed below:

Volatile Organics

Methyl tert-butyl ether	EPA 8260D
	EPA 8260C
tert-butyl alcohol	EPA 8260D
	EPA 8260C
Tetrahydrofuran	EPA 8260D
	EPA 8260C
Vinyl acetate	EPA 8260D
	EPA 8260C

Sample Preparation Methods

EPA 5035A-L
EPA 5035A-H
EPA 3580A
EPA 9030B
EPA 3050B
EPA 3550C
EPA 3540C
EPA 3546
EPA 3545A
EPA 3051A
EPA 5021A
EPA 3060A
EPA 9010C

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Lead in Dust Wipes	EPA 6010C
	EPA 6010D
Lead in Paint	EPA 6010C
	EPA 6010D

Sample Preparation Methods

	EPA 3050B
	EPA 3051A

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All approved analytes are listed below:

Acrylates	
Acrylonitrile	EPA TO-15
Methyl methacrylate	EPA TO-15
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Hexachloroethane	EPA TO-15
Metals I	
Lead, Total	EPA 29 (6010)
	EPA 7010
Polychlorinated Biphenyls	
PCBs and Aroclors	EPA TO-10A
Polynuclear Aromatics	
Naphthalene	EPA TO-15
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
2-Chlorotoluene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15

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All approved analytes are listed below:

Purgeable Aromatics

o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15

Purgeable Halocarbons

1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromo-3-chloropropane	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
3-Chloropropene (Allyl chloride)	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15

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All approved analytes are listed below:

Purgeable Halocarbons

Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15

Volatile Chlorinated Organics

Benzyl chloride	EPA TO-15

Volatile Organics

1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetone	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15
Isopropanol	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
tert-butyl alcohol	EPA TO-15

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York Environmental Laboratories
NYS Certifications

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MS. CATHERINE L. MOSHER
YORK ANALYTICAL LABORATORIES INC
120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Acrylates

Acrolein (Propenal)	EPA 8260D
	EPA 8260C
	EPA 624.1
Acrylonitrile	EPA 8260D
	EPA 8260C
	EPA 624.1
Methyl methacrylate	EPA 8260D
	EPA 8260C

Amines

1,2-Diphenylhydrazine	EPA 8270D
	EPA 8270E
2-Nitroaniline	EPA 8270D
	EPA 8270E
3-Nitroaniline	EPA 8270D
	EPA 8270E
4-Chloroaniline	EPA 8270D
	EPA 8270E
4-Nitroaniline	EPA 8270D
	EPA 8270E
Aniline	EPA 625.1
	EPA 8270D
	EPA 8270E
Carbazole	EPA 625.1
	EPA 8270D
	EPA 8270E
Diphenylamine	EPA 8270D
	EPA 8270E

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All approved analytes are listed below:

Amines

Pyridine	EPA 625.1
	EPA 8270D
	EPA 8270E

Benzidines

3,3'-Dichlorobenzidine	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzidine	EPA 625.1
	EPA 8270D
	EPA 8270E

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081B
	EPA 608.3
4,4'-DDE	EPA 8081B
	EPA 608.3
4,4'-DDT	EPA 8081B
	EPA 608.3
Aldrin	EPA 8081B
	EPA 608.3
alpha-BHC	EPA 8081B
	EPA 608.3
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 8081B
	EPA 608.3
Chlordane Total	EPA 8081B
	EPA 608.3

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides

delta-BHC	EPA 8081B
	EPA 608.3
Dieldrin	EPA 8081B
	EPA 608.3
Endosulfan I	EPA 8081B
	EPA 608.3
Endosulfan II	EPA 8081B
	EPA 608.3
Endosulfan sulfate	EPA 8081B
	EPA 608.3
Endrin	EPA 8081B
	EPA 608.3
Endrin aldehyde	EPA 8081B
	EPA 608.3
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
	EPA 608.3
Heptachlor epoxide	EPA 8081B
	EPA 608.3
Lindane	EPA 8081B
	EPA 608.3
Methoxychlor	EPA 8081B
	EPA 608.3
Mirex	EPA 8081B
Toxaphene	EPA 8081B
	EPA 608.3

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All approved analytes are listed below:

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260D
	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
	EPA 8270E
1,2,4-Trichlorobenzene	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Chloronaphthalene	EPA 625.1
	EPA 8270D
	EPA 8270E
Hexachlorobenzene	EPA 8270D
	EPA 8270E
Hexachlorobutadiene	EPA 625.1
	EPA 8270D
	EPA 8270E
Hexachlorocyclopentadiene	EPA 625.1
	EPA 8270D
	EPA 8270E
Hexachloroethane	EPA 625.1
	EPA 8270D
	EPA 8270E
Pentachlorobenzene	EPA 8270D
	EPA 8270E

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
	SM 6640B-2006

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120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Chlorophenoxy Acid Pesticides

2,4-D	EPA 8151A
Dicamba	EPA 8151A

Demand

Biochemical Oxygen Demand	SM 5210B-2016
Carbonaceous BOD	SM 5210B-2016
Chemical Oxygen Demand	SM 5220D-2011

Fuel Oxygenates

Di-isopropyl ether	EPA 8260D
	EPA 8260C
Ethanol	EPA 8260D
	EPA 8260C
Methyl tert-butyl ether	EPA 8260D
	EPA 8260C
tert-amyl alcohol	EPA 8260D
	EPA 8260C
tert-amyl methyl ether (TAME)	EPA 8260D
	EPA 8260C
tert-butyl alcohol	EPA 8260D
	EPA 8260C
tert-butyl ethyl ether (ETBE)	EPA 8260D
	EPA 8260C

Haloethers

2,2'-Oxybis(1-chloropropane)	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Bromophenylphenyl ether	EPA 625.1

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Haloethers

4-Bromophenylphenyl ether	EPA 8270D
	EPA 8270E
4-Chlorophenylphenyl ether	EPA 625.1
	EPA 8270D
	EPA 8270E
Bis(2-chloroethoxy)methane	EPA 625.1
	EPA 8270D
	EPA 8270E
Bis(2-chloroethyl)ether	EPA 625.1
	EPA 8270D
	EPA 8270E

Low Level Halocarbons

1,2,3-Trichloropropane, Low Level	EPA 8011
1,2-Dibromo-3-chloropropane, Low Le	EPA 8011
1,2-Dibromoethane, Low Level	EPA 8011

Low Level Polynuclear Aromatics

Acenaphthene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Acenaphthylene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Anthracene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Benzo(a)anthracene Low Level	EPA 8270D

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Low Level Polynuclear Aromatics

Benzo(a)anthracene Low Level	EPA 8270E
	EPA 8270E SIM
Benzo(a)pyrene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Benzo(b)fluoranthene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Benzo(k)fluoranthene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Chrysene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Fluoranthene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Fluorene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D

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All approved analytes are listed below:

Low Level Polynuclear Aromatics

Indeno(1,2,3-cd)pyrene Low Level	EPA 8270E
	EPA 8270E SIM
Naphthalene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Phenanthrene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM
Pyrene Low Level	EPA 8270D
	EPA 8270E
	EPA 8270E SIM

Metals I

Barium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Cadmium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Calcium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Chromium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

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Metals I

Chromium, Total	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Copper, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Iron, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Lead, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Magnesium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Manganese, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

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Metals I

Manganese, Total	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Nickel, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Potassium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
Silver, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Sodium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

Metals II

Aluminum, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B

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Metals II

Aluminum, Total	EPA 200.8, Rev. 5.4 (1994)
Antimony, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Arsenic, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Beryllium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Chromium VI	EPA 7196A
	SM 3500-Cr B-2011
Mercury, Total	EPA 245.1, Rev. 3.0 (1994)
	EPA 245.2 (Issued 1974, Rev. 1983)
	EPA 7470A
	EPA 7473
Vanadium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C

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Metals II

Vanadium, Total	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Zinc, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D

Metals III

Cobalt, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Molybdenum, Total	EPA 6020A
	EPA 200.8, Rev. 5.4 (1994)
Thallium, Total	EPA 200.7, Rev. 4.4 (1994)
	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
	EPA 200.8, Rev. 5.4 (1994)
Tin, Total	EPA 6020A
	EPA 200.8, Rev. 5.4 (1994)
Titanium, Total	EPA 6020A
	EPA 200.8, Rev. 5.4 (1994)

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Mineral

Alkalinity	SM 2320B-2011
Calcium Hardness	EPA 200.7, Rev. 4.4 (1994)
Chloride	EPA 300.0, Rev. 2.1 (1993)
Fluoride, Total	EPA 300.0, Rev. 2.1 (1993)
Hardness, Total	SM 2340B-2011
Sulfate (as SO4)	EPA 300.0, Rev. 2.1 (1993)

Miscellaneous

Boron, Total	EPA 6020A
	EPA 200.8, Rev. 5.4 (1994)
Bromide	EPA 300.0, Rev. 2.1 (1993)
Color	SM 2120B-2011
Cyanide, Total	SM 4500-CN E-2016
Oil and Grease Total Recoverable	EPA 1664A
Phenols	EPA 420.1 (Rev. 1978)
Specific Conductance	EPA 120.1 (Rev. 1982)
Sulfide (as S)	SM 4500-S2- F-2011
Surfactant (MBAS)	SM 5540C-2011
Turbidity	EPA 180.1, Rev. 2.0 (1993)

Nitroaromatics and Isophorone

2,4-Dinitrotoluene	EPA 625.1
	EPA 8270D
	EPA 8270E
2,6-Dinitrotoluene	EPA 625.1
	EPA 8270D
	EPA 8270E
Isophorone	EPA 625.1

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Nitroaromatics and Isophorone

Isophorone	EPA 8270D
	EPA 8270E
Nitrobenzene	EPA 625.1
	EPA 8270D
	EPA 8270E

Nitrosoamines

N-Nitrosodimethylamine	EPA 625.1
	EPA 8270D
	EPA 8270E
N-Nitrosodi-n-propylamine	EPA 625.1
	EPA 8270D
	EPA 8270E
N-Nitrosodiphenylamine	EPA 625.1
	EPA 8270D
	EPA 8270E

Nutrient

Ammonia (as N)	SM 4500-NH3 D-2011 or E-2011
Kjeldahl Nitrogen, Total	SM 4500-N Org D-2011
	SM 4500-NH3 D-2011 or E-2011
Nitrate (as N)	EPA 300.0, Rev. 2.1 (1993)
Nitrate-Nitrite (as N)	EPA 300.0, Rev. 2.1 (1993)
Nitrite (as N)	EPA 300.0, Rev. 2.1 (1993)
Orthophosphate (as P)	EPA 300.0, Rev. 2.1 (1993)
	SM 4500-P E-2011

Organophosphate Pesticides

Atrazine	EPA 8270D

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Organophosphate Pesticides	
Atrazine	EPA 8270E
Parathion ethyl	EPA 8270D
	EPA 8270E
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Phthalate Esters	
Benzyl butyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Bis(2-ethylhexyl) phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Diethyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Dimethyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Di-n-butyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E
Di-n-octyl phthalate	EPA 625.1
	EPA 8270D
	EPA 8270E

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Polychlorinated Biphenyls

Aroclor 1016 (PCB-1016)	EPA 8082A
	EPA 608.3
Aroclor 1221 (PCB-1221)	EPA 8082A
	EPA 608.3
Aroclor 1232 (PCB-1232)	EPA 8082A
	EPA 608.3
Aroclor 1242 (PCB-1242)	EPA 8082A
	EPA 608.3
Aroclor 1248 (PCB-1248)	EPA 8082A
	EPA 608.3
Aroclor 1254 (PCB-1254)	EPA 8082A
	EPA 608.3
Aroclor 1260 (PCB-1260)	EPA 8082A
	EPA 608.3
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A

Polynuclear Aromatics

Acenaphthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Acenaphthylene	EPA 625.1
	EPA 8270D
	EPA 8270E
Anthracene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(a)anthracene	EPA 625.1

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Polynuclear Aromatics

Benzo(a)anthracene	EPA 8270D
	EPA 8270E
Benzo(a)pyrene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(b)fluoranthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(g,h,i)perylene	EPA 625.1
	EPA 8270D
	EPA 8270E
Benzo(k)fluoranthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Chrysene	EPA 625.1
	EPA 8270D
	EPA 8270E
Dibenzo(a,h)anthracene	EPA 625.1
	EPA 8270D
	EPA 8270E
Fluoranthene	EPA 625.1
	EPA 8270D
	EPA 8270E
Fluorene	EPA 625.1
	EPA 8270D
	EPA 8270E
Indeno(1,2,3-cd)pyrene	EPA 625.1

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Polynuclear Aromatics

Indeno(1,2,3-cd)pyrene	EPA 8270D
	EPA 8270E
Naphthalene	EPA 625.1
	EPA 8270D
	EPA 8270E
Phenanthrene	EPA 8270D
	EPA 8270E
Pyrene	EPA 625.1
	EPA 8270D
	EPA 8270E

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270D
	EPA 8270E
2,4,5-Trichlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4,6-Trichlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4-Dichlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4-Dimethylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2,4-Dinitrophenol	EPA 8270D
	EPA 8270E

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Priority Pollutant Phenols

2-Chlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Methyl-4,6-dinitrophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
2-Nitrophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Chloro-3-methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Methylphenol	EPA 625.1
	EPA 8270D
	EPA 8270E
4-Nitrophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
Cresols, Total	EPA 8270D
	EPA 8270E
Pentachlorophenol	EPA 625.1
	EPA 8270D
	EPA 8270E
Phenol	EPA 625.1

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Priority Pollutant Phenols

Phenol	EPA 8270D
	EPA 8270E

Residue

Settleable Solids	SM 2540 F-2015
Solids, Total	SM 2540 B-2015
Solids, Total Dissolved	SM 2540 C-2015
Solids, Total Suspended	SM 2540 D-2015

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
	EPA 8270E
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
2-Methylnaphthalene	EPA 8270D
	EPA 8270E
Acetophenone	EPA 8270D
	EPA 8270E
alpha-Terpineol	EPA 625.1
	EPA 8270E
Benzaldehyde	EPA 8270D
	EPA 8270E
Benzoic Acid	EPA 8270D
	EPA 8270E

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. CATHERINE L. MOSHER
YORK ANALYTICAL LABORATORIES INC
120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Semi-Volatile Organics

Benzyl alcohol	EPA 8270D
	EPA 8270E
Caprolactam	EPA 8270D
	EPA 8270E
Dibenzofuran	EPA 8270D
	EPA 8270E

Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260D
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,2-Dichlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
1,3,5-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
1,4-Dichlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
2-Chlorotoluene	EPA 8260D
	EPA 8260C
4-Chlorotoluene	EPA 8260D
	EPA 8260C
Benzene	EPA 8260D

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All approved analytes are listed below:

Volatile Aromatics

Benzene	EPA 8260C
	EPA 624.1
Bromobenzene	EPA 8260D
	EPA 8260C
Chlorobenzene	EPA 8260D
	EPA 8260C
	EPA 624.1
Ethyl benzene	EPA 8260D
	EPA 8260C
	EPA 624.1
Isopropylbenzene	EPA 8260D
	EPA 8260C
m/p-Xylenes	EPA 8260D
	EPA 8260C
	EPA 624.1
Naphthalene, Volatile	EPA 8260D
	EPA 8260C
n-Butylbenzene	EPA 8260D
	EPA 8260C
n-Propylbenzene	EPA 8260D
	EPA 8260C
o-Xylene	EPA 8260D
	EPA 8260C
	EPA 624.1
p-Isopropyltoluene (P-Cymene)	EPA 8260D
	EPA 8260C
sec-Butylbenzene	EPA 8260D

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Volatile Aromatics

sec-Butylbenzene	EPA 8260C
Styrene	EPA 8260D
	EPA 8260C
	EPA 624.1
tert-Butylbenzene	EPA 8260D
	EPA 8260C
Toluene	EPA 8260D
	EPA 8260C
	EPA 624.1
Total Xylenes	EPA 8260D
	EPA 8260C
	EPA 624.1

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1,2,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1-Dichloroethane	EPA 8260D

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Volatile Halocarbons

1,1-Dichloroethane	EPA 8260C
	EPA 624.1
1,1-Dichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
1,1-Dichloropropene	EPA 8260D
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromoethane	EPA 8260D
	EPA 8260C
1,2-Dichloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,2-Dichloropropane	EPA 8260D
	EPA 8260C
	EPA 624.1
1,3-Dichloropropane	EPA 8260D
	EPA 8260C
2,2-Dichloropropane	EPA 8260D
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260D
	EPA 8260C
	EPA 624.1
Bromochloromethane	EPA 8260D

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Volatile Halocarbons

Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Bromoform	EPA 8260D
	EPA 8260C
	EPA 624.1
Bromomethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Carbon tetrachloride	EPA 8260D
	EPA 8260C
	EPA 624.1
Chloroethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Chloroform	EPA 8260D
	EPA 8260C
	EPA 624.1
Chloromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
cis-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
cis-1,3-Dichloropropene	EPA 8260D
	EPA 8260C

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Volatile Halocarbons

cis-1,3-Dichloropropene	EPA 624.1
Dibromochloromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Dibromomethane	EPA 8260D
	EPA 8260C
Dichlorodifluoromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Hexachlorobutadiene, Volatile	EPA 8260D
	EPA 8260C
Methylene chloride	EPA 8260D
	EPA 8260C
	EPA 624.1
Tetrachloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
trans-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
	EPA 624.1
trans-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
	EPA 624.1
trans-1,4-Dichloro-2-butene	EPA 8260D
	EPA 8260C
Trichloroethene	EPA 8260D
	EPA 8260C

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Volatile Halocarbons

Trichloroethene	EPA 624.1
Trichlorofluoromethane	EPA 8260D
	EPA 8260C
	EPA 624.1
Vinyl chloride	EPA 8260D
	EPA 8260C
	EPA 624.1

Volatiles Organics

1,4-Dioxane	EPA 8260D
	EPA 8260C
	EPA 8270D SIM
	EPA 8270E
	EPA 8270E SIM
2-Butanone (Methylethyl ketone)	EPA 8260D
	EPA 8260C
2-Hexanone	EPA 8260D
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260D
	EPA 8260C
Acetone	EPA 8260D
	EPA 8260C
Carbon Disulfide	EPA 8260D
	EPA 8260C
Cyclohexane	EPA 8260D
	EPA 8260C
Methyl acetate	EPA 8260D
	EPA 8260C

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Volatiles Organics

Methyl cyclohexane	EPA 8260D
	EPA 8260C
Vinyl acetate	EPA 8260D
	EPA 8260C

Sample Preparation Methods

SM 4500-P B(5)-2011
EPA 5030C
SM 4500-CN B-2016 and C-2016
EPA 3015A
EPA 3010A
EPA 3005A
EPA 3510C
SM 4500-N Org B-2011 or C-2011

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All approved analytes are listed below:

Fuel Additives

Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2

Metals I

Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4

Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

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All approved analytes are listed below:

Metals II

Molybdenum, Total	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Metals III

Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4

Miscellaneous

1,4-Dioxane	EPA 522
Turbidity	EPA 180.1 Rev. 2.0

Non-Metals

Alkalinity	SM 21-23 2320B (-97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
Color	SM 21-23 2120B (-01)
Fluoride, Total	EPA 300.0 Rev. 2.1
Orthophosphate (as P)	SM 19, 21-23 4500-P E (-99)
Solids, Total Dissolved	SM 21-23 2540C (-97)
Specific Conductance	EPA 120.1 Rev. 1982
Sulfate (as SO4)	EPA 300.0 Rev. 2.1

Trihalomethanes

Bromodichloromethane	EPA 524.2

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Trihalomethanes

Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2

Volatile Aromatics

1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2

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Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260D
	EPA 8260C
Acrylonitrile	EPA 8260D
	EPA 8260C
Methyl methacrylate	EPA 8260D
	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
	EPA 8270E
2-Nitroaniline	EPA 8270D
	EPA 8270E
3-Nitroaniline	EPA 8270D
	EPA 8270E
4-Chloroaniline	EPA 8270D
	EPA 8270E
4-Nitroaniline	EPA 8270D
	EPA 8270E
Aniline	EPA 8270D
	EPA 8270E
Carbazole	EPA 8270D
	EPA 8270E
Diphenylamine	EPA 8270D
	EPA 8270E
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270D
	EPA 8270E

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All approved analytes are listed below:

Benzidines

Benzidine	EPA 8270D
	EPA 8270E

Characteristic Testing

Corrosivity (pH)	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
Atrazine	EPA 8270D
	EPA 8270E
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
delta-BHC	EPA 8081B
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B
Endrin	EPA 8081B
Endrin aldehyde	EPA 8081B

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Chlorinated Hydrocarbon Pesticides

Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B
Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Mirex	EPA 8081B
Toxaphene	EPA 8081B

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260D
	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
	EPA 8270E
1,2,4-Trichlorobenzene	EPA 8270D
	EPA 8270E
2-Chloronaphthalene	EPA 8270D
	EPA 8270E
Hexachlorobenzene	EPA 8270D
	EPA 8270E
Hexachlorobutadiene	EPA 8270D
	EPA 8270E
Hexachlorocyclopentadiene	EPA 8270D
	EPA 8270E
Hexachloroethane	EPA 8270D
	EPA 8270E

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. CATHERINE L. MOSHER
YORK ANALYTICAL LABORATORIES INC
120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dicamba	EPA 8151A

Haloethers

2,2'-Oxybis(1-chloropropane)	EPA 8270D
	EPA 8270E
4-Bromophenylphenyl ether	EPA 8270D
	EPA 8270E
4-Chlorophenylphenyl ether	EPA 8270D
	EPA 8270E
Bis(2-chloroethoxy)methane	EPA 8270D
	EPA 8270E
Bis(2-chloroethyl)ether	EPA 8270D
	EPA 8270E

Metals I

Barium, Total	EPA 6020A
	EPA 6020B
Cadmium, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Calcium, Total	EPA 6010C
	EPA 6010D
Chromium, Total	EPA 6010C
	EPA 6010D

Serial No.: 67726

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Metals I

Chromium, Total	EPA 6020A
	EPA 6020B
Copper, Total	EPA 6020A
	EPA 6020B
Iron, Total	EPA 6010C
	EPA 6010D
Lead, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Magnesium, Total	EPA 6010C
	EPA 6010D
Manganese, Total	EPA 6020A
	EPA 6020B
Nickel, Total	EPA 6020A
	EPA 6020B
Potassium, Total	EPA 6010C
	EPA 6010D
Silver, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B

Metals II

Aluminum, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B

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Metals II

Antimony, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Arsenic, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Beryllium, Total	EPA 6010C
	EPA 6010D
Chromium VI	EPA 7196A
Mercury, Total	EPA 7471B
	EPA 7473
Selenium, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Vanadium, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Zinc, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B

Metals III

Cobalt, Total	EPA 6010C

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Metals III

Cobalt, Total	EPA 6010D
	EPA 6020A
	EPA 6020B
Molybdenum, Total	EPA 6020A
Thallium, Total	EPA 6010C
	EPA 6010D
	EPA 6020A
	EPA 6020B
Tin, Total	EPA 6020A
	EPA 6020B
Titanium, Total	EPA 6020A

Miscellaneous

Boron, Total	EPA 6020A
	EPA 6020B
Cyanide, Total	EPA 9014
Extractable Organic Halides	EPA 9023

Nitroaromatics and Isophorone

2,4-Dinitrotoluene	EPA 8270D
	EPA 8270E
2,6-Dinitrotoluene	EPA 8270D
	EPA 8270E
Isophorone	EPA 8270D
	EPA 8270E
Nitrobenzene	EPA 8270D
	EPA 8270E
Pyridine	EPA 8270D

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Nitroaromatics and Isophorone	
Pyridine	EPA 8270E
Nitrosoamines	
N-Nitrosodimethylamine	EPA 8270D
	EPA 8270E
N-Nitrosodi-n-propylamine	EPA 8270D
	EPA 8270E
N-Nitrosodiphenylamine	EPA 8270D
	EPA 8270E
Organophosphate Pesticides	
Parathion ethyl	EPA 8270D
	EPA 8270E
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270D
	EPA 8270E
Bis(2-ethylhexyl) phthalate	EPA 8270D
	EPA 8270E
Diethyl phthalate	EPA 8270D
	EPA 8270E
Dimethyl phthalate	EPA 8270D
	EPA 8270E
Di-n-butyl phthalate	EPA 8270D
	EPA 8270E
Di-n-octyl phthalate	EPA 8270D

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Phthalate Esters

Di-n-octyl phthalate	EPA 8270E

Polychlorinated Biphenyls

Aroclor 1016 (PCB-1016)	EPA 8082A
Aroclor 1016 (PCB-1016) in Oil	EPA 8082A
Aroclor 1221 (PCB-1221)	EPA 8082A
Aroclor 1221 (PCB-1221) in Oil	EPA 8082A
Aroclor 1232 (PCB-1232)	EPA 8082A
Aroclor 1232 (PCB-1232) in Oil	EPA 8082A
Aroclor 1242 (PCB-1242)	EPA 8082A
Aroclor 1242 (PCB-1242) in Oil	EPA 8082A
Aroclor 1248 (PCB-1248)	EPA 8082A
Aroclor 1248 (PCB-1248) in Oil	EPA 8082A
Aroclor 1254 (PCB-1254)	EPA 8082A
Aroclor 1254 (PCB-1254) in Oil	EPA 8082A
Aroclor 1260 (PCB-1260)	EPA 8082A
Aroclor 1260 (PCB-1260) in Oil	EPA 8082A
Aroclor 1262 (PCB-1262)	EPA 8082A
Aroclor 1262 (PCB-1262) in Oil	EPA 8082A
Aroclor 1268 (PCB-1268)	EPA 8082A
Aroclor 1268 (PCB-1268) in Oil	EPA 8082A

Polynuclear Aromatic Hydrocarbons

Acenaphthene	EPA 8270D
	EPA 8270E
Acenaphthylene	EPA 8270D
	EPA 8270E
Benzo(a)anthracene	EPA 8270D

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Polynuclear Aromatic Hydrocarbons

Benzo(a)anthracene	EPA 8270E
Benzo(a)pyrene	EPA 8270D
	EPA 8270E
Benzo(b)fluoranthene	EPA 8270D
	EPA 8270E
Benzo(g,h,i)perylene	EPA 8270D
	EPA 8270E
Benzo(k)fluoranthene	EPA 8270D
	EPA 8270E
Chrysene	EPA 8270D
	EPA 8270E
Dibenzo(a,h)anthracene	EPA 8270D
	EPA 8270E
Fluoranthene	EPA 8270D
	EPA 8270E
Fluorene	EPA 8270D
	EPA 8270E
Indeno(1,2,3-cd)pyrene	EPA 8270D
	EPA 8270E
Naphthalene	EPA 8270D
	EPA 8270E
Phenanthrene	EPA 8270D
	EPA 8270E
Pyrene	EPA 8270D
	EPA 8270E

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270D

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Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270E
2,4,5-Trichlorophenol	EPA 8270D
	EPA 8270E
2,4,6-Trichlorophenol	EPA 8270D
	EPA 8270E
2,4-Dichlorophenol	EPA 8270D
	EPA 8270E
2,4-Dimethylphenol	EPA 8270D
	EPA 8270E
2,4-Dinitrophenol	EPA 8270D
	EPA 8270E
2-Chlorophenol	EPA 8270D
	EPA 8270E
2-Methyl-4,6-dinitrophenol	EPA 8270D
	EPA 8270E
2-Methylphenol	EPA 8270D
	EPA 8270E
2-Nitrophenol	EPA 8270D
	EPA 8270E
4-Chloro-3-methylphenol	EPA 8270D
	EPA 8270E
4-Methylphenol	EPA 8270D
	EPA 8270E
4-Nitrophenol	EPA 8270D
	EPA 8270E
Pentachlorophenol	EPA 8270D
	EPA 8270E

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Priority Pollutant Phenols

Phenol	EPA 8270D
	EPA 8270E

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
	EPA 8270E
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
	EPA 8270E
2-Methylnaphthalene	EPA 8270D
	EPA 8270E
Acetophenone	EPA 8270D
	EPA 8270E
Benzaldehyde	EPA 8270D
	EPA 8270E
Benzoic Acid	EPA 8270D
	EPA 8270E
Benzyl alcohol	EPA 8270D
	EPA 8270E
Caprolactam	EPA 8270D
	EPA 8270E
Dibenzofuran	EPA 8270D
	EPA 8270E

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Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260D
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,2-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,4-Dichlorobenzene	EPA 8260D
	EPA 8260C
2-Chlorotoluene	EPA 8260D
	EPA 8260C
4-Chlorotoluene	EPA 8260D
	EPA 8260C
Benzene	EPA 8260D
	EPA 8260C
Bromobenzene	EPA 8260D
	EPA 8260C
Chlorobenzene	EPA 8260D
	EPA 8260C
Ethyl benzene	EPA 8260D
	EPA 8260C
Isopropylbenzene	EPA 8260D
	EPA 8260C
m/p-Xylenes	EPA 8260D

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Volatile Aromatics

m/p-Xylenes	EPA 8260C
Naphthalene, Volatile	EPA 8260D
	EPA 8260C
n-Butylbenzene	EPA 8260D
	EPA 8260C
n-Propylbenzene	EPA 8260D
	EPA 8260C
o-Xylene	EPA 8260D
	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260D
	EPA 8260C
sec-Butylbenzene	EPA 8260D
	EPA 8260C
Styrene	EPA 8260D
	EPA 8260C
tert-Butylbenzene	EPA 8260D
	EPA 8260C
Toluene	EPA 8260D
	EPA 8260C
Total Xylenes	EPA 8260D
	EPA 8260C

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260D
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260D

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Volatile Halocarbons

1,1,2,2-Tetrachloroethane	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethene	EPA 8260D
	EPA 8260C
1,1-Dichloropropene	EPA 8260D
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromoethane	EPA 8260D
	EPA 8260C
1,2-Dichloroethane	EPA 8260D
	EPA 8260C
1,2-Dichloropropane	EPA 8260D
	EPA 8260C
1,3-Dichloropropane	EPA 8260D
	EPA 8260C
2,2-Dichloropropane	EPA 8260D
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260D
	EPA 8260C

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Volatile Halocarbons

Bromochloromethane	EPA 8260D
	EPA 8260C
Bromodichloromethane	EPA 8260D
	EPA 8260C
Bromoform	EPA 8260D
	EPA 8260C
Bromomethane	EPA 8260D
	EPA 8260C
Carbon tetrachloride	EPA 8260D
	EPA 8260C
Chloroethane	EPA 8260D
	EPA 8260C
Chloroform	EPA 8260D
	EPA 8260C
Chloromethane	EPA 8260D
	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
Dibromochloromethane	EPA 8260D
	EPA 8260C
Dibromomethane	EPA 8260D
	EPA 8260C
Dichlorodifluoromethane	EPA 8260D
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260D

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Volatile Halocarbons

Hexachlorobutadiene, Volatile	EPA 8260C
Methylene chloride	EPA 8260D
	EPA 8260C
Tetrachloroethene	EPA 8260D
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
Trichloroethene	EPA 8260D
	EPA 8260C
Trichlorofluoromethane	EPA 8260D
	EPA 8260C
Vinyl chloride	EPA 8260D
	EPA 8260C

Volatile Organics

1,4-Dioxane	EPA 8260D
	EPA 8260C
	EPA 8270D SIM
	EPA 8270E
	EPA 8270E SIM
2-Butanone (Methylethyl ketone)	EPA 8260D
	EPA 8260C
2-Hexanone	EPA 8260D
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260D
	EPA 8260C

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Volatile Organics

Acetone	EPA 8260D
	EPA 8260C
Carbon Disulfide	EPA 8260D
	EPA 8260C
Cyclohexane	EPA 8260D
	EPA 8260C
Methyl acetate	EPA 8260D
	EPA 8260C
Methyl cyclohexane	EPA 8260D
	EPA 8260C
Methyl tert-butyl ether	EPA 8260D
	EPA 8260C
tert-butyl alcohol	EPA 8260D
	EPA 8260C
Vinyl acetate	EPA 8260D
	EPA 8260C

Sample Preparation Methods

EPA 5035A-L
EPA 5035A-H
EPA 3580A
EPA 3010A
EPA 3050B
EPA 3550C
EPA 3546
EPA 3545A
EPA 9010C

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MR. KRZYSZTOF TRAFALSKI
YORK ANALYTICAL LABORATORIES, INC. (II)
132-02 89TH AVENUE SUITE 217
RICHMOND HILL, NY 11418

NY Lab Id No: 12058

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Acrylates

Acrylonitrile	EPA TO-15
Methyl methacrylate	EPA TO-15

Chlorinated Hydrocarbons

1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Hexachloroethane	EPA TO-15

Purgeable Aromatics

1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15

Purgeable Halocarbons

1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15

Serial No.: 67328

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2024
Issued April 01, 2023

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. KRZYSZTOF TRAFALSKI
YORK ANALYTICAL LABORATORIES, INC. (II)
132-02 89TH AVENUE SUITE 217
RICHMOND HILL, NY 11418

NY Lab Id No: 12058

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Purgeable Halocarbons

1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
3-Chloropropene (Allyl chloride)	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15

Volatile Chlorinated Organics

Benzyl chloride	EPA TO-15

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Volatile Organics

1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetone	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15
Isopropanol	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
Vinyl acetate	EPA TO-15

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260D
	EPA 8260C
Acrylonitrile	EPA 8260D
	EPA 8260C
Methyl methacrylate	EPA 8260D
	EPA 8260C
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260D
	EPA 8260C
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260D
	EPA 8260C
Ethanol	EPA 8260D
	EPA 8260C
Methyl tert-butyl ether	EPA 8260D
	EPA 8260C
tert-amyl alcohol	EPA 8260D
	EPA 8260C
tert-amyl methyl ether (TAME)	EPA 8260D
	EPA 8260C
tert-butyl alcohol	EPA 8260D
	EPA 8260C
tert-butyl ethyl ether (ETBE)	EPA 8260D
	EPA 8260C
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260D

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Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,2-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,4-Dichlorobenzene	EPA 8260D
	EPA 8260C
2-Chlorotoluene	EPA 8260D
	EPA 8260C
4-Chlorotoluene	EPA 8260D
	EPA 8260C
Benzene	EPA 8260D
	EPA 8260C
Bromobenzene	EPA 8260D
	EPA 8260C
Chlorobenzene	EPA 8260D
	EPA 8260C
Ethyl benzene	EPA 8260D
	EPA 8260C
Isopropylbenzene	EPA 8260D
	EPA 8260C
m/p-Xylenes	EPA 8260D
	EPA 8260C

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Volatile Aromatics

Naphthalene, Volatile	EPA 8260D
	EPA 8260C
n-Butylbenzene	EPA 8260D
	EPA 8260C
n-Propylbenzene	EPA 8260D
	EPA 8260C
o-Xylene	EPA 8260D
	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260D
	EPA 8260C
sec-Butylbenzene	EPA 8260D
	EPA 8260C
Styrene	EPA 8260D
	EPA 8260C
tert-Butylbenzene	EPA 8260D
	EPA 8260C
Toluene	EPA 8260D
	EPA 8260C
Total Xylenes	EPA 8260D
	EPA 8260C

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260D
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260D
	EPA 8260C

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Volatile Halocarbons

1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethene	EPA 8260D
	EPA 8260C
1,1-Dichloropropene	EPA 8260D
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromoethane	EPA 8260D
	EPA 8260C
1,2-Dichloroethane	EPA 8260D
	EPA 8260C
1,2-Dichloropropane	EPA 8260D
	EPA 8260C
1,3-Dichloropropane	EPA 8260D
	EPA 8260C
2,2-Dichloropropane	EPA 8260D
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260D
	EPA 8260C
Bromochloromethane	EPA 8260D

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Volatile Halocarbons

Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260D
	EPA 8260C
Bromoform	EPA 8260D
	EPA 8260C
Bromomethane	EPA 8260D
	EPA 8260C
Carbon tetrachloride	EPA 8260D
	EPA 8260C
Chloroethane	EPA 8260D
	EPA 8260C
Chloroform	EPA 8260D
	EPA 8260C
Chloromethane	EPA 8260D
	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
Dibromochloromethane	EPA 8260D
	EPA 8260C
Dibromomethane	EPA 8260D
	EPA 8260C
Dichlorodifluoromethane	EPA 8260D
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260D
	EPA 8260C

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All approved analytes are listed below:

Volatile Halocarbons

Methylene chloride	EPA 8260D
	EPA 8260C
Tetrachloroethene	EPA 8260D
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260D
	EPA 8260C
Trichloroethene	EPA 8260D
	EPA 8260C
Trichlorofluoromethane	EPA 8260D
	EPA 8260C
Vinyl chloride	EPA 8260D
	EPA 8260C

Volatiles Organics

1,4-Dioxane	EPA 8260D
	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260D
	EPA 8260C
2-Hexanone	EPA 8260D
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260D
	EPA 8260C
Acetone	EPA 8260D
Carbon Disulfide	EPA 8260D

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Volatiles Organics

Carbon Disulfide	EPA 8260C
Cyclohexane	EPA 8260D
	EPA 8260C
Methyl acetate	EPA 8260D
	EPA 8260C
Methyl cyclohexane	EPA 8260D
	EPA 8260C
Vinyl acetate	EPA 8260D
	EPA 8260C

Sample Preparation Methods

	EPA 5030C

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is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES POTABLE WATER
All approved subcategories and/or analytes are listed below:

Perfluorinated Alkyl Acids

11CL-PF3OUDS	EPA 533
	EPA 537.1
4:2FTS	EPA 533
6:2FTS	EPA 533
8:2FTS	EPA 533
9CL-PF3ONS	EPA 533
	EPA 537.1
ADONA	EPA 533
	EPA 537.1
Hexafluoropropylene Oxide Dimer Acic	EPA 533
	EPA 537.1
NETFOSAA	EPA 537.1
NMEFOSAA	EPA 537.1
Nonafluoro-3,6-Dioxaheptanoic Acid	EPA 533
Perflourotridecanoic Acid (PFTRDA)	EPA 537.1
Perfluordecanoic Acid (PFDA)	EPA 533
	EPA 537.1
Perfluoro-3-Methoxypropanoic Acid	EPA 533
Perfluoro-4-Methoxybutanoic Acid	EPA 533
Perfluorobutanesulfonic Acid (PFBS)	EPA 533
	EPA 537.1
Perfluorobutanoic Acid (PFBA)	EPA 533
Perfluorododecanoic Acid (PFDOA)	EPA 533
	EPA 537.1
Perfluoroheptanesulfonic Acid (PFHPS	EPA 533
Perfluoroheptanoic Acid (PFHPA)	EPA 533
	EPA 537.1

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ENVIRONMENTAL ANALYSES POTABLE WATER
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Perfluorinated Alkyl Acids

Perfluorohexanesulfonic Acid (PFHXS	EPA 533
	EPA 537.1
Perfluorohexanoic Acid (PFHXA)	EPA 533
	EPA 537.1
Perfluorononanoic Acid (PFNA)	EPA 533
	EPA 537.1
Perfluorooctanesulfonic Acid (PFOS)	EPA 533
	EPA 537
	EPA 537.1
Perfluorooctanoic Acid (PFOA)	EPA 533
	EPA 537
	EPA 537.1
Perfluoropentanesulfonic Acid (PFPES	EPA 533
Perfluoropentanoic Acid (PFPEA)	EPA 533
Perfluorotetradecanoic Acid (PFTA)	EPA 537.1
Perfluoroundecanoic Acid (PFUNA)	EPA 533
	EPA 537.1
PFEESA	EPA 533

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260D
	EPA 8260C
Acrylonitrile	EPA 8260D
	EPA 8260C
Methyl methacrylate	EPA 8260D
	EPA 8260C
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260D
	EPA 8260C
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260D
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,2-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260D
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260D
	EPA 8260C
1,4-Dichlorobenzene	EPA 8260D
	EPA 8260C
2-Chlorotoluene	EPA 8260D
	EPA 8260C
4-Chlorotoluene	EPA 8260D
	EPA 8260C

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All approved analytes are listed below:

Volatile Aromatics

Benzene	EPA 8260D
	EPA 8260C
Bromobenzene	EPA 8260D
	EPA 8260C
Chlorobenzene	EPA 8260D
	EPA 8260C
Ethyl benzene	EPA 8260D
	EPA 8260C
Isopropylbenzene	EPA 8260D
	EPA 8260C
m/p-Xylenes	EPA 8260D
	EPA 8260C
Naphthalene, Volatile	EPA 8260D
	EPA 8260C
n-Butylbenzene	EPA 8260D
	EPA 8260C
n-Propylbenzene	EPA 8260D
	EPA 8260C
o-Xylene	EPA 8260D
	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260D
	EPA 8260C
sec-Butylbenzene	EPA 8260D
	EPA 8260C
Styrene	EPA 8260D
	EPA 8260C
tert-Butylbenzene	EPA 8260D

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Volatile Aromatics

tert-Butylbenzene	EPA 8260C
Toluene	EPA 8260D
	EPA 8260C
Total Xylenes	EPA 8260D
	EPA 8260C

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260D
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260D
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethane	EPA 8260D
	EPA 8260C
1,1-Dichloroethene	EPA 8260D
	EPA 8260C
1,1-Dichloropropene	EPA 8260D
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260D
	EPA 8260C
1,2-Dibromoethane	EPA 8260D

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All approved analytes are listed below:

Volatile Halocarbons

1,2-Dibromoethane	EPA 8260C
1,2-Dichloroethane	EPA 8260D
	EPA 8260C
1,2-Dichloropropane	EPA 8260D
	EPA 8260C
1,3-Dichloropropane	EPA 8260D
	EPA 8260C
2,2-Dichloropropane	EPA 8260D
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260D
	EPA 8260C
Bromochloromethane	EPA 8260D
	EPA 8260C
Bromodichloromethane	EPA 8260D
	EPA 8260C
Bromoform	EPA 8260D
	EPA 8260C
Bromomethane	EPA 8260D
	EPA 8260C
Carbon tetrachloride	EPA 8260D
	EPA 8260C
Chloroethane	EPA 8260D
	EPA 8260C
Chloroform	EPA 8260D
	EPA 8260C
Chloromethane	EPA 8260D
	EPA 8260C

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All approved analytes are listed below:

Volatile Halocarbons

cis-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
Dibromochloromethane	EPA 8260D
	EPA 8260C
Dibromomethane	EPA 8260D
	EPA 8260C
Dichlorodifluoromethane	EPA 8260D
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260D
	EPA 8260C
Methylene chloride	EPA 8260D
	EPA 8260C
Tetrachloroethene	EPA 8260D
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260D
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260D
	EPA 8260C
Trichloroethene	EPA 8260D
	EPA 8260C
Trichlorofluoromethane	EPA 8260D
	EPA 8260C
Vinyl chloride	EPA 8260D
	EPA 8260C

Serial No.: 67326

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2024
Issued April 01, 2023

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. KRZYSZTOF TRAFALSKI
YORK ANALYTICAL LABORATORIES, INC. (II)
132-02 89TH AVENUE SUITE 217
RICHMOND HILL, NY 11418

NY Lab Id No: 12058

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2016) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Organics

1,4-Dioxane	EPA 8260D
	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260D
	EPA 8260C
2-Hexanone	EPA 8260D
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260D
	EPA 8260C
Acetone	EPA 8260D
	EPA 8260C
Carbon Disulfide	EPA 8260D
	EPA 8260C
Cyclohexane	EPA 8260D
	EPA 8260C
Methyl acetate	EPA 8260D
	EPA 8260C
Methyl cyclohexane	EPA 8260D
	EPA 8260C
Methyl tert-butyl ether	EPA 8260D
	EPA 8260C
tert-butyl alcohol	EPA 8260D
	EPA 8260C
Vinyl acetate	EPA 8260D
	EPA 8260C

Sample Preparation Methods

	EPA 5035A-L
	EPA 5035A-H

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Appendix I – PHOTO LOGS

PHOTO LOG

PHOTO LOCATION: Depicts the entrance of the Site on 69-34 and 69-36 76th Street (looking west).

PHOTO LOCATION: Depicts the asphalt-paved subject lot on 69-34 76th Street (looking west).

PHOTO LOCATION: Depicts the asphalt-paved subject lot on 69-34 76th Street (looking east)

PHOTO LOCATION: Depicts a view of the lot on 69-36 76th Street, with concrete paved driveway (looking west).

PHOTO LOCATION: Depicts the interior of the building, with no concrete floor slab.

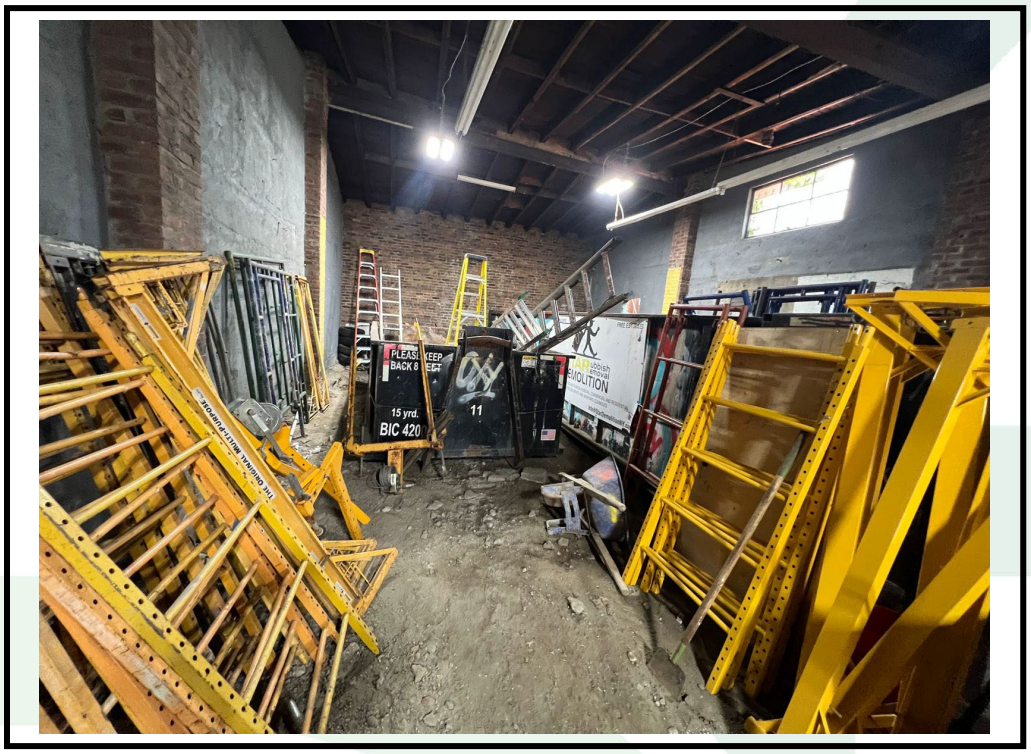

PHOTO LOCATION: Depicts the interior of the building, with no concrete floor slab.