Draft Interim Remedial Measures Work Plan

For

Churches United For Fair Housing (CUFFH) Offices

276-284 Starr Street, Borough of Brooklyn

Block 3200, Lot 19

NYSDEC Site No. 224430

Prepared for:

Churches United For Fair Housing

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June 9, 2025

CERTIFICATION

I, James P. Cinelli, certify that I am currently a New York State-licensed Professional Engineer and that this Remedial Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and substantial conformance with New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).

James P. Cinelli, P.E., P.G.
Name

079794
PE License Number

DRAFT
Signature

6-9-2025
Date

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF ACRONYMS

Acronym	Definition
ASP	Analytical Services Protocol
AMSL	above mean sea level
AOC	Area of Concern
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
C12-DCE	Cis-1,2-Dichloroethene
CAMP	Community Air Monitoring Plan
COC	Constituent of Concern
CVOC	Chlorinated Volatile Organic Compounds
CY	Cubic Yards
DNAPL	Dense Non-Aqueous Phase Liquid
DOB	Department of Buildings
FER	Final Engineering Report
lb	pound
ND	Not detected
NYCDOHMH	New York City Department of Health & Mental Hygiene
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OM&M	Operation, Maintenance, and Monitoring
OVA	Organic vapor analyzer
PCE	Perchloroethylene/Tetrachloroethene/Tetrachloroethylene
PID	Photoionization Detector
PM10	particulate matter less than 10 microns in diameter
ppm	Parts per million
QA/QC	Quality Assurance/Quality Control
RAWP	Remedial Action Work Plan
RD	Remedial Design
RDD	Remedial Design Document
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SMP	Site Management Plan
SSDS	Sub-Slab Depressurization System
SSDS Design/Work Plan	Sub-Slab Depressurization System Design and Installation Work Plan
TCE	Trichloroethene/Trichloroethylene
TOC	Total organic carbon
trans-1,2-DCE	trans-1,2-dichloroethylene
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds

1 INTRODUCTION

This Interim Remedial Measures (IRM) Work Plan has been prepared by Liberty on behalf of Churches United for Fair Housing (CUFFH) to support the planned installation of a sub-slab depressurization system (SSDS) at 276–284 Starr Street, Brooklyn, New York. The SSDS installation is a remedial measure required by the New York State Department of Environmental Conservation (NYSDEC) as part of ongoing site investigation and remediation activities being conducted under the NYSDEC Brownfield Cleanup Program (BCP). The system will be designed and implemented in accordance with applicable NYSDEC guidelines and regulatory requirements.

The SSDS will be installed in the existing buildings located on Block 3200 and Lot 19. This Work Plan has been prepared in general accordance with NYSDEC's Technical Guidance for Site Investigation and Remediation (DER-10) (NYSDEC, 2010).

1.1 OBJECTIVE

The purpose of the SSDS is to control and prevent vapor intrusion and associated indoor air impacts caused by volatile organic compounds (VOCs) present in the soil vapor beneath the subject property.

1.2 SSDS DESIGN BACKGROUND

A Limited Phase II Environmental Site Assessment prepared by BBG Real Estate Services in July 2022 identified elevated VOCs in sub-slab vapor and indoor air at the subject property. Sampling was conducted in the two-story building on the property, addressed as 280-284 Starr Street. The property contains a second connected one-story building addressed as 276 Starr Street. No sampling was performed in 276 Starr Street.

The two-story building contains a partial basement. A freight elevator services all three floors of this building. TCE concentrations were detected as high as 81.4 ug/m3 in indoor air, and as high as 48,300 ug/m3 in sub-slab vapor. Cementing of floor utility penetrations and repair of grout in the stone wall were performed in the basement, and follow-up testing of indoor air performed by Liberty showed a notable drop in indoor air concentrations; however active mitigation of vapors is still warranted.

This IRM Work Plan is being submitted concurrently with a Remedial Investigation Work Plan (RIWP), which proposes testing of indoor air and sub-slab vapor in the 276 Starr Street building. Pilot testing has not yet been performed at the site, and is included in this IRM Work Plan. The results of the proposed indoor air and sub-slab sampling and pilot testing may result in changes to the remedial actions proposed herein. Any proposed changes to the planned work will be submitted to NYSDEC for approval.

1.2.1 FLOOR SLAB ASSESSMENT AND REPAIR

Prior to performing the Pilot Test, Liberty will perform a visual assessment of the floors and basement walls of the building, to determine optimal placement of the extraction points and to identify areas of the building foundation that required repair or maintenance. Based on the visual assessment, Liberty may recommend that the owner perform mitigation to seal any penetrations (cracks, pits, etc.) that would adversely affect the operation of a full-scale system in the building.

1.2.2 PILOT TEST

Liberty will perform pressure field extension (PFE) testing to determine the extent of negative pressure (vacuum) that can be established beneath the slab of the building, also known as the radius of influence (ROI). Liberty plans to install six vacuum points throughout the buildings, where a 6.5 horsepower portable fan will be mounted with an air-tight connection to apply a vacuum to the sub-slab plenum. Vacuum monitoring points will be drilled into the slab at distances of roughly 10, 20 and 30 feet in two directions from the vacuum application points.

Tubing will be inserted into the monitoring points and sealed with grout, and a digital manometer will be connected to the tubing and used to record the sub-slab vacuum. All holes will be sealed with grout following completion of the testing, with the exception of six of the monitoring points which will have permanent Vapor Pin assemblies installed for future sub-slab vacuum readings.

The procedure for conducting the sub-slab PFE testing for each test location is as follows:

1. Core a 3- to 4-inch sub-slab extraction point into the concrete foundation slab using a rotary hammer drill and masonry carbon drill bit;
2. Connect a portable fan to the extraction point.
3. Core ¼- to ½-inch monitoring points surrounding the extraction point.
4. Insert plastic tubing into the monitoring points and seal the tube inside the hole using modeling clay;
5. Turn on the fan and record the fan vacuum.
6. With the fan in operation, measure the induced pressure differential at each of the sub-slab monitoring points using a calibrated digital manometer; and
7. Record the induced pressure differential for each sub-slab monitoring point in a field logbook.

The fan will be operated at each test location for a minimum duration of 30 minutes. The target sub-slab vacuum for the test is -0.01 inch water column (in. w.g.) throughout the sub-slab.

Following the completion of the testing, a report will be prepared that will include tabular summaries of the collected data, a diagram depicting the vacuum application and monitoring

points, and a narrative describing the work performed and the observed radii of vacuum in the sub-slab plenum.

2 SSDS DESIGN

This section summarizes the SSDS design developed by Liberty. Since pilot testing has not yet been performed, the SSDS design described herein is based on our experience with SSDS installations on similar sites. The design includes two systems – one for 280-284 Starr Street and one for 276 Starr Street. The proposed SSDS is comprised of three sub-slab extraction points for each system (1-A through 1-C and 2-A through 2-C) connected to two exterior roof-mounted blowers (A and B). The proposed layout of the SSDS and system construction details are shown on the project drawings in Appendix A.

Where possible, for protection, the vertical extraction pipes will be installed near existing interior walls or columns. The final extraction point locations may be slightly adjusted in the field based on the interior conditions. If additional extraction points are necessary based on the pilot test results, updated design information will be submitted to NYSDEC.

3 SSDS INSTALLATION AND STARTUP

SSDS installation and startup will be performed as described below. Project drawings are provided in Appendix A. Equipment specifications are provided in Appendix B.

3.1 SSDS INSTALLATION

Prior to the commencement of any subsurface work the remediation contractor will request an 811 utility markout call. Additionally, a private utility markout will be performed in conjunction with GPR within the building in the areas of planned excavations.

Depressurization pits will be installed with block, nonwoven geotextile and a concrete or steel cover as shown on the project drawings. Sub-slab piping will be solid 3-inch schedule 40 PVC. routed from the extraction well screen located below the floor slab into the building space at the riser locations shown. The depressurization pits will be sealed flush with the existing concrete floor slab using hydraulic cement.

Risers will be constructed using 3-inch diameter cast iron no-hub pipe and fittings with stainless steel/neoprene clamp on couplings. Risers will turn and run along the ceiling and manifold where located on the drawings. At each manifold point, pipe diameter will increase to four inches. The common header from manifold will penetrate through the building roof at the specified extraction fan locations. Roof penetrations will be sealed appropriately.

Each vertical pipe riser extending up from each of the depressurization pits shall be fitted with a steel butterfly valve and tube manometer.

The vacuum fans will be positioned on the exterior wall of the 2-story building, as indicated on the drawings. The fans will be RadonAway® HS2750 Blowers. The fan exhaust will be 4-inch schedule 40 PVC, and will terminate a minimum of three feet above the roof line of the 2-story building. Each exhaust will be fitted with a rain cap and bird screen

Vacuum alarm units will be installed on each pipe header (one for each system) within the building. Each vacuum sensor/alarm will be Checkpoint IIA Mitigation System Alarm manufactured by RadonAway.

Electrical power for each of the blowers and alarm units will be provided from the existing building electrical service. All electrical work shall be conducted by a NYS licensed electrician, and installed in accordance with any applicable electrical codes, including NEC.

Six vacuum monitoring points (VMP) will be installed in the building floor as indicated on the drawings. Once the vacuum fan installation is completed, a demonstration of the effectiveness of

the system will be conducted. Vacuum readings will be collected from each of the monitoring points located throughout the floor slab in order to demonstrate sufficient vacuum within the sub-slab.

The depressurization pits and extraction piping will be installed in accordance with the design and in compliance with local building regulations. The fans will be positioned above the roofline and securely attached to the building structure.

3.2 SSDS STARTUP AND TESTING

After installation, Liberty will conduct system testing to confirm that all SSDS components are operating properly before the system is started. Once the SSDS is active, the airflow to each depressurization pit will be manually adjusted by controlling the valves on the vertical riser pipes. The system will be considered balanced when the highest vacuum influence is observed at the tube manometers that will be installed on each riser.

Sub-slab vacuum will be monitored at selected sampling points using a digital micromanometer. Riser isolation tests will be carried out as needed to assess the extent of vacuum influence from each extraction location. The vacuum readings will be analyzed to ensure the SSDS is operating as designed to control sub-slab vapors. If there is an indication of a possible leak, smoke testing will be used near the riser to identify the issue.

4 AIR MONITORING DURING INSTALLATION

Throughout the SSDS installation process, Liberty will conduct indoor air monitoring to track levels of dust and VOCs in the work areas for the purpose of woker protection. This monitoring will continue uninterrupted during installation activities and while any extraction openings remain unsealed. It will cease once all extraction points have been closed, either temporarily or permanently. Because work is indoors and no site workers will be present, and because only hand excavation methods will be used, community air monitoring will not be performed.

4.1 TOTAL VOLATILE ORGANIC COMPOUNDS

Total VOCs in ambient air will be monitored and recorded using a portable organic vapor analyzer (OVA) equipped with a photoionization detector (PID) with data-logging capabilities (MiniRae2000 or equivalent). All measurements will be made at a height of approximately five feet above the ground. Total VOCs levels will be measured at least four times per work day.

4.2 PM10 MONITORING

Real-time monitoring for particulates will be conducted during remedial activities at the Site using a MIE DataRAM PDR1000 or equivalent. PM measurements will be measured continuously throughout the work day.

4.3 ACTION LEVELS

The action levels listed below will be used to start corrective actions if needed, based on real-time monitoring. Each monitoring device will have alarms (audible and/or visual) to alert when the action levels in the next sections are exceeded.

4.3.1 ACTION LEVELS FOR VOCs

If work area air concentration of total VOCs exceeds 5.0 parts per million (ppm) above background at any time, intrusive activities will be suspended while air monitoring continues.

If VOCs levels promptly decrease to below 5.0 ppm above background based on immediate readings, work may resume with continued monitoring. If VOCs concentrations remain between 5.0 ppm and 25.0 ppm above background, work will remain suspended. The source of the elevated VOCs levels will be identified, corrective actions will be taken (i.e., use of engineering controls such as exhaust fans) to reduce or eliminate emissions, and monitoring will continue. Work may resume only when the VOCs concentration is less than 5.0 ppm above background. If VOCs levels exceed 25.0 ppm above the background, all work must stop immediately, and emission control measures must be implemented prior to resuming site activities.

4.3.2 *ACTION LEVELS FOR PM10*

The following PM10 action levels and corresponding response will be enforced during any intrusive activities that may generate emissions:

PM10 Exceedance (>100 µg/m³ above background):
If the average PM10 concentration exceeds 100 µg/m³ above the background level (measured at one or more sampling locations) over a 15-minute period, or if visible dust is observed leaving the work area, all intrusive activities will be temporarily suspended, the source of the elevated PM10 levels will be identified, and corrective actions to mitigate emissions will be implemented; air monitoring will continue to ensure compliance, and work may resume once dust suppression techniques are applied, provided PM10 concentrations remain below 150 µg/m³ above background and no visible dust escapes the work area.

PM10 Exceedance (>150 µg/m³ above background):
If, after the application of dust suppression measures, the PM10 levels remain above 150 µg/m³ above background, all activities will cease, and a reassessment of site activities will occur. Work may only resume after additional dust control measures are implemented, PM10 levels drop below 150 µg/m³ above background, and no visible dust is migrating from the work area.

4.3.3 *EMISSIONS CONTROL MEASURES*

Liberty will implement air emission control measures, as necessary, during intrusive activities to minimize the potential release of organic vapors, dust, or odors from the Site. These measures will be applied to control emissions generated during operations such as concrete floor cutting, excavation, material handling and stockpiling, and other intrusive tasks, as well as certain non-intrusive activities, including mobilization, transport, and site restoration, as outlined below.

Depending on site conditions, visual observations, and real-time air monitoring data, the following emissions control techniques may be employed:

- Use mechanical ventilation to exhaust air to the building exterior, with discharge points located at least 10 feet from any building opening.
- Temporarily seal open extraction points when extraction piping is not yet installed.
- Apply water or BioSolve spray to exposed soil or materials to reduce dust and vapor emissions.
- Cover open floor penetrations with polyethylene sheeting or equivalent protective material.
- Limit the surface area of exposed materials to reduce emissions.
- Place excavated soil and other materials in appropriate sealed containers.
- Use vapor-suppression foam as needed.
- Apply water during concrete cutting operations to suppress airborne dust.

- Integrate long-term emissions management infrastructure into the design of the building foundation system.

5 SCHEDULE AND REPORTING

Liberty will start Sub-Slab Depressurization System (SSDS) installation activities immediately upon receiving NYSDEC approval of this Work Plan. The pilot testing is expected to be completed within three weeks of Work Plan approval. Installation and initial system testing are expected to be completed within eight weeks of pilot testing. Upon completion, Liberty will prepare a Final Engineering Report (FER) documenting the SSDS construction in accordance with NYSDEC's DER-10 guidelines. The FER will be signed and sealed by a professional engineer licensed in New York State and will include record drawings and a certification statement. An Operation, Maintenance, and Monitoring (OM&M) Plan will also be developed and incorporated into the Site Management Plan (SMP) for the Site.

6 GREEN REMEDIATION EVALUATION

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section provides an environmental footprint analysis of the remedy documented in this IRM Work Plan.

Discussion and Measurement of Environmental Impacts: The following items were considered for the remedy.

- Waste generation will be limited to soil and concrete removed from the site to allow for the installation of the SSDS.
- Energy usage and emissions will be limited to the use of construction equipment needed to install the SSDS.

To promote implementation of green and sustainable remediation principles, an environmental footprint analysis was completed and included in this Work Plan (provided as Appendix C). The environmental footprint analysis was completed using the accepted environmental footprint analysis calculator SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA). Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use were estimated

The spreadsheets include one Remedy Component. The following inputs were used in the SEFA worksheets to calculate the environmental footprint:

1. Personnel Transportation: Construction and consultant personnel transportation to and from the site for system installation.
2. Equipment: gasoline-powered equipment includes a skid steer, generator and concrete saw.
3. On-site Electricity Use: Electricity use for construction equipment.
4. Material Use and Transportation: PVC pipe, cast iron pipe, concrete and gravel.
5. Waste Disposal and Transportation: Excavated soil and concrete disposed off-site.

Green Remediation aspects related to system operation and maintenance will be addressed in a future evaluation to be provided in the Site Management Plan.

7 REFERENCES

NYSDEC, *DER-10 / Technical Guidance for Site Investigation and Remediation*. May 2010.

U.S. EPA, *Engineering Issue - Indoor Air Vapor Intrusion Mitigation Approaches*. October 2008.

ANSI/AARST, *Soil Gas Mitigation Standards for Existing Homes* (SGM-SF). December 2020.

ANSI/AARST, *Soil Gas Control Systems in New Construction of Multifamily, School, Commercial and Mixed-Use Buildings* (CC-1000). May 2023.

International Code Council, *International Residential Code*. Appendix F – Radon Control Methods. 2003.

APPENDIX A:

Project Drawings

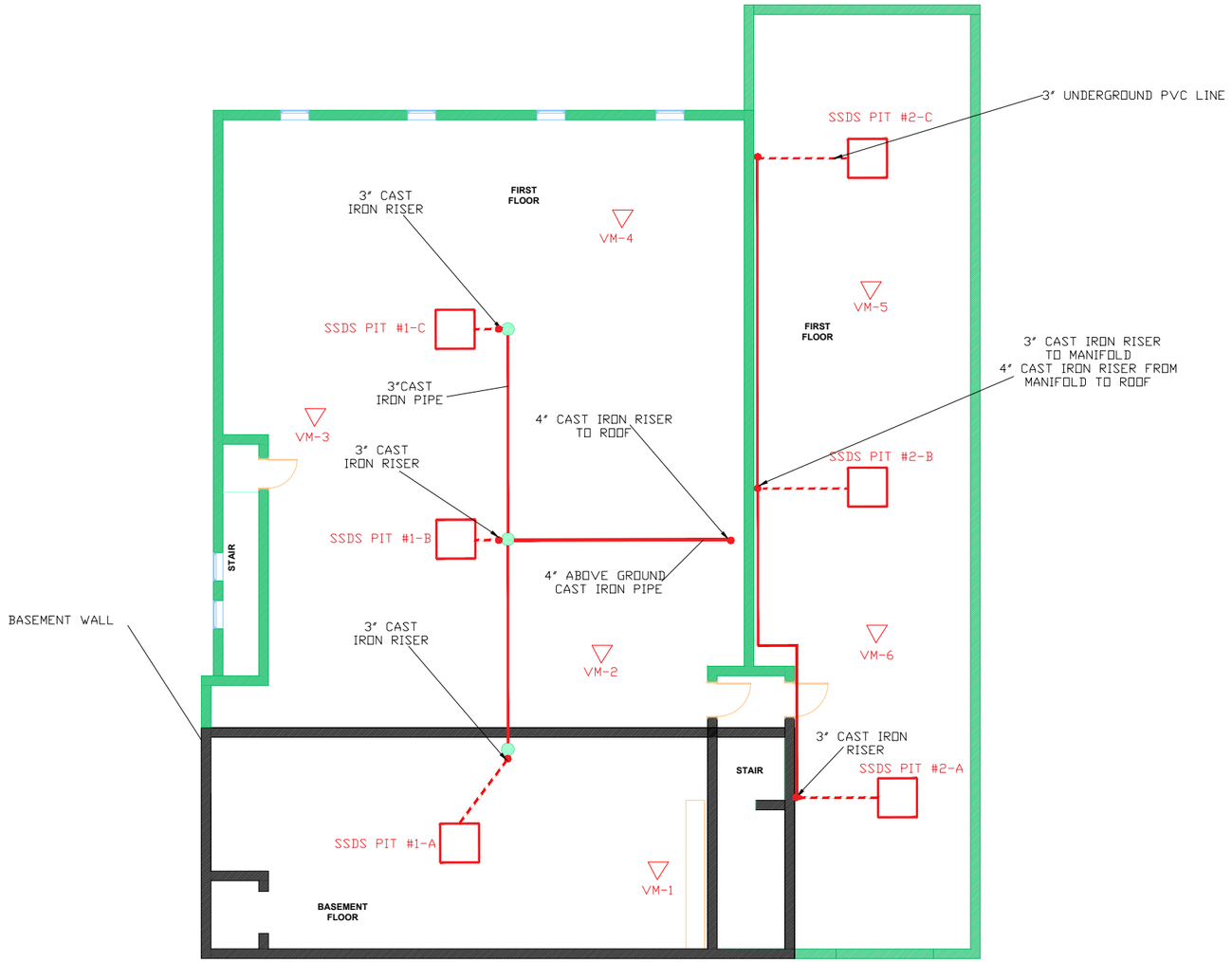

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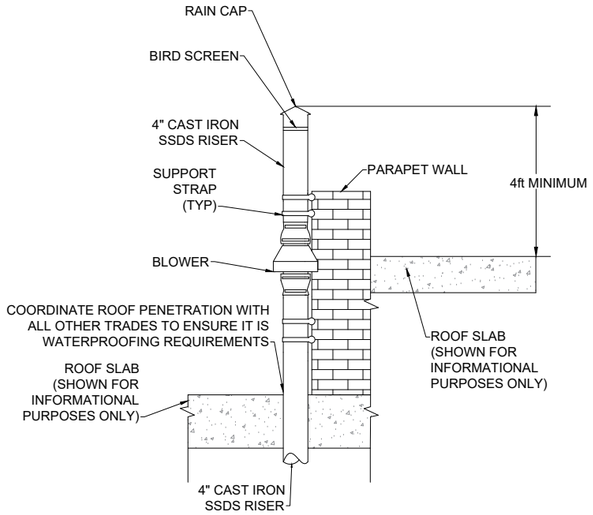
Figure 1
Sub-Slab Depressurization System Layout

Churches United For Fair Housing
276-284 Starr Street
Brooklyn, Kings County, New York

PROJECT NO. 220872.04	June 4, 2025	SCALE 1" = 15'

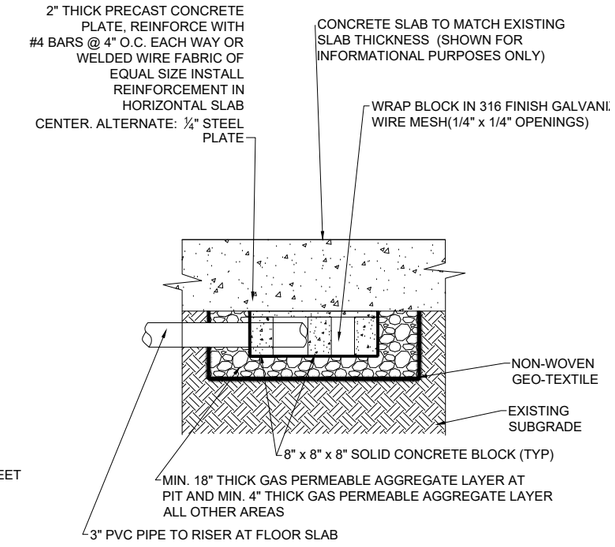


NOTES:

1. CONTRACTOR TO VERIFY THAT THE VENT STACK EXHAUST LOCATIONS ARE A DISTANCE OF 10 FEET FROM ANY FRESH AIR INTAKES OR OPERABLE WINDOWS (INCLUDING THOSE ON ADJOINING PROPERTIES). FINAL LOCATION AND HEIGHT OF VENT STACKS SHALL BE IN ACCORDANCE WITH LOCAL BUILDING CODE.
2. VENT STACKS SHALL BE SECURELY ANCHORED WITH ADEQUATE STRUCTURAL SUPPORTS AND FITTED WITH RAIN CAPS.
3. CONTRACTOR TO COORDINATE INSTALLATION OF SSDS WALL/ ROOF PENETRATION.

SSDS ROOF PENETRATION AND VENT DETAIL

NOT TO SCALE

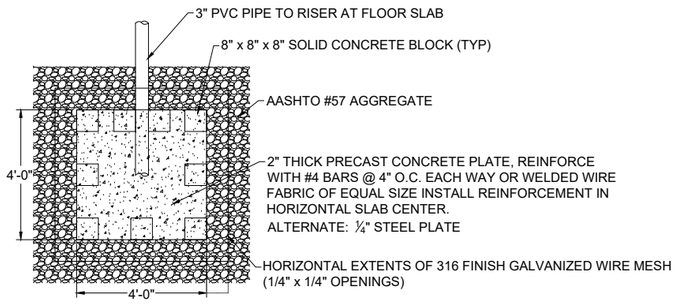


NOTES:

1. SLOPE HORIZONTAL PIPE A MINIMUM OF 1% UNIFORMLY TOWARD SUB-SLAB DEPRESSURIZATION PIT.

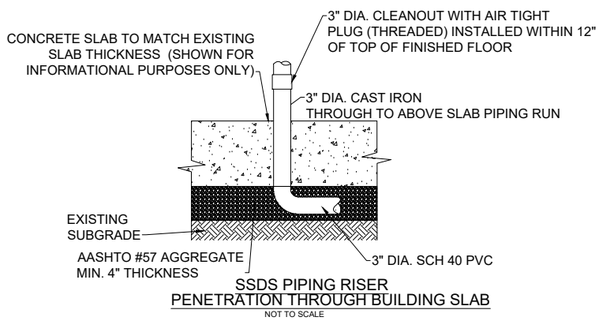
SUB-SLAB DEPRESSURIZATION CROSS-SECTION

NOT TO SCALE



PLAN VIEW SUB-SLAB DEPRESSURIZATION PIT

NOT TO SCALE



SSDS PIPING RISER PENETRATION THROUGH BUILDING SLAB

NOT TO SCALE

SUB-SLAB DEPRESSURIZATION SYSTEM NOTES

1. FLOOR DRAINS THAT ARE NOT CONNECTED TO SEWER SHALL BE FITTED WITH ONE-WAY FLOW VALVES.
2. SEALING OPENINGS AND PENETRATIONS SHALL BE PERFORMED WITH CAULK (COMPLIANT OF ASTM C920 CLASS 25 OR HIGHER OR EQUIVALENT) OR CLOSED CELL GASKET MATERIALS. A FOAM BACKER ROD SHALL BE INSERTED INTO THE JOINT TO SUPPORT CURING CAULK ON JOINTS OR OPENINGS GREATER THAN ½ INCH (13MM) IN WIDTH. SOIL GAS COLLECTION PLENUMS SHALL BE PROPERLY SEALED AGAINST AIR LEAKS, INCLUDING OPENINGS AROUND PLUMBING, EXHAUST VENT PIPES, MECHANICAL PIPING, STRUCTURAL SUPPORTS, GAPS TO THE INSIDE OF HOLLOW STRUCTURAL POSTS, AND EXPOSED ELECTRICAL CONDUITS.
3. SUMPS OR OTHER PIT OPENINGS IN INTERIOR FLOORS THAT REQUIRE ACCESS FOR MAINTENANCE AND CONNECT TO SOIL AIR SHALL HAVE A PLASTIC, RIGID LID THAT IS DURABLE AND ROT-RESISTANT (SUCH AS POLYCARBONATE). THE LID SHALL BE SEALED WITH GASKET MATERIAL OR SILICONE CAULK AND MECHANICALLY FASTENED. PIPE AND WIRING PENETRATIONS THROUGH THE LID SHALL BE SEALED. CAULK THAT IS COMPLIANT OF THE ASTM C620 CLASS 25 OR HIGHER SHALL BE USED TO SEAL GAPS BETWEEN THE INTERSECTION OF THE SUMP BASIN AND THE FLOOR OR MEMBRANE.
4. FLOOR DRAIN LABEL OR MARKING TITLES SHALL READ: "COMPONENT OF A SOIL GAS VENT SYSTEM. RETURN TO A CLOSED CONDITION IF OPENED, ACCESSED OR DAMAGED." LABELS OR MARKINGS SHALL BE PRESENT ON SUMP LIDS, BLOCK-OUTS, ACCESS OPENINGS, AND OTHER CLOSED SURFACES THAT COULD BECOME COMPONENTS OF A MITIGATION SYSTEM AND WOULD REQUIRE ACCESSIBILITY
5. ALL EXHAUST VENT PIPING SHALL SLOPE DOWNWARD TOWARDS THE SOIL AT NO LESS THAN 1/8 INCHES PER FOOT. SLOPING SECTIONS OF HORIZONTAL PIPE THAT ARE GREATER THAN 15 FEET (5 M) SHALL BE AVOIDED.
6. ALL PIPING ABOVE GROUND SHALL BE SUPPORTED BY THE STRUCTURE OF A BUILDING VIA HANGERS OR STRAPPING THAT ARE SPECIFIC TO PROVIDING PIPING SUPPORT. PLASTIC PIPING SUPPORTS SHALL BE INSTALLED AT INTERVALS THAT ARE NO GREATER THAN 4 FEET (1.2 M), WHILE VERTICAL PIPING SUPPORTS SHALL NOT EXCEED 10 FEET (3M).
7. PRIMER CONFORMING TO ASTM F656 SHALL BE USED TO PREPARE SOLVENT-WELDED JOINT SURFACES FOR PVC PLASTIC PIPES AND FITTINGS. SOLVENT CEMENT CONFORMING TO ASTM D 2564 SHALL BE USED ON SOLVENT-WELDED PVC PLASTIC PIPE JOINTS.
8. ELECTRICAL CONDUCTORS FROM A DEDICATED BREAKER SHALL BE LOCATED WITHIN 6 FEET (1.8 M) OF THE RADON AWAY® HS2750 BLOWER TO SUPPLY A BOXED ELECTRICAL OUTLET. THE OUTLET SHALL BE CLEARLY LABELED: "SOIL GAS FAN."
9. EXHAUST VENT PIPING LABELS SHALL CLEARLY STATE THAT THE ITEM IS A COMPONENT OF A SOIL GAS VENT SYSTEM.
10. EXHAUST VENT PIPING LABELS SHALL BE AT INTERVALS NO GREATER THAN 20 FEET (6 M) ALONG THE DEVELOPED LENGTH OF EXHAUST PIPING.
11. THE POINT OF EXHAUST SHALL BE NO LESS THAN 18 INCHES (46 CM) ABOVE A FLAT ROOF.
12. THE POINT OF EXHAUST SHALL NOT BE LESS THAN 4 FEET (120 CM) ABOVE OPERABLE OPENINGS IN STRUCTURES.
13. THE POINT OF EXHAUST SHALL NOT BE LESS THAN 10 FEET (3M) HORIZONTALLY TO THE SIDE OF OPERABLE OPENINGS IN STRUCTURES.
14. LETTERING ON SYSTEM LABEL TITLES SHALL BE NO LESS THAN 1/4 INCH (6.35 MM). ADDITIONAL INFORMATION ON THE LABELS SHALL HAVE LETTERING THAT IS NO LESS THAN 1/8 INCH (3.18 MM).
15. THE LABEL TITLES ON FAN MONITORS SHALL READ "SOIL GAS VENT SYSTEM".
16. A MEANS OF ELECTRICAL DISCONNECT SHALL BE PROVIDED FOR DEPRESSURIZATION FANS THAT DO NOT HAVE A CORD AND PLUG CONNECTED.
17. PRESSURE ACTIVATED ELECTRICAL DEPRESSURIZATION SYSTEM MONITORS SHALL RESET AUTOMATICALLY WHEN POWER IS RESTORED AFTER POWER SUPPLY FAILURE AND INCLUDE UNSWITCHED ELECTRICAL CIRCUITS.
18. ALL ABOVEGROUND PIPING SHALL BE CAST IRON.

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Figure 2
Sub-Slab Depressurization System Details and Notes

Churches United For Fair Housing
276-284 Starr Street
Brooklyn, Kings County, New York

PROJECT NO. 220872.04	June 4, 2025	SCALE = NTS

APPENDIX B:
Equipment Specifications

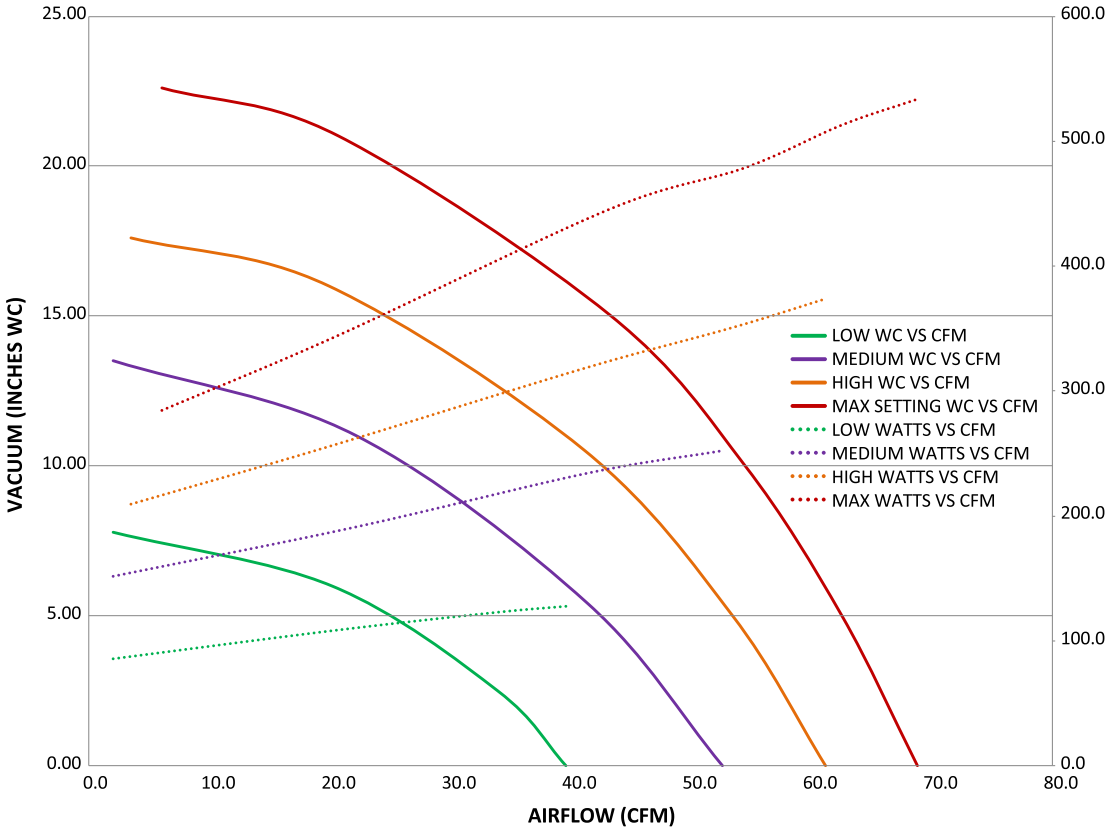
HS2750

RadonAway's new HS2750 (P/N 28595) is an ETL-listed high pressure blower that has been designed with the professional in mind. The HS2750 features multiple speed settings to meet site-specific pressures and air flows easily verified by a built-in pressure gauge in the front cover of the unit. These blower units have a new electrical box design with a wire terminal strip along with two flexible pipe couplings for quick and easy site installation.

HS2750 FEATURES

- 4 Blower Speed Settings
- Integrated Condensate Bypass
- Integrated Thermal Overload Protection
- ETL Listed
- Built-in 40" Vacuum Gauge
- Quiet Operation
- Single-Stage Blower Designed for Harsh Environmental Conditions

SPEED SETTING	MAX RECOMMENDED OPERATING VACUUM	MAX OPERATING RANGE WATTS
LOW	5" WC	112-123
MEDIUM	10" WC	199-245
HIGH	15" WC	266-337
MAX	20" WC	361-463





RadonAway® Easy Read Manometer - RED

SKU: 50018

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The RadonAway® Easy Read U-tube Manometer, installed in nearly a half million homes to date, lets the homeowner know at a glance whether the radon system is operating. Quantity Price Discounts apply at 50+. Pricing will update when added to Shopping Cart.

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Product Categories

RadonAway® Easy Read U-Tube Manometer

The RadonAway® Easy Read U-tube Manometer, installed in nearly a half million homes to date, lets the homeowner know at a glance whether the radon system is operating.* Our u-tube comes packaged as part of a System Monitoring and Homeowner Information packet containing instructions, system and component labels, and a homeowner information brochure that complies with current standards.

* This device does NOT measure radon levels.

Features

Reads 0-4.5" WC
Non-toxic fluid
Adjustable zero
Molded scale curved to fit system pipe

Packet Includes

Easy Read u-tube manometer (with tubing and 2 self-tap screws)
Installation instructions
System and component labels
System information brochure
Clear plastic bag with twist tie for hanging information on system

NOTE: RadonAway® Easy Read U-tube Manometer is not suitable for use with system pressures above 4.5" WC.

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APPENDIX C:

Green and Sustainable Remediation Documentation

Environmental Footprint Summary

Core Element	Metric		Unit of Measure	Footprint						
				SSDS	< Component 2 >	< Component 3 >	< Component 4 >	< Component 5 >	< Component 6 >	Total
Materials & Waste	M&W-1	Refined materials used on-site	Tons	7.8	0.0	0.0	0.0	0.0	0.0	7.8
	M&W-2	% of refined materials from recycled or reused material	%	0.0%						0.0%
	M&W-3	Unrefined materials used on-site	Tons	0.000	0.000	0.000	0.000	0.000	0.000	0.0
	M&W-4	% of unrefined materials from recycled or reused material	%							
	M&W-5	On-site hazardous waste disposed of off-site	Tons	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-6	On-site non-hazardous waste disposed of off-site	Tons	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-7	Recycled or reused waste	Tons	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	M&W-8	% of total potential waste recycled or reused	%							
Water (used on-site)	W-1	Public water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-2	Groundwater use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-3	Surface water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-4	Reclaimed water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-5	Storm water use	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-6	User-defined water resource #1	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-7	User-defined water resource #2	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	W-8	Wastewater generated	MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy	E-1	Total energy used (on-site and off-site)	MMBtu	93.9	0.0	0.0	0.0	0.0	0.0	93.9
	E-2	Energy voluntarily derived from renewable resources								
	E-2A	On-site renewable energy generation or use + on-site biodiesel use + biodiesel and other renewable resource use for transportation	MMBtu	2.2	0.0	0.0	0.0	0.0	0.0	2.2
	E-2B	Voluntary purchase of renewable electricity	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-3	Voluntary purchase of RECs	MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	E-4	On-site grid electricity use	MWh	0.139	0.000	0.000	0.000	0.000	0.000	0.1
Air	A-1	On-site NOx, SOx, and PM emissions	Pounds	39.9	0.0	0.0	0.0	0.0	0.0	39.9
	A-2	On-site HAP emissions	Pounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	A-3	Total NOx, SOx, and PM emissions	Pounds	108.4	0.0	0.0	0.0	0.0	0.0	108.4
	A-3A	Total NOx emissions	Pounds	65.8	0.0	0.0	0.0	0.0	0.0	65.8
	A-3B	Total SOx emissions	Pounds	17.2	0.0	0.0	0.0	0.0	0.0	17.2
	A-3C	Total PM emissions	Pounds	25.4	0.0	0.0	0.0	0.0	0.0	25.4
	A-4	Total HAP emissions	Pounds	1.6	0.0	0.0	0.0	0.0	0.0	1.6
	A-5	Total greenhouse gas emissions	Tons CO2e*	7.0	0.0	0.0	0.0	0.0	0.0	7.0
Land & Ecosystems	Qualitative Description									

** Total greenhouse gases emissions (in CO2e) include consideration of CO2, CH4, and N2O (Nitrous oxide) emissions.*
"MMBtu" = millions of Btus
"MG" = millions of gallons
"CO2e" = carbon dioxide equivalents of global warming potential
"MWh" = megawatt hours (i.e., thousands of kilowatt-hours or millions of Watt-hours)
"Tons" = short tons (2,000 pounds)

The above metrics are consistent with EPA's Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002), February 2012

Notes:

Input Worksheet for Input Template

Please specify which Remedy Component this Input worksheet is part of: (Select "Off" to exclude this Input worksheet from calculations and results)	**Component 1**	**SSDS**

General Scope

Saw cut and jackhammer concrete floor. Excavate soil. Dispose of soil and concrete. Install sub-slab PVC piping, backfill and concrete. Install aboveground cast iron piping and fans.

Example Items Eliminated through Screening Process

Other Notes and References

Personnel Transportation

Participant	Number of Roundtrips to Site	Roundtrip Distance to Site (miles)	Mode of Transportation*	Transport Fuel Type*	Total Distance Transported (miles)	Default Fuel Usage Rate**	Fuel Usage Rate Override**	Fuel Used for Personnel Transport**	Activity or Notes
Construction Worker #1	15	40	Car	Gasoline	600	25		24	Demo and construction
Construction Woker #2	15	40	Car	Gasoline	600	25		24	Demo and construction
Environmental Specialist #1	15	40	Train	Electricity	600	NO DATA			Demo and construction

**** See the "Detailed Notes and Explanations" tab for explanation of transport and fuel options.***

***** for biodiesel, B20, diesel, and gasoline, units are gallons for Fuel Used and miles/gallon for Fuel Usage Rate; for natural gas, units are hundreds of cubic feet (ccf) for Fuel Used and ccf/miles for Fuel Usage Rate; for electricity, units are miles/kWh for Fuel Usage Rate and the kWh (Fuel Used) are added to total grid electricity used (cell G69).***

On-Site Equipment Use and Transportation

Equipment Type*	HP*	Load Factor (%)*	Equipment Fuel Type**	Equipment Fuel Usage Rate	Equipment Hours Operated	Fuel Used for On-site Equipment	Equipment weight (tons)	Number of Equipment Roundtrips to Site	Roundtrip Distance to Site (miles)	Total Distance Transported (miles)	Mode of Transportation	Transport Fuel Type***	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Equipment Transport (gallons)	Activity or Notes
Skid-steer - small (60 HP)	60	70%	B20	2.142	40	85.68	2	1	40	40	Truck (mpg)	Diesel	6		6.7	
Other - HP varies	5	70%	Gasoline <25 hp	0.460526316	20	9.210526316	0.01	1	40	40	Truck (mpg)	Diesel	6		6.7	Concrete saw
Generator - HP varies	10	70%	Gasoline <25 hp	0.921052632	120	110.5263158	0.02	1	40	40	Truck (mpg)	Diesel	6		6.7	

**** HP and Load Factor must be entered by user in Columns C and D. Please see the "Detailed Notes and Explanations" tab for further explanation.***

***** For biodiesel, B20, diesel, gasoline, and liquified petroleum gas, units are gallons for Fuel Used for On-site Equipment and gallons/hr for Equipment Fuel Usage Rate; for compressed natural gas units are ccf (hundreds of cubic feet) for Fuel Used for On-site Equipment and ccf/hr for Equipment Fuel Usage Rate.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation and other aspects of data entry in Columns M, N, and P. Units are gallons for Fuel Used for Equipment Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Input Template

Remedy Component that this Input worksheet is part of:	Component 1	SSDS

On-Site Electricity Use

Equipment Type	HP	Load Factor (%)	Efficiency (%)	Electrical Rating (kW)	Hours Used	Energy Used (kWh)	Notes
Core Drill	5	70%	90%	2.901111111	16	46.41777778	As needed
Electric Jackhammer	3	70%	90%	1.740666667	40	69.62666667	Concrete Demo
Ventilation Fan	1	70%	90%	0.580222222	40	23.20888889	Concrete Demo
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known kW rating>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
<Equip. with known total Energy Used>							
					Estimated Total Electricity Usage Based on Above	139.2533333	
					Renewable Electricity Generated On-Site*		
					Total Electricity Usage Based on Personnel Transportation	0	
					Total Grid Electricity Used	139.2533333	

**** Electricity generated on-site from renewable resources, for which the facility retains the rights to the renewable energy (i.e., does not sell renewable energy certificates associated with the renewable energy generation).***

On-Site Natural Gas Use

Equipment Type	Power Rating (Btu/hr)	Efficiency (%)	Hours Used	Energy Required (Btu)	Natural Gas Used (ccf)	Notes
					0	
				0		
			Totals	0	0	0

Landfill Gas Combusted On-Site for Energy Use

Equipment Type	Landfill Gas (ccf)	% Methane by volume	Used for electricity?	Landfill Gas Methane Used (ccf)	Notes
				0	
				0	
				0	
			Total	0	

Please see the "Detailed Notes and Explanations" tab for instructions on using the two tables above ("On-site Natural Gas Use" and "Landfill Gas Combusted On-Site for Energy Use"). In the two tables above, ccf = hundreds of cubic feet.

Materials Use and Transportation

Material Type*	Unit	Quantity	Tons	Is the Material Refined or Unrefined?**	Material Source: Virgin, Recycled, or Reused?**	Calculate Item Footprint?**	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation***	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Materials Transport (gallons)	Notes and Description of Materials
Ready-mixed concrete, 20 MPa	ft3	46	1.725	Refined	Virgin	Yes	25		1	No	25	Truck (mpg)	Diesel	6		4.167	
Gravel/sand/clay	lb	10000	5	Refined	Virgin	Yes	25		1	No	25	Truck (mpg)	Diesel	6		4.167	
PVC	lb	57	0.0285	Refined	Virgin	Yes	500		1	No	500	Truck (mpg)	Diesel	6		83.333	
Steel	lb	2023	1.0115	Refined	Virgin	Yes	500		1	No	500	Truck (mpg)	Diesel	6		83.333	
Geotextile		20		Refined	Virgin	Yes		25	1	No	25	Truck (mpg)	Diesel	6		4.167	Pounds, Geotextile for SSDS pits
Cement blocks		1134		Refined	Virgin	Yes		25	1	No	25	Truck (mpg)	Diesel	6		4.167	Pounds, Cement blocks for SSDS pits
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														
			0														

**** Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined Materials" in the dropdown menu.***

***** Selections must be made in Columns F - H in order for the footprint calculations to be performed. Please see the "Detailed Notes and Explanations" tab for further information.***

****** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns L, N, O, and Q. Units are gallons for Fuel Used for Materials Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Input Worksheet for Input Template

Remedy Component that this Input worksheet is part of:	Component 1	SSDS

Waste Disposal and Transportation

Waste Destination*	Unit	Quantity	Tons	Default One-way Distance to Site (miles)	One-way Distance to Site Override (miles)	Number of One-way Trips to Site	Include Return Trip in Calculations?	Total Distance Transported (miles)	Mode of Transportation **	Transport Fuel Type	Default Transport Fuel Usage Rate (gptm or mpg)	Transport Fuel Usage Rate Override (gptm or mpg)	Fuel Used for Waste Transport (gallons)	Notes and Description of Waste
Off-site non-hazardous waste landfill	tons		0	25				25						
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											
			0											

**** No footprint is calculated for the Recycled/Reused On-Site and Off-Site selections. Please see the "Detailed Notes and Explanations" tab for instructions on specifying "User-Defined" selections in the dropdown menu.***

***** Please see the "Detailed Notes and Explanations" tab for instructions on selecting mode of transportation, accounting for empty return trips, and other aspects of data entry in Columns I, K, L, and N. Units are gallons for Fuel Used for Waste Transport and miles/gallon (mpg) or gallons per ton-mile (gptm) for Transport Fuel Usage Rate.***

Type of Water Used

Source of Water Used*	Unit	Quantity	Tons	Source Location/Aquifer (optional)	Quality of Water Used (optional)	Water Uses (optional)	Fate of Used Water (optional)
Public Water	gal x 1000	0.1	0.417				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				
			0				

**** Only the "Public Water" selection has an associated footprint. No footprint is calculated for the other water source selections.***

Note: Information entered in Columns F - V (Source/Quality/Use/Fate) is not compiled or reported by SEFA.

Input Worksheet for Input Template

Remedy Component that this Input worksheet is part of:	Component 1	SSDS

Other Energy Use and Air Emissions

Item		Units	Quantity	Notes
On-Site				
User-defined on-site conventional energy use #1	*User-Defined	TBD		
User-defined on-site conventional energy use #2	*User-Defined	TBD		
On-site HAP process emissions**		lbs		
On-site GHG emissions**		lbs CO2e		
On-site carbon storage**		lbs CO2e		
Landfill gas flared on-site		ccf CH4		
Other on-site NOx emissions or reductions**		lbs		
Other on-site SOx emissions or reductions**		lbs		
Other on-site PM emissions or reductions**		lbs		
Transportation		**Units**	**Quantity**	**Notes**
User-defined conventional energy transportation #1	*User-Defined	TBD	10	
User-defined conventional energy transportation #2	*User-Defined	TBD		

**** Enter units and conversion factors on "User Defined Factors" tab***
***** Enter a positive number for emissions and a negative number for reductions, avoidances, or storage***
See the "Detailed Notes and Explanations" tab for use of this table.

Other Voluntary Renewable Energy Use

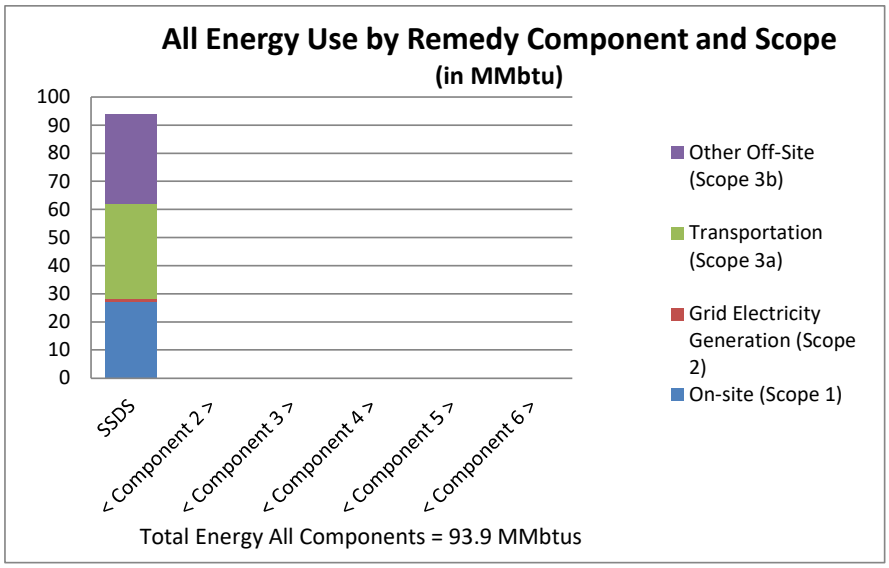
Item		Units	Quantity	Notes
User-defined on-site renewable energy use #1	*User-Defined	TBD		
User-defined on-site renewable energy use #2	*User-Defined	TBD		
User-defined renewable energy transportation #1	*User-Defined	TBD		
User-defined renewable energy transportation #2	*User-Defined	TBD		
Voluntary purchase of renewable electricity**		MWh		
Voluntary purchase of RECs**		MWh		

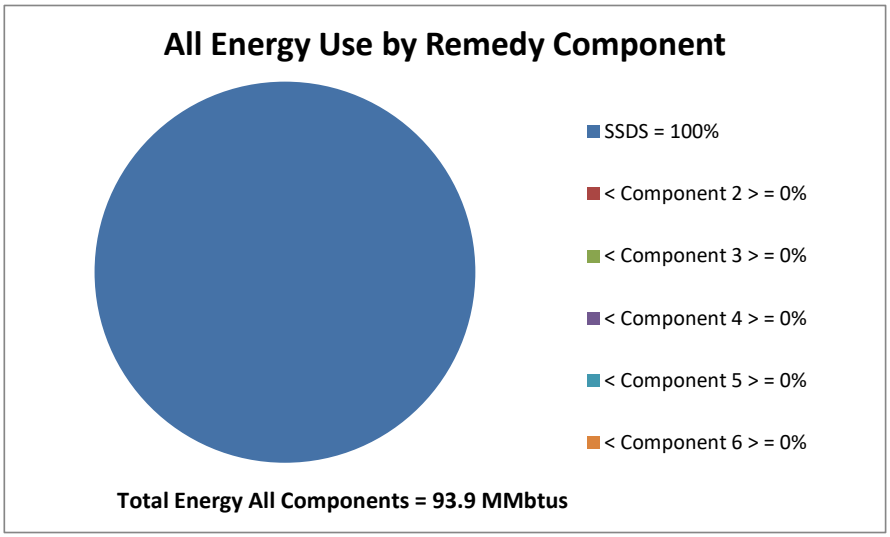
**** Enter units and conversion factors on "User Defined Factors" tab***
***** Complete information on provider in the table to the right. No footprint reductions are associated with the voluntary purchases.***
See the "Detailed Notes and Explanations" tab for use of this table

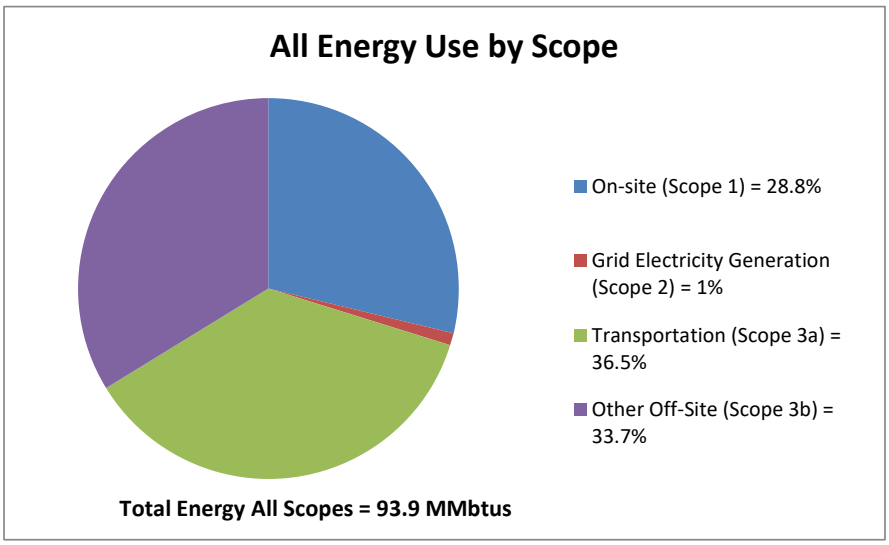
Off-Site Laboratory Analysis

Parameter and Notes	Number of Samples	Comments
Totals	**0**	

Description of purchased renewable electricity (green pricing product or green marketing product)	Provider:	
	Type of product:	
	Type of renewable energy source:	
	Date of renewable system installation:	
Description of purchased RECs	Provider:	
	Type of renewable energy source:	
	Date of renewable system installation:	
	Location of renewable system installation:	


All Energy Use by Remedy Component and Scope
(in MMbtu)
100
90
80
70
60
50
40
30
20
10
0
SSDS
< Component 2 >
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
Total Energy All Components = 93.9 MMbtus


All Energy Use by Remedy Component
SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
Total Energy All Components = 93.9 MMbtus

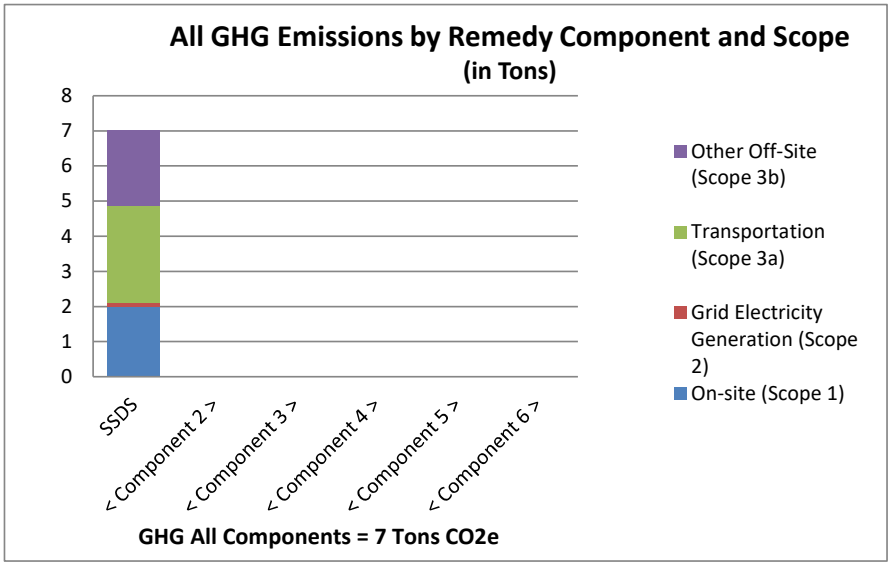

All Energy Use by Scope
On-site (Scope 1) = 28.8%
Grid Electricity Generation (Scope 2) = 1%
Transportation (Scope 3a) = 36.5%
Other Off-Site (Scope 3b) = 33.7%
Total Energy All Scopes = 93.9 MMbtus

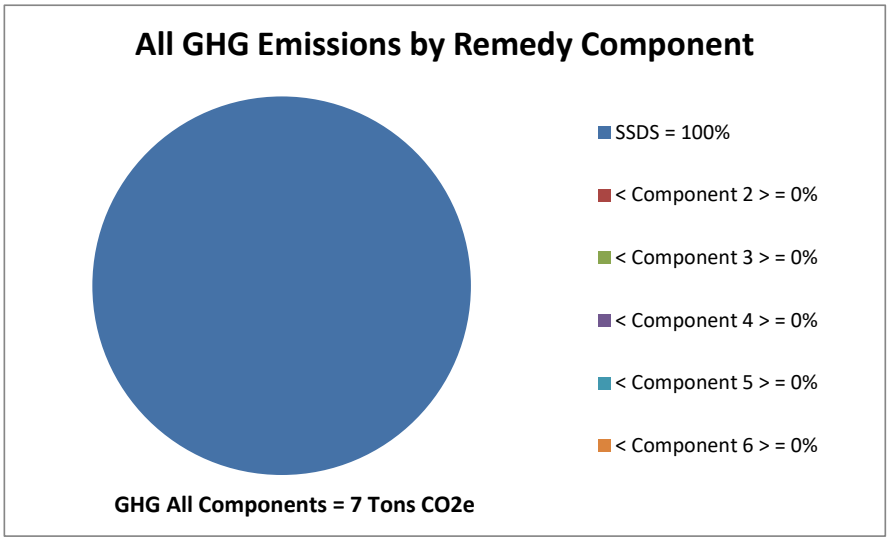
Total Energy MMbtus	SSDS	< Compon	< Compon	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	27.0	0.0	0.0	0.0	0.0	0.0	27.0	
Generation (Scope 2)	1.0	0.0	0.0	0.0	0.0	0.0	1.0	d Electricity
nsportation (Scope 3a)	34.2	0.0	0.0	0.0	0.0	0.0	34.2	Trar
ner Off-Site (Scope 3b)	31.7	0.0	0.0	0.0	0.0	0.0	31.7	Oth
Total	93.9	0.0	0.0	0.0	0.0	0.0	93.9	

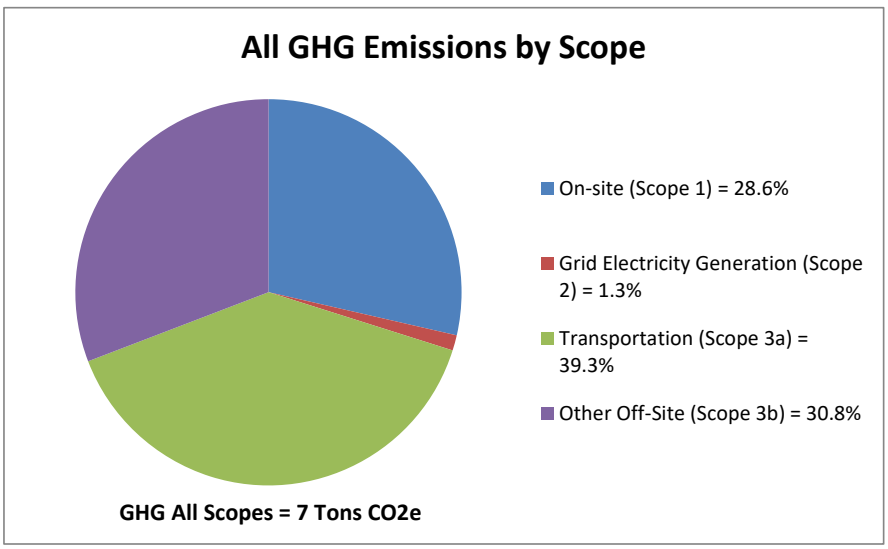
SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

On-site (Scope 1) = 28.8%
Grid Electricity Generation (Scope 2) = 1%
Transportation (Scope 3a) = 36.5%
Other Off-Site (Scope 3b) = 33.7%

Total Energy All Components = 93.9 MMbtus
Total Energy All Scopes = 93.9 MMbtus


All GHG Emissions by Remedy Component and Scope
(in Tons)
8
7
6
5
4
3
2
1
0
SSDS
< Component 2 >
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
GHG All Components = 7 Tons CO2e


All GHG Emissions by Remedy Component
SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
GHG All Components = 7 Tons CO2e

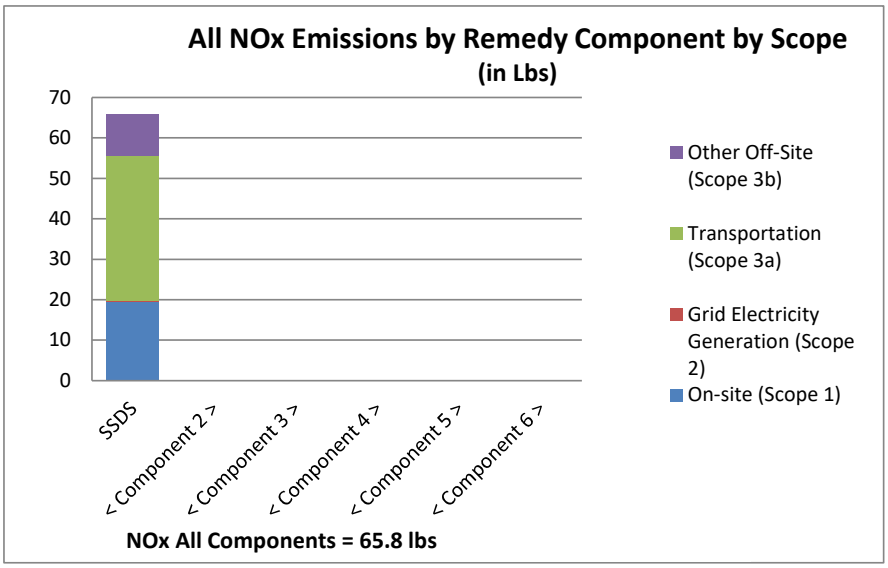

All GHG Emissions by Scope
On-site (Scope 1) = 28.6%
Grid Electricity Generation (Scope 2) = 1.3%
Transportation (Scope 3a) = 39.3%
Other Off-Site (Scope 3b) = 30.8%
GHG All Scopes = 7 Tons CO2e

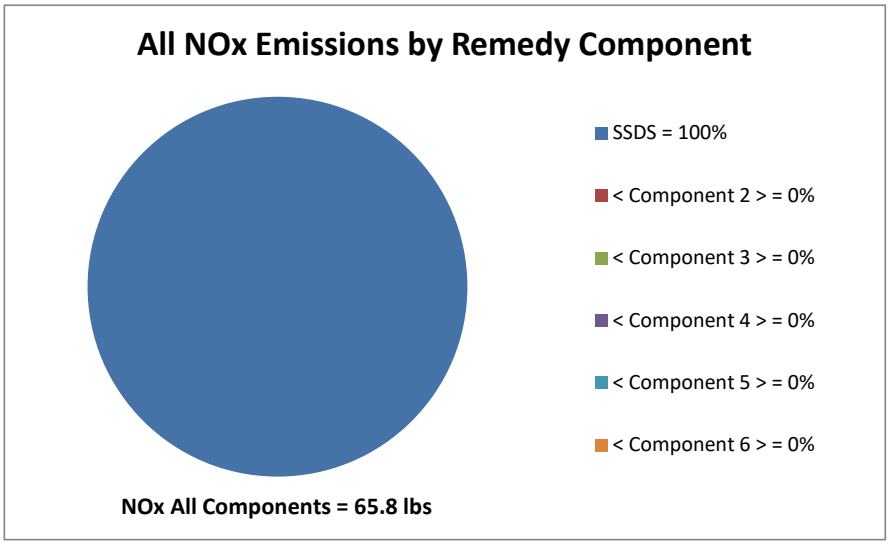
GHG Tons CO2e	SSDS	< Compon	< Compon	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	2.0	0.0	0.0	0.0	0.0	0.0	2.0	
Generation (Scope 2)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	d Electricity
nsportation (Scope 3a)	2.8	0.0	0.0	0.0	0.0	0.0	2.8	Trar
ner Off-Site (Scope 3b)	2.2	0.0	0.0	0.0	0.0	0.0	2.2	Oth
Total	7.0	0.0	0.0	0.0	0.0	0.0	7.0	

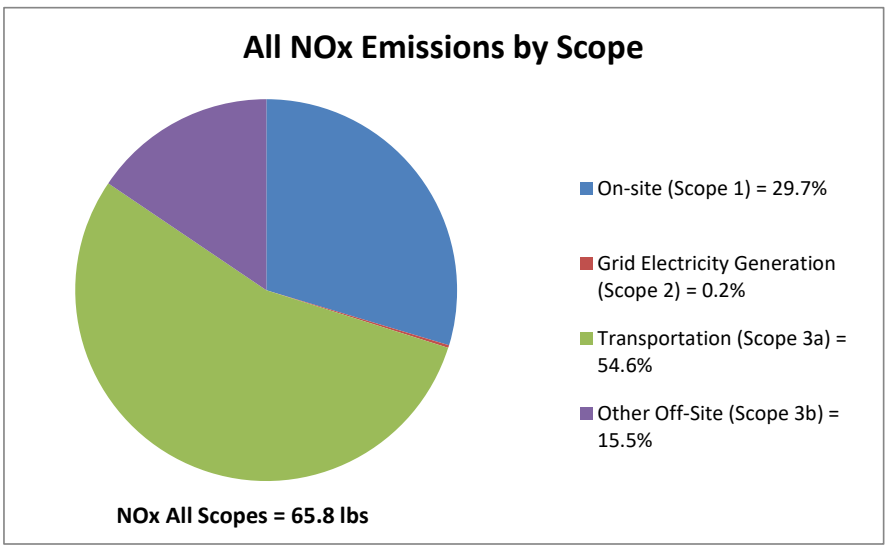
SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

GHG All Components = 7 Tons CO2e
GHG All Scopes = 7 Tons CO2e

On-site (Scope 1) = 28.6%
Grid Electricity Generation (Scope 2) = 1.3%
Transportation (Scope 3a) = 39.3%
Other Off-Site (Scope 3b) = 30.8%


All NOx Emissions by Remedy Component by Scope
(in Lbs)
70
60
50
40
30
20
10
0
SSDS
< Component 2 >
< Component 3 >
< Component 4 >
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
NOx All Components = 65.8 lbs


All NOx Emissions by Remedy Component
SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%
NOx All Components = 65.8 lbs

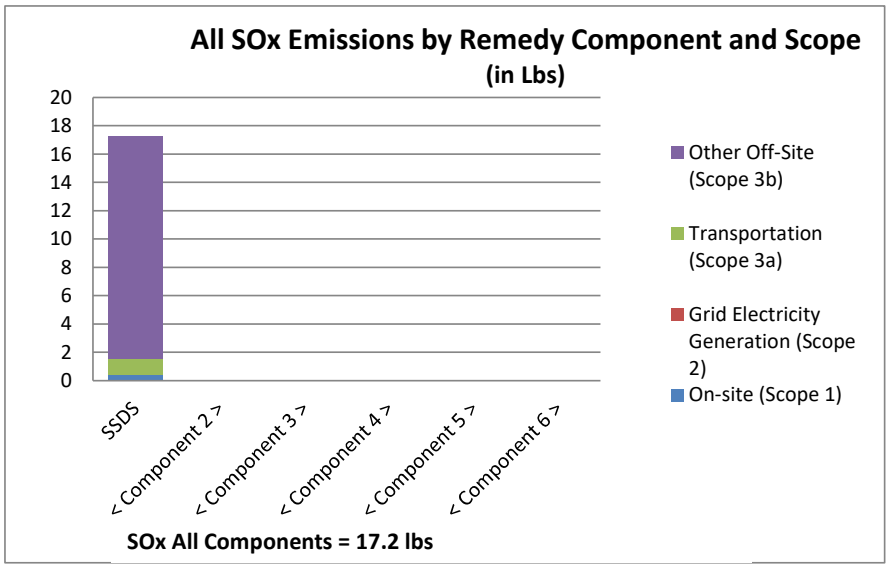

All NOx Emissions by Scope
On-site (Scope 1) = 29.7%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 54.6%
Other Off-Site (Scope 3b) = 15.5%
NOx All Scopes = 65.8 lbs

NOx lbs	SSDS	< Compon	< Compon	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	19.5	0.0	0.0	0.0	0.0	0.0	19.5	
Generation (Scope 2)	0.2	0.0	0.0	0.0	0.0	0.0	0.2	d Electricity
nsportation (Scope 3a)	35.9	0.0	0.0	0.0	0.0	0.0	35.9	Trar
her Off-Site (Scope 3b)	10.2	0.0	0.0	0.0	0.0	0.0	10.2	Oth
Total	65.8	0.0	0.0	0.0	0.0	0.0	65.8	

SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

NOx All Components = 65.8 lbs
NOx All Scopes = 65.8 lbs

On-site (Scope 1) = 29.7%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 54.6%
Other Off-Site (Scope 3b) = 15.5%


All SOx Emissions by Remedy Component and Scope
(in Lbs)
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16
14
12
10
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6
4
2
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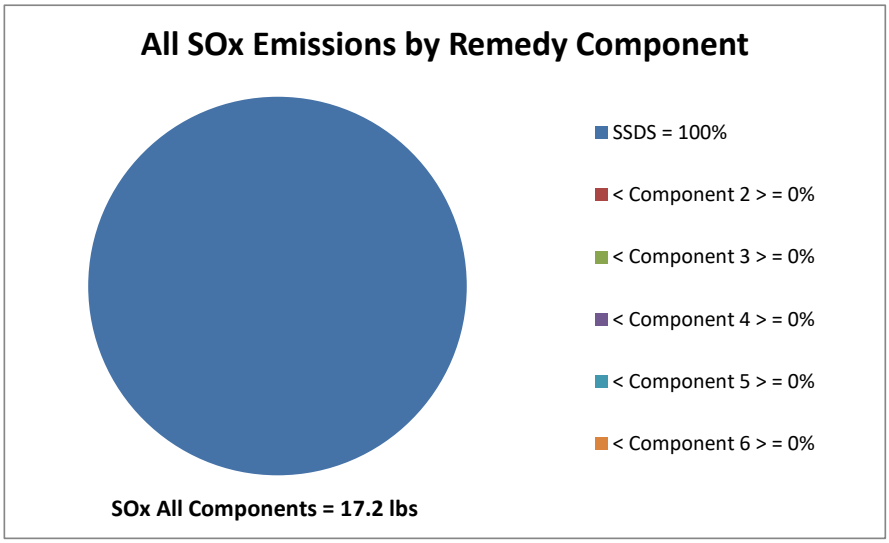
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
SOx All Components = 17.2 lbs


All SOx Emissions by Remedy Component
SSDS = 100%
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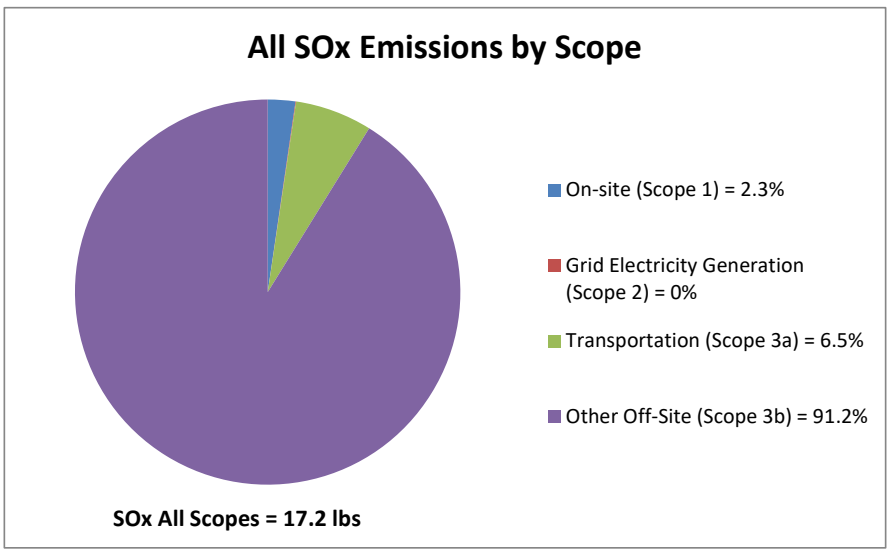
< Component 6 > = 0%
SOx All Components = 17.2 lbs

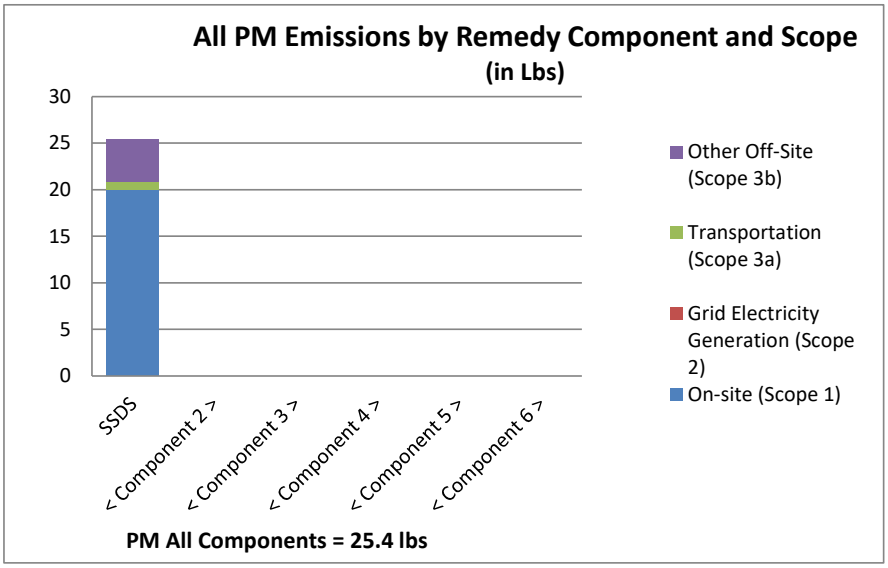

All SOx Emissions by Scope
On-site (Scope 1) = 2.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 6.5%
Other Off-Site (Scope 3b) = 91.2%
SOx All Scopes = 17.2 lbs

SOx lbs	SSDS	< Compon	< Compon	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	0.4	0.0	0.0	0.0	0.0	0.0	0.4	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	1.1	0.0	0.0	0.0	0.0	0.0	1.1	Trar
ner Off-Site (Scope 3b)	15.7	0.0	0.0	0.0	0.0	0.0	15.7	Oth
Total	17.2	0.0	0.0	0.0	0.0	0.0	17.2	

SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

SOx All Components = 17.2 lbs
SOx All Scopes = 17.2 lbs

On-site (Scope 1) = 2.3%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 6.5%
Other Off-Site (Scope 3b) = 91.2%


All PM Emissions by Remedy Component and Scope
(in Lbs)
30
25
20
15
10
5
0
SSDS
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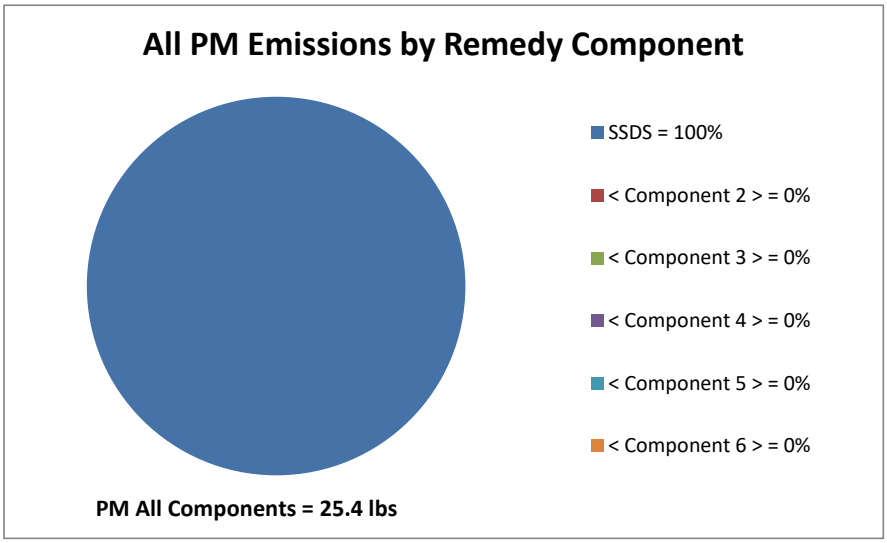
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
PM All Components = 25.4 lbs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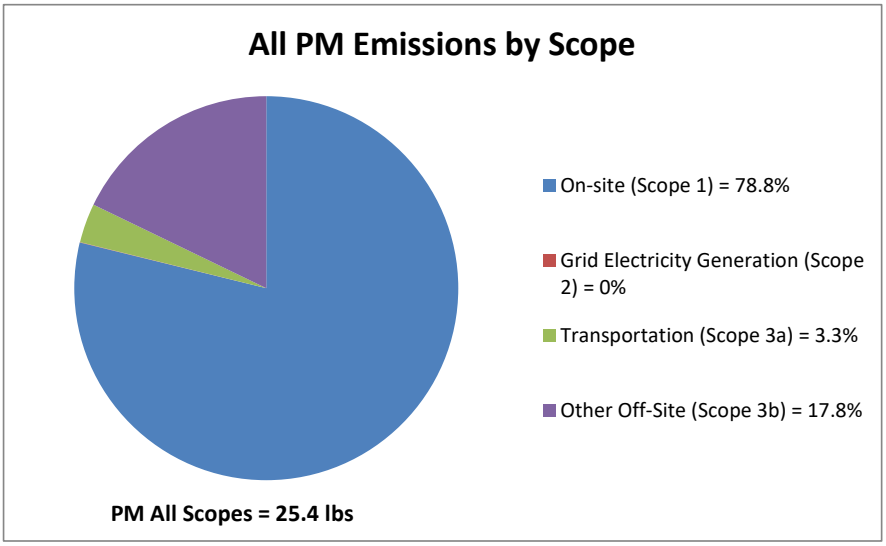
PM All Components = 25.4 lbs

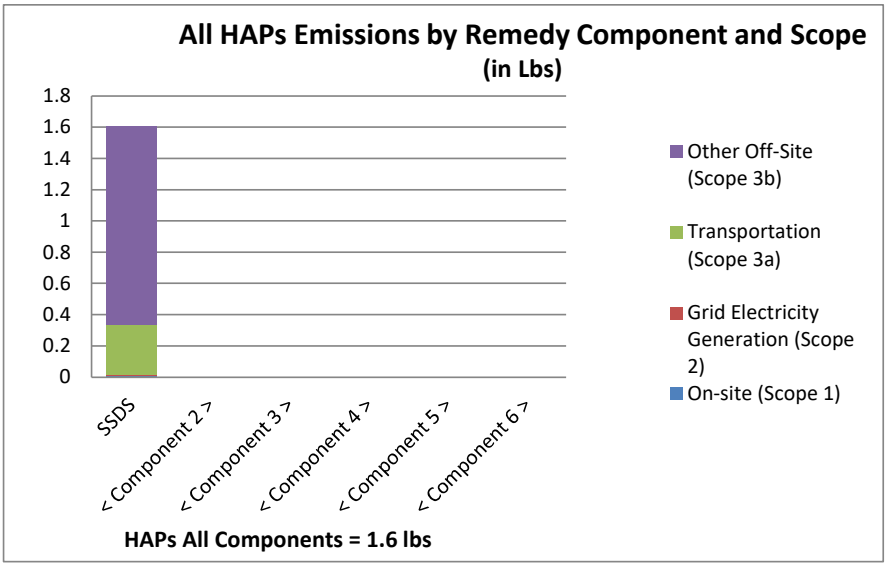

All PM Emissions by Scope
On-site (Scope 1) = 78.8%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 3.3%
Other Off-Site (Scope 3b) = 17.8%
PM All Scopes = 25.4 lbs

PM lbs	SSDS	< Compon	< Compon	< Compon	< Compon	< Compon	Total	
On-site (Scope 1)	20.0	0.0	0.0	0.0	0.0	0.0	20.0	
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	d Electricity
nsportation (Scope 3a)	0.8	0.0	0.0	0.0	0.0	0.0	0.8	Trar
ner Off-Site (Scope 3b)	4.5	0.0	0.0	0.0	0.0	0.0	4.5	Oth
Total	25.4	0.0	0.0	0.0	0.0	0.0	25.4	

SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

PM All Components = 25.4 lbs
PM All Scopes = 25.4 lbs

On-site (Scope 1) = 78.8%
Grid Electricity Generation (Scope 2) = 0%
Transportation (Scope 3a) = 3.3%
Other Off-Site (Scope 3b) = 17.8%


All HAPs Emissions by Remedy Component and Scope
(in Lbs)
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1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
SSDS
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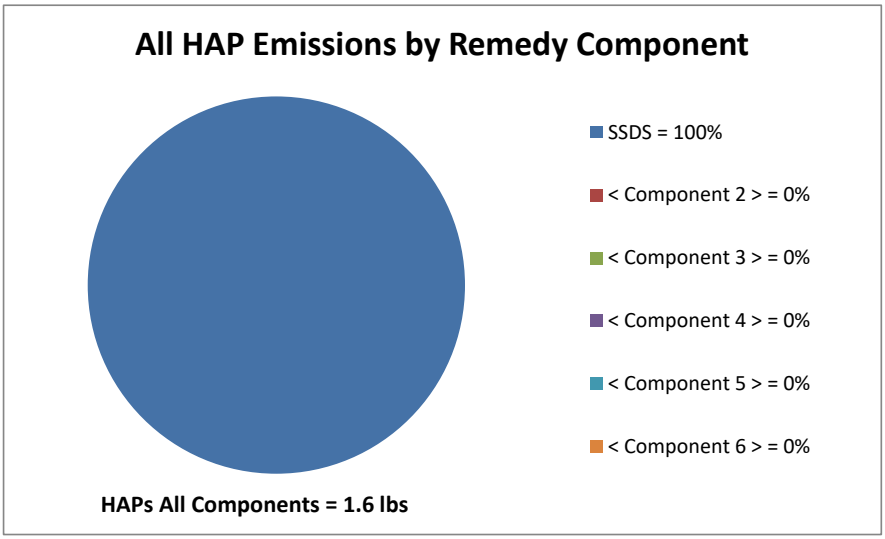
< Component 5 >
< Component 6 >
Other Off-Site (Scope 3b)
Transportation (Scope 3a)
Grid Electricity Generation (Scope 2)
On-site (Scope 1)
HAPs All Components = 1.6 lbs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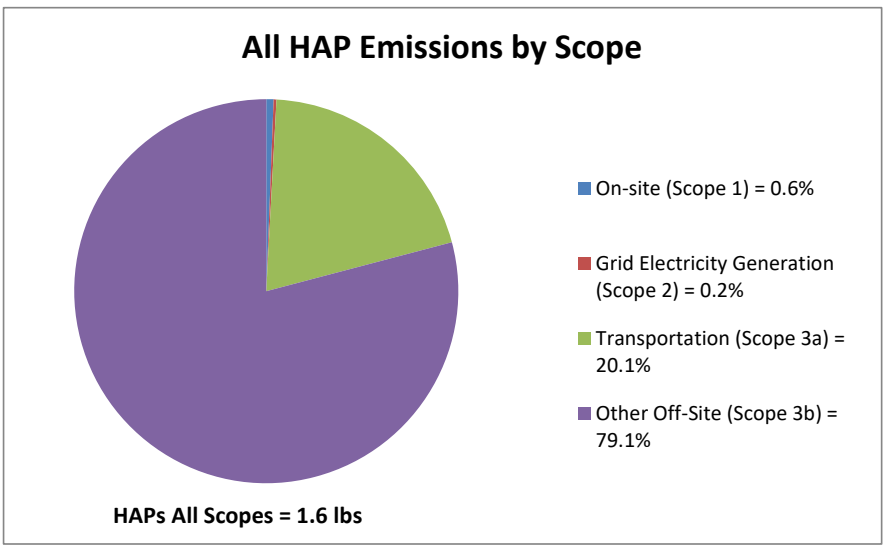
HAPs All Components = 1.6 lbs


All HAP Emissions by Scope
On-site (Scope 1) = 0.6%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 20.1%
Other Off-Site (Scope 3b) = 79.1%
HAPs All Scopes = 1.6 lbs

HAPs
lbs

	SSDS	< Compon	< Compon	< Compon	< Compon	< Compon	Total
On-site (Scope 1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generation (Scope 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nsportation (Scope 3a)	0.3	0.0	0.0	0.0	0.0	0.0	0.3
her Off-Site (Scope 3b)	1.3	0.0	0.0	0.0	0.0	0.0	1.3
Total	1.6	0.0	0.0	0.0	0.0	0.0	1.6

SSDS = 100%
< Component 2 > = 0%
< Component 3 > = 0%
< Component 4 > = 0%
< Component 5 > = 0%
< Component 6 > = 0%

HAPs All Components = 1.6 lbs
HAPs All Scopes = 1.6 lbs

On-site (Scope 1) = 0.6%
Grid Electricity Generation (Scope 2) = 0.2%
Transportation (Scope 3a) = 20.1%
Other Off-Site (Scope 3b) = 79.1%

APPENDIX D:

Construction Health and Safety Plan

Construction Health and Safety Plan

Churches United For Fair Housing
276-284 Starr Street
Brooklyn, New York

Prepared For:
Churches United For Fair Housing
7 Marcus Garvey Boulevard
Brooklyn, NY 11206
rsolano@cuffh.org

Prepared By:
Liberty Environmental, Inc.
131 Varick Street, Suite 1022
New York, NY 10013
(800) 305-6019

June 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ATTACHMENTS

1. INTRODUCTION

This Health & Safety Plan (HASP) has been developed for the remedial activities planned at the property located at 276-284 Starr Street (Block 3200, Lot 19) in Brooklyn, New York. This HASP is intended to provide recommended health and safety procedures for personnel participating in on-site activities during the remedial actions.

Procedures and protocols set forth in this plan are designed to reduce the risks of exposure to chemical substances and materials that may be present in sub-slab soils and indoor air at the site. The procedures contained herein were developed in accordance with the provisions set forth by 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response).

All personnel performing work activities on the site will read the HASP prior to performing any work activities. After reading the HASP, all personnel will sign the log sheet acknowledging they have read the HASP. This allows all personnel to have an opportunity to ask questions and discuss concerns with the Site Health & Safety Officer (SSO), and agree to perform all work activities in compliance with the HASP from the first day on-site. During this initial meeting the Health & Safety Officer will request a copy of the worker's OSHA 40-hour certification for OSHA 29 CFR 1910.120(e) Hazardous Waste Operations: Safety & Health 40-Hour Training Program for Site Personnel, and the most recent 8-hour refresher training certification. Copies of the certifications will be maintained in the site files.

The Remedial Action Contractor (RAC) shall be responsible for ensuring that the approved HASP is properly implemented, and that all activities conducted during the Remedial Activities (RA) comply with the provisions indicated in the project Scope of Work. The recommended procedures and protocols outlined in the approved HASP may be modified during the course of the activities, as additional information becomes available during on-site characterization or through laboratory chemical analyses. These modifications shall be issued in the form of revisions to specific pages or sections of the HASP. A revised table of contents will also be issued for verification of updated pages, along with a document listing all revisions.

This plan has been developed as guidance to ensure that all field activities and site operations associated with the Site are in accordance with Federal regulations including the following key regulations and others which may apply:

Regulations	**Title**
29 CFR 1910.120	Hazardous Waste Site Operations and Emergency Response
29 CFR 1910.20	Access to Employee Exposure and Medical Records
29 CFR 1904	Recording and Reporting Occupational Injuries and Illnesses
29 CFR 1910.1000	Air Contaminants
29 CFR 1926	Construction Activities
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.1200	Toxic & Hazardous Substances: Hazard Communication

2. SITE DESCRIPTION

The Site is located in the Bushwick section of Brooklyn, New York and is identified as Block Number 3200 and Lot number 19 on the New York City Tax Map. Figure 1 shows the site location.

The results of prior environmental investigations identified detectable concentrations of six VOCs (1,2-DCE, TCE, PCE, 1,1,1-TCA, methylene chloride, and carbon tetrachloride) in sub-slab soil vapor samples. Of these, three compounds (DCE, TCE and PCE) were reported at concentrations above their respective NYSDOH Final Guidance Mitigation Levels (i.e. guidance thresholds for mitigation, regardless of their concentrations in ambient indoor air). TCE was observed in the sub-slab samples from the partial basement at concentrations several orders of magnitude greater than its NYSDOH Final Guidance Mitigation Level of 60 ug/m3. Of the ambient air samples, TCE was reported in three samples above its NYSDOH Final Guidance Mitigation Level of 1.0 ug/m3. Benzene was also observed in the sub-slab and ambient air samples at concentrations which exceeded its USEPA residential Vapor Intrusion Screening Levels for sub-slab and indoor air of (VISL) of 12.0 ug/m3 and 0.36 ug/m3, respectively.

FIGURE 1
SITE LOCATION MAP

3.0 SUMMARY OF PROPOSED FIELD TASKS

The following actions may be performed at the site and form the subject of this CHASP:

1. Geophysical survey to identify the location of a closed-in-place tank and to determine if any other subsurface features (e.g. drains, pits, tanks, or piping) are present;

2. The advancement of interior soil borings to delineate the nature and extent of the apparent VOC impacts to the subsurface;

3. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.

4. Pressure field extension testing below the basement slab of the building and below the slab-on-grade portion of the first floor using a combination of vacuum extractions points and monitoring points, each drilled into the sub-slab zone;

5. Installation and activation of the SSDS system, to include vapor extraction point installation, pipe headers and risers, and fan assemblies; and,

6. Startup testing, operation and maintenance the SSDS system through regular vacuum and flow measurement, vapor screening, and vapor sampling.

3. KEY PERSONNEL & RESPONSIBILITIES

The following personnel from Liberty Environmental, Inc., who will be acting as the owner's representative throughout the project, will be available for consultation.

Personnel	Title	Office Phone Number	Mobile Phone
James P. Cinelli, PE	Professional Engineer, Alternate Site Safety Officer	(610) 375-9301	(610) 633-9780
David S. Coyne, QEP	Site Project Manager Site Safety Officer	(610) 375-9301	(484) 955-7884
Andre Matthews	Project Scientist	(347)-262-2740	(347)-262-2740

4. SITE HEALTH & SAFETY RISK ANALYSIS

4.1 KNOWN AND EXPECTED CONTAMINANTS OF CONCERN

Based on the results of the Phase II, the known contaminants of concern are VOCs, specifically 1,2-DCE, TCE, PCE, 1,1,1-TCA, methylene chloride, carbon tetrachloride and benzene, in soil vapor.

Table 1 presents a listing of chemical compounds and potential physical hazards that are potentially present in the work area. Threshold Limit Values (TLVs) and Permissible Exposure Limits (PELs) are referenced in this table. When the TLV and PEL values differ, the more stringent values will be used. The substances listed have been selected for informational purposes, and are intended to provide a framework for the development of relevant exposure information that is easily recognizable by field personnel. This list is not all-encompassing, but is meant to serve as a guide for assessing exposure potential, possible routes of exposure, symptoms of overexposure, and relevant chemical-specific and physiologic information.

Specific action levels have been established for personnel involved in the remedial action field activities. These action levels apply to all on-site personnel. The action levels presented in Tables 1 and 2 below shall apply to site-related activities, and are to be observed by the RAC when determining the need to upgrade the required level of Personal Protective Equipment (PPE).

Table 1
Chemical Compounds & Potential Physical Hazards

Compounds of Concern	Physical Hazard	ACGIH TLV (8-Hour TWA)	OSHA PEL (8-Hour TWA)
Benzene	Inhalation, skin absorption, ingestion, skin and/or eye contact	0.5 ppm	1 ppm
1,2-DCE	inhalation, skin absorption, ingestion, skin and/or eye contact	200 ppm	200 ppm
TCE	inhalation, skin absorption, ingestion, skin and/or eye contact	10 ppm	100 ppm
PCE	inhalation, skin absorption, ingestion, skin and/or eye contact	25 ppm	100 ppm
1,1,1-TCA	inhalation, skin absorption, ingestion, skin and/or eye contact	350 ppm	350 ppm
Methylene Chloride	inhalation, skin absorption, ingestion, skin and/or eye contact	50 ppm	25 ppm
Carbon Tetrachloride	inhalation, skin absorption, ingestion, skin and/or eye contact	5 ppm	10 ppm

Notes:
OSHA = Occupational Safety and Health Administration
ACGIH = American Conference of Governmental Industrial Hygienists
TLV = Threshold Limit Value
TWA = Time-Weighted Average (8-Hour)
PEL = Permissible Exposure Limit (8-Hour)

Table 2
Personal Protection Action Levels for Airborne Particulates

Total Particulates (mg/m^3)*	Required Level of Personnel Protection
0 to 5 mg/m^3	Level D protection, with respiratory protection readily available to all personnel.
5 mg/m^3 to 250 mg/m^3	Level C protection, with goggles and full-face respirator equipped with high-efficiency dust filters.
Greater than 250 mg/m^3	Suspend activities.

*Action levels assume a worst-case condition for airborne particulates. Action levels are based on the protection factors assigned to the specified respirators.

5. PERSONAL PROTECTIVE EQUIPMENT

All personnel must be provided with appropriate personal safety equipment and protective clothing, as described herein. Each individual will be properly trained in the use of this safety equipment before the start of field activities. Safety equipment and protective clothing shall be used as directed by the SSO. All such equipment and clothing will be cleaned and maintained in proper condition by project personnel. The SSO will monitor the maintenance of personnel protective equipment to ensure proper procedures are followed.

Personal protective equipment will be worn at all times, as designated by the HASP. All personnel coming in contact with the waste materials, removal activities, sampling, and other contact shall don Level D personal protective equipment at project start-up. The level of protection to be worn by field personnel will be defined and controlled by the SSO. When more than one hazard area is indicated during site operations, further delineation of the hazards shall be provided by the SSO after a complete review of operational requirements, operational conditions, and/or monitoring at the particular operations being conducted. Protection may be upgraded according to site-specific monitoring and action levels. Personnel may upgrade PPE, if warranted by conditions, without prior approval provided no additional hazards are posed (e.g., heat stress).

The HASP has been designed to allow for upgrading or downgrading the level of PPE to conservatively preclude any potential for human exposure. The SSO is solely responsible for determining the levels of PPE to be used during on-site activities, and has the option to upgrade the level of PPE protection based on air monitoring results or potential contact with contaminated media. Additionally, in some instances it may be appropriate to suspend work operations until particulate concentrations in the work area attenuate. Table 3 provides a summary of the anticipated PPE requirements.

Table 3
Summary of Personal Protective Equipment Requirements

Site Activity	Location	PPE Required
IAQ Testing	Basement and First Floor	Level D
Geophysical Survey	Basement and First Floor	Level D
RI Soil Boring Investigation	Basement and First Floor	Level D
Pressure Field Extension Testing	Basement and First Floor	Level D
SSDS System Installation	Basement and First Floor	Level D
SSDS System Operation, Monitoring and Maintenance	Basement and First Floor	Level D

Basic emergency equipment (i.e., first-aid kit, fire extinguisher, etc.) as appropriate will also be available in the field vehicles, as appropriate, during the performance of the above-listed tasks.

The personal protective equipment levels designated below are in conformance with EPA criteria for Level B, C, and D protection. All respiratory protective equipment used will be approved by the National Institute of Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA).

5.1 "MODIFIED LEVEL C" PROTECTION

The SSO may require an upgrade of PPE from Level D to Modified Level C, if site conditions change mandating an upgrade of PPE.

- Chemical-resistant clothing (Tyvek®, Poly-coated Tyvek® or Saranex®). Suits will be one piece with hoods, booties and elastic wrist bands.
- Outer nitrile gloves and inner latex surgical gloves.
- Leather boots with rubber overboots.
- Options as required: coveralls, disposable outer boots, face shield, hearing protection, safety glasses

5.2 LEVEL" D" PROTECTION

- Coveralls or long sleeve shirts and long pants.
- Outer nitrile gloves at a minimum for all material handling activities. Inner latex surgical gloves are recommended where practical.
- Steel-toed leather boots.
- Hard hat.
- Safety glasses.
- Level C protection readily available.
- Options as required: disposable outer boots, hearing protection, chemical-resistant gloves

This HASP is intended to provide appropriate protection to individuals during planned drum removal activities such as decontamination of personnel and equipment, site layout, general preparatory activities, etc.

6. MEDICAL MONITORING

The Occupational Safety and Health Administration (OSHA) has established requirements for a medical surveillance program designed to monitor and reduce health risks for employees potentially exposed to hazardous materials (29 CFR 1910.120). This program has been designed to provide baseline medical data for each employee involved in hazardous waste operations including field activities, and to determine his/her ability to wear personal protective equipment, such as chemical-resistant clothing and respirators. Employees who wear or may wear respiratory protection must be provided respirators as regulated by 29 CFR 1910.134. This Standard requires that an individual's ability to wear respiratory protection be medically certified before he/she performs designated duties. Where medical requirements of 29 CFR 1910.120 overlap those of 29 CFR 1910.134, the most stringent of the two will be enforced. Site activities are not expected to require the use of respiratory protection, therefore workers will not need to provide documentation of respiratory fitness. If respiratory protection is required, all medical requirements for respiratory protection will be implemented before site activities continue.

The medical examinations must be administered on a pre-employment and annual basis, and as warranted by symptoms of exposure or specialized activities. These examinations shall be provided by employers without cost or loss of pay to the employee. For the purposes of this Health and Safety Plan, all subcontractors shall assume the employer's responsibility in obtaining the necessary medical monitoring and training for their employees pursuant to this section of 29 CFR 1910.120.

The examining physician is required to make a report to the employer of any medical condition which would place such employees at increased risk of wearing a respirator or other personal protective equipment. Each employer engaged in site work shall assume the responsibility of maintaining site personnel medical records as regulated by 29 CFR 1910.120 where applicable. Exemption from the medical surveillance program may be allowed by the Manager of Safety and Health or his designee. These exemptions will be based on his interpretation of the requirements of 1910.120 relative to each individual exemption request.

All employees contracted to work at the site designated by this Plan will be responsible to insure their employees have received the proper medical tests as regulated by 29 CFR 1910.120 and shall provide the contractor with certifications.

Exit physicals will generally be required upon termination of employment for individuals working under the 29 CFR 1910.120 medical surveillance program, unless that individual has received a physical within the previous six months. Exit physicals may also be required at the completion of hazardous waste site work for workers who will no longer be working under the 29 CFR 1910.120 medical surveillance program.

All contractor and subcontractor personnel are required to participate in a medical surveillance program provided by a licensed qualified physician. The qualified physician will determine what tests and procedures are appropriate for the job description. The typical examination consists of the following:

- Medical History and Physical, including:
  - Medical questionnaire
  - Completion of medical history with occupational risk factor analysis
  - Examination by physician
  - Evaluation of test results
  - Brief report sent to employer covering specific requested areas as well as pertinent positive findings; report sent to family physician and employee by request
  - Pulmonary Function Testing (FEV_1, FVC)
  - EKG (12-lead)
- Lab tests, including:
  - Urinalysis
  - Blood "Chemzyme" Analysis (Chem 18)
  - Coronary Risk Screen
  - Complete Blood Count with differential
  - Audiometric testing (full-time field personnel only) - supervised by board-certified staff otolaryngologist

- Visual Acuity and Tonometry (full-time field personnel only) - supervised by board-certified staff ophthalmologist

Contractor and subcontractor personnel must maintain an accurate file of all medical records, and record personnel exposure monitoring data as required by Subpart C of 29 CFR 1910.120 (Occupational Safety and Health Administration regulations). These files should be made available for authorized individuals only to review.

Contractor and subcontractor personnel will be required to document their compliance with the applicable Medical Surveillance program requirements. Proof of medical monitoring will be provided to the SSO and will be required prior to subcontractor personnel going on site.

6.1 REQUIRED HEALTH AND SAFETY TRAINING

At a minimum, all applicable employees must meet the training requirements specified in 29 CFR 1910.120 by having been trained in the areas listed below. Contractors and subcontractors must acknowledge their compliance to the training requirements by providing certifications.

- **Site Safety Officer and Site Management Responsibilities** - personnel must understand Site Safety Officer and Site Management their role on the site, responsibilities and authority.
- **Site-Specific Health and Safety Hazards** - personnel must be informed of specific potential hazards related to the site and site operations. Prior to the start of construction activities, Contractor shall submit to Owner's representative a page signed by all on-site personnel indicating that they have read, understand, and shall conform to the requirements of the Health and Safety Plan.
- **Personal Protective Equipment** - personnel must be trained in proper use of personal protective equipment.
- **Safe Work Practices/Engineering Controls** - personnel must be informed of appropriate work practices and engineering controls that will reduce the risk of exposure to potential site hazards.

- **Safety Equipment Use** - personnel must understand the use of monitoring instruments and other safety equipment
- **Medical Surveillance Program** - personnel must be informed of requirements for medical surveillance of hazardous waste site employees.
- **Site Control Methods** - personnel must understand site methods used to reduce exposure to on-site and off-site personnel, and must observe the established safety zones on-site.
- **Decontamination Procedures** - personnel must be trained in proper decontamination operations and procedures for personnel.
- **Emergency Response** - personnel must be trained in proper emergency response operations and procedures, and be able to access associated emergency contact numbers.
- **Confined Space Entry/Special Hazards** - personnel involved in specific hazardous activities, such as confined space entry and drum handling, must receive training in appropriate techniques to employ during such operations.

All on-site personnel will attend a safety and logistics briefing by the SSO before the commencement of field activities. Brief safety and logistics meetings will be held daily prior to the start of work for that day. As necessary, end of day meetings should be held to discuss safety and other issues.

7. HEALTH & SAFETY PROTOCOLS DURING SITE OPERATION

7.1 AIR MONITORING PROGRAM

Field activities associated with redevelopment activities may create potentially hazardous conditions, such as the release of compounds into the breathing space or contact with contaminated media. Airborne contaminant monitoring will be accomplished by several methods. The monitoring shall be conducted in a manner that will assess contaminant concentrations in the worker breathing zone and along the exclusion zone perimeter. These monitoring results will be the basis for PPE selection.

7.1.1 AIR MONITORING

A particulate meter will be used to measure the amount of dust present if visible dust clouds are noticed, or as required by the SSO. A Real-time Airborne Particulate Meter (RAM) may be utilized to monitor the breathing zone for dust in the workspace or surrounding area. Dust is not anticipated to be a problem within the work area.

If monitoring is implemented, results may indicate the need for more accurate personal exposure monitoring. The SSO, after consultation with an industrial hygienist, will make the determination of the need for personal exposure monitoring based upon screening results, likely exposure duration, and work operations.

7.2 SITE SAFETY ZONES

Site safety zones will be established for the performance of field activities. These locations may be subject to modification by the SSO dependent upon the type of activity performed, levels of contaminants encountered, air monitoring, etc.

Exclusion Zone - The area immediately surrounding any sampling or construction activity, as designated by the SSO, will be considered the Exclusion Zone (EZ). All entry/egress from this area will be through a single entry/exit point established in an upwind direction from the

proposed activity. The EZ will not be accessed from any other direction or location without explicit approval of the SSO, or unless an emergency situation has developed which necessitates immediate evacuation of the work area (contaminant release, fire, explosion, etc.). The proper levels of PPE will be worn at all times, as specified by the SSO, within the EZ. Only authorized personnel are permitted in the EZ.

Contaminant Reduction Zone - A primary Contaminant Reduction Zone (CRZ), designed to ensure the proper decontamination of all equipment entering and leaving the primary areas of RA activities, will be initially established immediately south of the EZ. An open area will serve as the decontamination pad for heavy equipment (backhoes, etc.) and sampling equipment. Materials storage will not be permitted within the CRZ. Certain equipment decontamination activities (including sampling equipment decontamination) will be performed in a separate portion of the CRZ. Sample containers and sampling equipment will be stored within the CRZ. Additionally, the proper levels of PPE will be worn at all times, as specified by the SSO, within the primary CRZ.

Support Zone - The Support Zone (SZ) will be initially established at the south end of the site, and will be used to stage support vehicles, emergency communication equipment, first-aid supplies, and other equipment needed to monitor or perform site sampling activities. This area will be thoroughly marked, and will remain as the "clean" area through strict enforcement of the decontamination procedures by the SSO. This area will also be used as an assembly point for on-site project personnel in the event of an evacuation from the EZ.

7.3 SITE COMMUNICATIONS

Telephones - A telephone shall be available at the site for communication with emergency support services/facilities.

Hand Signals - To be employed by downrange field teams, along with using the buddy system. These signals are also very important when working with heavy equipment (where audio contact may be difficult or impossible).

- Hand signals shall be known by the entire field team before operations commence and shall be covered during site-specific training and briefings.
  - Hand gripping throat - out of air; cannot breath;
  - Grip partner's wrists or place both hands around waist - leave immediately;
  - Hands on top of head - need assistance;
  - Thumbs up - OK; I am all right; I understand;
  - Thumbs down - no; negative.

7.4 SITE ACCESS/SITE CONTROL

Access to the active work areas will be limited to only trained and authorized personnel, including work personnel, remedial action contractor (RAC) personnel, State and Federal regulatory agency personnel, and designated client representatives. All persons who enter the immediate work area(s) will be required to follow sign-in procedures, as needed. Each worker is responsible to sign, indicate the time in and out, and indicate the intended work area on the Authorized Site Personnel List, held by the SSO or his designee. The Site Superintendent will be responsible for ensuring that this sign-in procedure is implemented and documented correctly in the site logbooks.

Access into established zones, including the EZ and CRZ will be limited to only those personnel wearing the appropriate PPE and those adequately trained and medically approved for their assignments.

Site control considerations dictate that specific procedures be followed to ensure adequate site control, so that persons who may be unaware of existing site conditions are informed of the possibility of being exposed to inherent site hazards. All heavy equipment shall be stored in a secured area upon the completion of each day's activities. Any excavations left unfilled and unattended by project personnel will be appropriately barricaded and visibly posted with the appropriate warning signs, temporary fencing, or necessary access restrictions and safety precautions. Additionally, all potentially contaminated materials generated during performance

of the RA activities will be handled appropriately and placed in a secure area to prevent unauthorized access or tampering.

7.5 HEALTH AND SAFETY VIOLATION POLICY

Health and safety procedures have been established to protect site personnel and to prevent the spread of substances of concern. Therefore, it is imperative that all personnel adhere to the procedures outlined in this Health and Safety Plan and those issued by the SSO. Because of the potentially grave consequences as a result of personnel not complying with the health and safety procedures, a worker dismissal policy has been established.

Site employees are subject to site dismissal by the SSO or his designated representative based on a maximum of three minor health and safety violations of the same nature. Major violations may be subject to immediate dismissal at the discretion of the SSO. The procedure outlined below is applicable to all site personnel, regardless of position. A more stringent policy may be adopted by the employer or the SSO, although on-site personnel will be informed of any changes to the policy presented below.

- 1st violation: The worker is verbally instructed in the proper procedure and the offense is noted in the health and safety file. The worker's foreman or immediate supervisor is given written notice of these actions within 24 hours.
- 2nd violation: The worker is verbally instructed in the proper procedure and warned that the next offense will constitute grounds for dismissal from the site. The offense and warning are noted in the health and safety file. The worker's foreman or immediate supervisor will be given written notice of these actions within 24 hours.
- 3rd violation: The worker is given verbal and written instruction to depart the site following proper termination procedures (i.e. the turning in of company gear, reporting to foreman, setting up exit physical, etc.). The violation and termination action is noted in the health and safety file. The worker's foreman or immediate supervisor will receive immediate verbal notice and written notice within 24 hours of the dismissal.

If an employee wishes to contest a violation ruling, the employee shall do so through his/her foreman or immediate supervisor. The SSO or designated representative shall consider all points and either keep or rescind the original violation ruling.

7.6 DECONTAMINATION GENERAL CONSIDERATIONS

Personnel involved with hazardous material handling may be exposed to compounds in a number of ways, despite the most stringent protective procedures. Personnel may come in contact with vapors, gases, mists, or particulates in the air, or may come in contact with site media while performing work tasks. Use of monitoring instruments and equipment can also result in exposure to hazardous substances.

In general, personnel decontamination involves scrubbing with a non-phosphate soap/water solution followed by clean water rinses. This rinse water will be drummed and staged on-site pending proper disposed. All disposable PPE items will be placed in a dry container and stored on-site at a secure location pending proper disposal. Certain parts of contaminated respirators, such as harness assemblies and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush. In addition to being decontaminated, all respirators, non-disposable protective clothing, and other personal articles must be sanitized before they can be used again. The manufacturer's instructions should be followed in sanitizing the respirator masks. The SSO will be responsible for supervising the use and decontamination of protective equipment.

Avoidance of exposure to hazardous materials that may be at the site shall be practiced at all times during site activities. Personnel performing investigative tasks should be conscious of their potential for exposure caused by fatigue or unsafe work practices. Great care should be taken when removing potentially contaminated PPE, or when handling potentially contaminated sampling equipment, sample containers, etc.

Smoking, eating, and drinking, or other activities which promote hand to mouth contact will not be permitted in the EZ or the CRZ. Beverages for use in the event of heat stress/fatigue shall be located in the Support Zone. If work sites are far from the SZ, contaminants are minimal, and the

SSO authorizes, beverages for heat stress may be located in a designated clean area of the EZ. Proper decontamination procedures for personnel entering the clean area must be followed.

8. EXCAVATION AND TRENCHING

The main concerns of trenching and excavation are ground control and fall prevention. Prior to excavation activities, a thorough effort will be made to determine whether underground obstructions (such as tanks, drums, utilities, water lines) or above ground hazards may be encountered. Utility lines, if encountered, will be properly supported during excavation. The appropriate utility personnel will be contacted to inform them of the proposed site excavation work and to receive any additional advice based on their experience.

The walls and faces of all excavations to which employees are exposed will be guarded by a shoring system, a sloping of the ground, or another equivalent means. All slopes should be excavated to a degree which accommodates the ground's unique ability to slide. Soil types listed below from most likely to least likely to slide:

- Well-rounded loose sand;
- Compacted sharp sand;
- Average soils;
- Compact angular gravel, and solid rock, shale;
- Cemented sand and gravels.

Not all excavations need to be shored or sloped. No excavations greater than 12 inches are anticipated to be required to perform the remedial action at the site.

8.1 SOIL HAULING AND HANDLING

Soil excavation and placement containers for the purpose of offsite hauling and disposal shall adhere to their respective weight limits for transport on public roadways. Transportation manifests and truck logs shall be updated as trucks leave the site. The RAC shall be responsible for the condition of the trucks and roll-off containers along with the weights and documentation of the materials being hauled.

9. EMERGENCY PROCEDURES CONTINGENCY PLAN

In the event of an emergency during implementation of field activities, the telephone contact numbers, as provided on Table 4, shall be readily available to all field personnel. A copy of these numbers shall be posted conspicuously near the telephones in the field vehicles and/or field offices (as applicable), and shall also be in the possession of the SSO and monitoring personnel.

Table 4
Emergency Contact Telephone Numbers

Emergency Contacts	Person or Agency	Telephone
Police:	Brooklyn Police Department	911 718-963-5311
Fire:	NYC Fire Department	911
Ambulance:	--	911
Hospital:	Brooklyn Hospital Center	General: 718-250-8000 Emergency Care: 911
NYC DEP	General Information	311
Project Manager	David Coyne, Liberty Environmental, Inc.	610-375-9301 (office) 484-955-7884 (field)

9.1 INCIDENT REPORTING PROCEDURES

Adherence to this site-specific Health and Safety Plan, and any additional safety rules and regulations, will significantly reduce the likelihood of personnel being exposed to toxic substances above permissible exposure limits. However, in the event an incident does occur, it is imperative that specific reporting procedures be followed so that appropriate corrective action can be taken by the SSO and the Project Manager. Upon notification of an incident, the SSO will contact the appropriate medical personnel (Occupational Health and Safety physicians) for recommended medical diagnosis and, if necessary, treatment. The chemical data provided in the

HASP will be given to the physician to help aid in determining the appropriate medical treatment. If required, the physician may also request a copy of applicable Material Safety Data Sheets (MSDSs) to further aid in the diagnosis.

The Project Manager and the SSO will investigate facility/site conditions to determine: (1) whether and at what levels the incident actually occurred, (2) the cause of the incident, and (3) the means to prevent the incident from recurring.

An Incident Report Form has been developed so that consistent and appropriate information is obtained regarding employee exposures. The form will be completed by the SSO and the exposed individual. The form will be filed with the employee's medical and safety records to serve as documentation of the incident and the actions taken. Also, a copy of this form will be submitted the Project Manager. A copy of this form is included as Attachment 2.

A meeting will be conducted prior to the start of field activities to develop an appropriate notification or call down procedure for incident/emergency response. This call down procedure will be posted at the site. The Contractor shall be trained on the specifics of Site emergency procedures at this time; appropriate elements of these procedures shall be incorporated into the Contractor's call down procedure.

9.2 EMERGENCY RESPONSE PROCEDURES

In the event of an emergency, the SSO will assume responsibility for coordinating the response to all emergencies. The SSO responsibilities will also include:

1. Notification of appropriate individuals and/or authorities required for initial assistance or response;
2. Notification of the Project Manager and the Site Representative;
3. Ensuring that the following safety equipment is available at all times at the site: eyewash station, first aid supplies, and fire extinguishers;
4. Having a working knowledge of all safety equipment available at the site;
5. Ensuring that a map which details the most direct route to the nearest hospital is prominently posted on-site, in addition to the emergency telephone numbers; and
6. Conducting a follow-up investigation of the incident as appropriate.

9.3 ACCIDENTS AND INJURIES

In the event of a safety or health emergency at the site, appropriate emergency measures will immediately be taken to assist those who have been injured or exposed and to protect others from hazards. The SSO will be immediately notified, and will respond according to the seriousness of the injury. Personnel trained in first-aid will be present at all times during site activities to provide appropriate treatment of injuries or illness incurred during operations. The Project Manager will be immediately informed of any serious injuries. The project field personnel shall take the injured party and transport (if possible) to the nearest hospital for treatment, after determining whether personnel decontamination can be performed on the injured party. If a particular injury precludes the possibility of personnel decontamination, the SSO shall notify all emergency personnel of the potentially contaminated PPE and provide any assistance necessary in properly decontaminating or removing the PPE. In situations of minor injuries, an injured party may be transported to the nearest hospital.

In the event of an environmental release, the field personnel shall make an initial effort to control or stop the spread of the release, if at all possible, without compromising personnel health and safety. The SSO should immediately contact the Health and Safety Manager or Plant Manager to report the release to prevent health impact to surrounding businesses.

In the event of potential fire, explosion, or other imminent hazard, the SSO shall initiate evacuation procedures using an appropriate warning device readily audible to all field personnel (i.e., walkie-talkie system, car horn, air horn, etc.) and will sound the device for a minimum of ten seconds. Field personnel will be informed of the alarm signal prior to initiation of activities. All personnel on-site will evacuate to the support zone, and will assist the SSO in controlling access to the site once the emergency evacuation has been initiated. The SSO will assist the emergency response personnel, and document all activities occurring during an evacuation or emergency in the site logbook. Should the incident affect or potentially affect areas/personnel not directly associated with the DRA activities, the SSO shall also call the appropriate emergency phone number and shall contact the contractor's representative.

9.4 DIRECTIONS TO NEAREST HOSPITAL

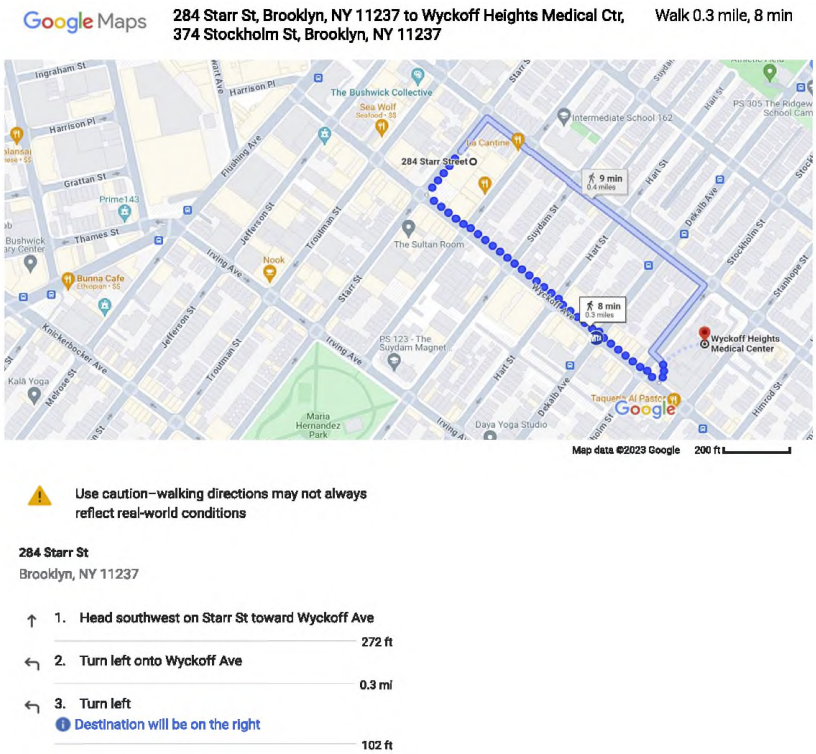
In the event of a serious injury to Site personnel, an ambulance shall be used for transportation to the nearest hospital if possible. In the event of minor injuries or illness, the Safety Officer/designee may elect to have the injured transported to the nearest hospital by company vehicle. If there is any doubt about the severity of the injury, an ambulance shall be used, if possible.

Directions to The Wyckoff Heights Medical Center from the site:

- Exiting the facility, turn left, heading southwest on Starr Street toward Wyckoff Avenue.
- In 300 feet, turn left onto Wyckoff Avenue, traveling southeast.
- In 0.3 mile turn left into the Wyckoff Heights Medical Center.
- The Emergency Room entrance is on the northeastern corner of the intersection of Wyckoff Avenue and Stockholm Street.

Medical Center Information:

Wyckoff Heights Medical Center
374 Stockholm Street
Brooklyn, NY 11237
Phone: (718)-963-7272



9.5 OVERT PERSONNEL EXPOSURE

Generic first-aid procedures, designed to address initial actions to be taken with the victim in the event of a personnel exposure, are briefly outlined below. Typical responses to overt personnel exposure include:

Skin/Eye Contact: Use copious amounts of soap and water, and flush skin for at least 15 minutes. Wash/rinse affected area thoroughly, then provide appropriate medical attention. Eyewash and drench system (water hoses) will be provided on site at the CRZ and/or SZ as appropriate. Eyes should be rinsed for 15 minutes after contact with any chemical contamination.

Inhalation Exposure: Move to fresh air immediately and/or, if necessary, decontaminated and transport to hospital.

Accidental Ingestion: Contact the American Association of Poison Control Centers at (800) 222-1222, and perform PPE decontamination and transport to emergency medical facility.

10. ADDITIONAL HEALTH & SAFETY PRECAUTIONS AND PROCEDURES

10.1 HEAT STRESS OR COLD EXPOSURE

The timing of this project may be such that heat stress or cold exposure may pose a threat to the health and safety of site personnel. Work/rest regimens will be employed as necessary so that personnel do not suffer adverse effects from heat stress or cold exposure. Special clothing and an appropriate diet and fluid intake will be recommended to all site personnel to further reduce these temperature-related hazards. The work/rest regimens will be developed following the guidelines in the ACGIH Threshold Limit Values and Biological Exposure Indices.

10.2 HEAT STRESS

The following should be used as guidelines in controlling heat stress. The SSO has the responsibility to monitor heat stress throughout each day and to make work/rest recommendations as appropriate. All workers are expected to follow the work/rest cycles.

Heat stress decisions will be based mostly on physiological measurements (pulse rate, skin temperature) and environmental measurements by the Wet Bulb Globe Temperature (WBGT) monitors. As noted in the American Conference of Governmental Industrial Hygienists (ACGIH) 1992-1993 "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices", measurement of body temperature is impractical for monitoring a worker's heat load. Therefore, measurement of environmental factors is required. The ACGIH states that the WBGT is the simplest and most suitable technique to measure environmental factors. Additional environmental data will also be recorded daily and considered in heat stress evaluations.

Initially, work/rest cycles will be established using pulse rates and the guidelines on Table 1. The work/rest schedule may be modified at the discretion of the SSO. The work/rest schedule is based upon guidance set by the ACGIH along with the professional judgment of the responsible Industrial Hygienist. The WBGT readings in the table are actual readings, no additional factors should be added:

Table 5
Work/Rest Schedule During the Use of Personal Protective Equipment

Level of Personal Protective Equipment	*WBGT (^{0}F)*	*Work/Rest (Minutes)*
Levels B and C	<72.6	Normal
	72.5-75.92	60/15
	76.1-79.52	45/15
	79.7-84.92	30/30
	85.1-86.72	15/45
	86.9-89.6	15/60
	>89.6	Cease Work
Level C Modified (No Respirator Required)	<75.2	Normal
	75.2-78.62	60/15
	78.8-82.22	45/15
	82.4-87.62	30/30
	87.8-89.42	15/45
	89.6-92.3	15/60
	>92.3	Cease Work
Level D	<78.44	Normal
	78.44-81.5	60/15
	81.68-85.28	45/15
	85.46-90.5	30/30
	90.68-92.30	15/45
	92.48-95.36	15/60
	>95.36	Cease Work

10.3 DAILY PROTOCOL

- WBGT Readings will be taken:
- at the beginning of the workday
- mid-morning
- noon
- mid-afternoon
- at the end of the workday
- WBGT readings will be taken at least at all major work areas and at outside rest stations.

- At the SSO's discretion employee body weights (semi-nude) will be taken immediately before work and at the end of the workday. If the weight loss exceeds 1.5%, the worker should be told to drink more liquids during that evening and the following workdays. The worker will also be monitored during the next few workdays to insure the weight loss does not continue at an unacceptable rate.
- Pulse rates will be monitored routinely throughout the workday, frequency depending upon WBGT readings. At minimum, the most active member of each work crew will be monitored during the first two breaks in the morning and the first break after lunch.
    - Pulse rates will be taken as follows:
    - At the end of a cycle of work, the worker goes to a nearby location and sits on a stool or straight chair. At the moment he is seated the observer starts a stopwatch. At 30 seconds the observer begins a pulse count, having previously palpate the radial pulse. This count is continued until one minute. The 30-second count is multiplied by 2 and recorded as "P_1"
    - if P_1 exceeds 120, an additional pulse will be taken starting at 2 minutes, 30 seconds to 3 minutes; multiplied by 2 and recorded as P_3.
- Pulse rates readings:

  120 and below (P_1) - Worker will be allowed to continue the scheduled work/rest cycle.

  Exceeding 120 (P_1) - Worker will remain in the rest area until pulse rate returns to 90, or below; additional monitoring will depend upon the pulse rate recovery.
- Pulse rate recovery - for individual with P_1 greater than 120.

Patterns	P_3	P_1-P_3
Satisfactory (S)	<90	-
High (H)	≥90	≥10
No recovery (N)	≥90	<10

- Satisfactory patterns need no further comment.
- High recovery patterns indicate work at a high metabolic level with little or no accumulated body heat. Individuals showing this condition should be monitored during the next breaks while work periods are reduced until P1 is 120 or below.

- No recovery patterns indicate too much personal stress. Individuals showing "no recovery" heart rate patterns return to the decon trailers and rest for a period no less than one hour. The SSO must monitor the workers and determine if additional medical assistance is needed.
- Fluid intake should be encouraged for workers throughout the day. Workers should frequently drink small amounts; the equivalent of one cup every 15-20 minutes. Workers should also be encouraged to salt their food abundantly.
- Acclimatization to heat involves a series of physiological and psychological adjustments that occur in an individual during the first week of exposure to hot environments. For this reason, the following work schedule applies for workers new to the site when conditions are such that controlled work/rest cycles are being used:

	Suggested Maximum Work
Day 1 - -	2 hours
Day 2 - -	3 hours
Day 3 - -	4 hours
Day 4 - -	6 hours
Day 5 - -	8 hours

Deviations from this schedule may be done based on evaluations by the SSO.

Use sterile soft gauze or material to cover the affected area. Keep the victim warm and get medical attention.

10.4 HEAVY MACHINERY/EQUIPMENT

All site employees must remain aware of those site activities that involve the use of heavy equipment and machinery. If respiratory protection and protective eyewear are worn during site activities, it may significantly reduce peripheral vision of the wearer. Therefore, it is essential that all employees at the site exercise extreme caution during operation of equipment and machinery to avoid physical injury to themselves or others.

10.5 CONSTRUCTION MATERIALS AND SITE REFUSE

All construction materials and site refuse should be contained in appropriate areas or facilities. Site personnel should make certain that fencing, cement, etc. are not scattered throughout the area of activity and that all trash and scrap materials are immediately and properly disposed.

10.6 SPILL RESPONSE PROCEDURES

Equipment failures consisting of fuel tank or fuel line breaks, oil pan ruptures, radiators or hydraulic oil line breaks may result in a release of contaminants to the ground surface. Absorbent materials will be readily available and used to soak up the spilled material if the spill occurs on a paved area. The released substance will be immediately contained and reported. Additional cleanup and excavation may be required according to State regulations. Absorbent material and PPE will be placed in a properly labeled 55-gallon drum, which will then be staged for disposal transportation. The SSO shall notify all affected personnel when the emergency spill response is complete and shall ensure that an incident report is completed.

10.7 ADDITIONAL SAFETY PRACTICES

The following important safety precautions will be enforced during this work:

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activity.
3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
4. No facial hair which interferes with the effectiveness of a respirator will be permitted on personnel required to wear respiratory protection equipment. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges attached to the respirator. Fit testing shall be performed prior to respirator use to ensure a proper seal is obtained by the wearer.

5. Contact with potentially contaminated surfaces should be avoided whenever possible. One should not walk through puddles, mud, or other discolored surfaces; kneel on ground; or lean, sit or place equipment on drums, containers, vehicles, or the ground.
6. Medicine and alcohol can potentiate the effect of exposure to certain compounds. Prescribed drugs and alcoholic beverages should not be consumed by personnel involved in field activities.
7. Personnel and equipment in the work areas should be minimized, consistent with effective site operations.
8. Work areas for various operational activities should be established.
9. Procedures for leaving the work area must be planned and implemented prior to going to the site. Work areas and decontamination procedures must be established on the basis of prevailing site conditions.
10. Respirators will be issued for the exclusive use of one worker and will be cleaned and disinfected after each use by the worker.
11. Safety gloves and boots shall be taped to the disposable, chemical-protective suits as necessary.
12. All unsafe equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.
13. Noise mufflers on equipment and/or hearing protection for personnel may be required for all work around heavy equipment. This requirement will be made at the discretion of the SSO.
14. Cartridges for air-purifying respirators in use will be changed daily at a minimum.
15. Self-contained breathing apparatus and air-purifying respirators will be inspected daily by the SSO.
16. All activities in the exclusion zone will be conducted using the "Buddy System". The Buddy is another worker fully dressed in the appropriate PPE, who can perform the following activities:
    - Provide his/her partner with assistance;
    - Observe his/her partner for signs of chemical or heat exposure;
    - Periodically check the integrity of his/her partner's PPE; and
    - Notify others if emergency help is needed.

11. DECONTAMINATION PROCEDURES

11.1 PERSONAL DECONTAMINATION

Personnel involved with hazardous material handling may be exposed to compounds in a number of ways, despite the most stringent protective procedures. Personnel may come in contact with vapors, gases, mists, or particulates in the air, or may come in contact with site media while performing work tasks. Use of monitoring instruments and equipment can also result in exposure to hazardous substances. Decontamination procedures are described below.

In general, decontamination involves scrubbing with a non-phosphate soap/water solution (Alconox), followed by clean water rinses. This rinse water will be drummed, labeled and staged on-site pending proper disposal. All other disposable items will be placed in dry containers and also staged on-site pending proper disposal. Certain parts of contaminated respirators, such as harness assemblies and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush. In addition to being decontaminated, all respirators, non-disposable protective clothing, and other personal articles must be sanitized before they can be re-used. The manufacturer's instructions should be followed in sanitizing the respirator masks. The SSO will be responsible for supervising the use and decontamination of proper protective equipment.

11.2 STANDARD PPE DECONTAMINATION

The SSO will monitor decontamination procedures to ensure their effectiveness. Modifications of the decontamination procedure may be necessary as determined by the SSO observations.

11.3 EQUIPMENT DECONTAMINATION

Prior to leaving the EZ, all vehicles will be decontaminated by spraying or dry scrubbing all soil from the wheels and undercarriage. This will be performed in the CRZ, in a decontamination pad. Sediment will be periodically removed from the decontamination pad and incorporated into the waste soil pile for proper disposal.

12. CERTIFICATION SHEET

By my signature, I certify that:

- I have read,
- I understand, and
- I will abide by the Health & Safety Plan

Printed Name	Signature	Date	Affiliation

ATTACHMENT 1
CONTAMINANTS OF CONCERN NIOSH PRINTOUTS

CDC Centers for Disease Control and Prevention

The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Benzene

SYNONYMS & TRADE NAMES

Benzol, Phenyl hydride

CAS NO.

71-43-2

RTECS NO.

CY1400000

DOT ID & GUIDE

1114 130

FORMULA

C_6H_6

CONVERSION

1 ppm = 3.19 mg/m^3

IDLH

Ca [500 ppm]
See: 71432

EXPOSURE LIMITS

NIOSH REL
Ca TWA 0.1 ppm ST 1 ppm See Appendix A
OSHA PEL
[1910.1028] TWA 1 ppm ST 5 ppm See Appendix F

MEASUREMENT METHODS

NIOSH 1500 , 1501 , 3700 , 3800;
OSHA 1005 , 5000
See: NMAM or OSHA Methods

PHYSICAL DESCRIPTION

Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]

MOLECULAR WEIGHT

78.1

BOILING POINT

176°F

FREEZING POINT

42°F

SOLUBILITY

0.07%

VAPOR PRESSURE

75 mmHg

IONIZATION POTENTIAL

9.24 eV

SPECIFIC GRAVITY

0.88

FLASH POINT

12°F

UPPER EXPLOSIVE LIMIT

7.8%

LOWER EXPLOSIVE LIMIT

1.2%

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers, many fluorides & perchlorates, nitric acid

EXPOSURE ROUTES

inhalation, skin absorption, ingestion, skin and/or eye contact

SYMPTOMS

irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]

TARGET ORGANS

Eyes, skin, respiratory system, blood, central nervous system, bone marrow

CANCER SITE

[leukemia]

PERSONAL PROTECTION/SANITATION

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation
Provide: Eyewash, Quick drench

FIRST AID

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

RESPIRATOR RECOMMENDATIONS

(See Appendix E)

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

SEE ALSO

INTRODUCTION ICSC CARD: 0015 MEDICAL TESTS: 0022

Page last reviewed: October 30, 2019

The National Institute for Occupational Safety and Health (NIOSH)

Carbon tetrachloride

SYNONYMS & TRADE NAMES

Carbon chloride, Carbon tet, Freon® 10, Halon® 104, Tetrachloromethane

CAS NO.

56-23-5

RTECS NO.

FG4900000

DOT ID & GUIDE

1846 151

FORMULA

CCl_4

CONVERSION

1 ppm = 6.29 mg/m^3

IDLH

Ca [200 ppm]
See: 56235

EXPOSURE LIMITS

NIOSH REL
Ca ST 2 ppm (12.6 mg/m^3) [60-minute] See Appendix A
OSHA PEL
TWA 10 ppm C 25 ppm 200 ppm (5-minute maximum peak in any 4 hours) See Appendix G

MEASUREMENT METHODS

NIOSH 1003;
OSHA 7
See: NMAM or OSHA Methods

PHYSICAL DESCRIPTION

Colorless liquid with a characteristic ether-like odor.

MOLECULAR WEIGHT

153.8

BOILING POINT

170°F

FREEZING POINT

-9°F

SOLUBILITY

0.05%

VAPOR PRESSURE

91 mmHg

IONIZATION POTENTIAL

11.47 eV

SPECIFIC GRAVITY

1.59

FLASH POINT

NA

UPPER EXPLOSIVE LIMIT

NA

LOWER EXPLOSIVE LIMIT

NA

Noncombustible Liquid

INCOMPATIBILITIES & REACTIVITIES

Chemically-active metals such as sodium, potassium & magnesium; fluorine; aluminum [Note: Forms highly toxic phosgene gas when exposed to flames or welding arcs.]

EXPOSURE ROUTES

inhalation, skin absorption, ingestion, skin and/or eye contact

SYMPTOMS

irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]

TARGET ORGANS

central nervous system, eyes, lungs, liver, kidneys, skin

CANCER SITE

[in animals: liver cancer]

PERSONAL PROTECTION/SANITATION

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation
Provide: Eyewash, Quick drench

FIRST AID

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

RESPIRATOR RECOMMENDATIONS

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

SEE ALSO

INTRODUCTION ICSC CARD: 0024 MEDICAL TESTS: 0041

Page last reviewed: October 30, 2019

Centers for Disease Control and Prevention

The National Institute for Occupational Safety and Health (NIOSH)

Ethylene dichloride

SYNONYMS & TRADE NAMES

1,2-Dichloroethane, Ethylene chloride, Glycol dichloride

CAS NO.

107-06-2

RTECS NO.

KI0525000

DOT ID & GUIDE

1184 131

FORMULA

$ClCH_2CH_2Cl$

CONVERSION

1 ppm = 4.05 mg/m^3

IDLH

Ca [50 ppm]
See: 107062

EXPOSURE LIMITS

NIOSH REL
Ca TWA 1 ppm (4 mg/m^3) ST 2 ppm (8 mg/m^3) See Appendix A See Appendix C (Chloroethanes)
OSHA PEL
TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours] See Appendix G

MEASUREMENT METHODS

NIOSH 1003;
OSHA 3
See: NMAM or OSHA Methods

PHYSICAL DESCRIPTION

Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.]

MOLECULAR WEIGHT

99.0

BOILING POINT

182°F

FREEZING POINT

-32°F

SOLUBILITY

0.9%

VAPOR PRESSURE

64 mmHg

IONIZATION POTENTIAL

11.05 eV

SPECIFIC GRAVITY

1.24

FLASH POINT

56°F

UPPER EXPLOSIVE LIMIT

16%

LOWER EXPLOSIVE LIMIT

6.2%

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers & caustics; chemically-active metals such as magnesium or aluminum powder, sodium & potassium; liquid ammonia [Note: Decomposes to vinyl chloride & HCl above 1112°F.]

EXPOSURE ROUTES

inhalation, ingestion, skin absorption, skin and/or eye contact

SYMPTOMS

irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]

TARGET ORGANS

Eyes, skin, kidneys, liver, central nervous system, cardiovascular system

CANCER SITE

[in animals: forestomach, mammary gland & circulatory sys cancer]

PERSONAL PROTECTION/SANITATION

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation
Provide: Eyewash, Quick drench

FIRST AID

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

RESPIRATOR RECOMMENDATIONS

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-

pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

SEE ALSO

INTRODUCTION ICSC CARD: 0250 MEDICAL TESTS: 0104

Page last reviewed: October 30, 2019

Centers for Disease Control and Prevention

The National Institute for Occupational Safety and Health (NIOSH)

Methylene chloride

SYNONYMS & TRADE NAMES

Dichloromethane, Methylene dichloride

CAS NO.

75-09-2

RTECS NO.

PA8050000

DOT ID & GUIDE

1593 160

FORMULA

CH_2Cl_2

CONVERSION

1 ppm = 3.47 mg/m^3

IDLH

Ca [2300 ppm]
See: 75092

EXPOSURE LIMITS

NIOSH REL
Ca See Appendix A
OSHA PEL
[1910.1052] TWA 25 ppm ST 125 ppm

MEASUREMENT METHODS

NIOSH 1005 , 3800;
OSHA 59 , 80
See: NMAM or OSHA Methods

PHYSICAL DESCRIPTION

Colorless liquid with a chloroform-like odor. [Note: A gas above 104°F.]

MOLECULAR WEIGHT

84.9

BOILING POINT

104°F

FREEZING POINT

-139°F

SOLUBILITY

2%

VAPOR PRESSURE

350 mmHg

IONIZATION POTENTIAL

11.32 eV

SPECIFIC GRAVITY

1.33

FLASH POINT

?

UPPER EXPLOSIVE LIMIT

23%

LOWER EXPLOSIVE LIMIT

13%

Combustible Liquid

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers; caustics; chemically-active metals such as aluminum, magnesium powders, potassium & sodium; concentrated nitric acid

EXPOSURE ROUTES

inhalation, skin absorption, ingestion, skin and/or eye contact

SYMPTOMS

irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]

TARGET ORGANS

Eyes, skin, cardiovascular system, central nervous system

CANCER SITE

[in animals: lung, liver, salivary & mammary gland tumors]

PERSONAL PROTECTION/SANITATION

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation
Provide: Eyewash, Quick drench

FIRST AID

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

RESPIRATOR RECOMMENDATIONS

(See Appendix E)

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-

pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

SEE ALSO

INTRODUCTION ICSC CARD: 0058 MEDICAL TESTS: 0148

Page last reviewed: October 30, 2019

Centers for Disease Control and Prevention

The National Institute for Occupational Safety and Health (NIOSH)

Tetrachloroethylene

SYNONYMS & TRADE NAMES

Perchlorethylene, Perchloroethylene, Perk, Tetrachlorethylene

CAS NO.

127-18-4

RTECS NO.

KX3850000

DOT ID & GUIDE

1897 160

FORMULA

$Cl_2C{=}CCl_2$

CONVERSION

1 ppm = 6.78 mg/m^3

IDLH

Ca [150 ppm]
See: 127184

EXPOSURE LIMITS

NIOSH REL
Ca Minimize workplace exposure concentrations. See Appendix A
OSHA PEL
TWA 100 ppm
C 200 ppm (for 5 minutes in any 3-hour period), with a maximum peak of 300 ppm
See Appendix G

MEASUREMENT METHODS

NIOSH 1003;
OSHA 1001
See: NMAM or OSHA Methods

PHYSICAL DESCRIPTION

Colorless liquid with a mild, chloroform-like odor.

MOLECULAR WEIGHT

165.8

BOILING POINT

250°F

FREEZING POINT

-2°F

SOLUBILITY

0.02%

VAPOR PRESSURE

14 mmHg

IONIZATION POTENTIAL

9.32 eV

SPECIFIC GRAVITY

1.62

FLASH POINT

NA

UPPER EXPLOSIVE LIMIT

NA

LOWER EXPLOSIVE LIMIT

NA

Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene.

INCOMPATIBILITIES & REACTIVITIES

Strong oxidizers; chemically-active metals such as lithium, beryllium & barium; caustic soda; sodium hydroxide; potash

EXPOSURE ROUTES

inhalation, skin absorption, ingestion, skin and/or eye contact

SYMPTOMS

irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]

TARGET ORGANS

Eyes, skin, respiratory system, liver, kidneys, central nervous system

CANCER SITE

[in animals: liver tumors]

PERSONAL PROTECTION/SANITATION

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation
Provide: Eyewash, Quick drench

FIRST AID

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

RESPIRATOR RECOMMENDATIONS

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

SEE ALSO

INTRODUCTION ICSC CARD: 0076 MEDICAL TESTS: 0179

Page last reviewed: October 30, 2019

The National Institute for Occupational Safety and Health (NIOSH)

Trichloroethylene

SYNONYMS & TRADE NAMES

Ethylene trichloride, TCE, Trichloroethene, Trilene

CAS NO.

79-01-6

RTECS NO.

KX4550000

DOT ID & GUIDE

1710 160

FORMULA

$ClCH{=}CCl_2$

CONVERSION

1 ppm = 5.37 mg/m^3

IDLH

Ca [1000 ppm]
See: 79016

EXPOSURE LIMITS

NIOSH REL
Ca See Appendix A See Appendix C
OSHA PEL
TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours) See Appendix G

MEASUREMENT METHODS

NIOSH 1022 , 3800;
OSHA 1001
See: NMAM or OSHA Methods

PHYSICAL DESCRIPTION

Colorless liquid (unless dyed blue) with a chloroform-like odor.

MOLECULAR WEIGHT

131.4

BOILING POINT

189°F

FREEZING POINT

-99°F

SOLUBILITY

0.1%

VAPOR PRESSURE

58 mmHg

IONIZATION POTENTIAL

9.45 eV

SPECIFIC GRAVITY

1.46

FLASH POINT

?

UPPER EXPLOSIVE LIMIT

(77°F): 10.5%

LOWER EXPLOSIVE LIMIT

(77°F): 8%

Combustible Liquid, but burns with difficulty.

INCOMPATIBILITIES & REACTIVITIES

Strong caustics & alkalis; chemically-active metals (such as barium, lithium, sodium, magnesium, titanium & beryllium)

EXPOSURE ROUTES

inhalation, skin absorption, ingestion, skin and/or eye contact

SYMPTOMS

irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]

TARGET ORGANS

Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system

CANCER SITE

[in animals: liver & kidney cancer]

PERSONAL PROTECTION/SANITATION

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation
Provide: Eyewash, Quick drench

FIRST AID

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

RESPIRATOR RECOMMENDATIONS

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

SEE ALSO

INTRODUCTION ICSC CARD: 0081 MEDICAL TESTS: 0236

Page last reviewed: October 30, 2019

ATTACHMENT 2
ACCIDENT AND INJURY REPORT FORM

Employee's Report of Injury Form

Instructions: Employees shall use this form to report all work related injuries, illnesses, or "near miss" events (which could have caused an injury or illness) – *no matter how minor*. This helps us to identify and correct hazards before they cause serious injuries. This form shall be completed by employees as soon as possible and given to a supervisor for further action.

I am reporting a work related: ❑ Injury ❑ Illness ❑ Near miss	
Your Name:	
Job title:	
Supervisor:	
Have you told your supervisor about this injury/near miss? ❑ Yes ❑ No	
Date of injury/near miss:	Time of injury/near miss:
Names of witnesses (if any):	
Where, exactly, did it happen?	
What were you doing at the time?	
Describe step by step what led up to the injury/near miss. (continue on the back if necessary):	
What could have been done to prevent this injury/near miss?	
What parts of your body were injured? If a near miss, how could you have been hurt?	
Did you see a doctor about this injury/illness? ❑ Yes ❑ No	
If yes, whom did you see?	Doctor's phone number:
Date:	Time:
Has this part of your body been injured before? ❑ Yes ❑ No	
If yes, when?	Supervisor:
Your signature:	Date:

Supervisor's Accident Investigation Form

Name of Injured Person _____

Date of Birth _____ Telephone Number _____

Address _____

City _____ State_____ Zip _____

(Circle one) Male Female

What part of the body was injured? Describe in detail. _____

_____

What was the nature of the injury? Describe in detail. _____

_____

_____

Describe fully how the accident happened? What was employee doing prior to the event? What equipment, tools being using? _____

_____

_____

Names of all witnesses:

_____ _____

_____ _____

Date of Event _____ Time of Event _____

Exact location of event: _____

What caused the event? _____

_____

_____

Were safety regulations in place and used? If not, what was wrong? _____

_____

Employee went to doctor/hospital? Doctor's Name _____

Hospital Name _____

Recommended preventive action to take in the future to prevent reoccurrence.

_____

_____

_____

_____ _____

Supervisor Signature Date

Incident Investigation Report

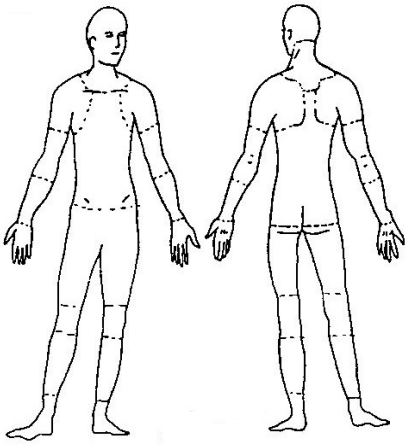
Instructions: Complete this form as soon as possible after an incident that results in serious injury or illness. (Optional: Use to investigate a minor injury or near miss that *could have resulted in a serious injury or illness*.)

This is a report of a: ❑ Death ❑ Lost Time ❑ Dr. Visit Only ❑ First Aid Only ❑ Near Miss	
Date of incident:	This report is made by: ❑ Employee ❑ Supervisor ❑ Team ❑ Other_____

Step 1: Injured employee (complete this part for each injured employee)

Name:	Sex: ❑ Male ❑ Female	Age:
Department:	Job title at time of incident:	

Part of body affected: (shade all that apply)



Nature of injury: (most serious one)
- ❑ Abrasion, scrapes
- ❑ Amputation
- ❑ Broken bone
- ❑ Bruise
- ❑ Burn (heat)
- ❑ Burn (chemical)
- ❑ Concussion (to the head)
- ❑ Crushing Injury
- ❑ Cut, laceration, puncture
- ❑ Hernia
- ❑ Illness
- ❑ Sprain, strain
- ❑ Damage to a body system:
- ❑ Other _____

This employee works:
- ❑ Regular full time
- ❑ Regular part time
- ❑ Seasonal
- ❑ Temporary

Months with this employer

Months doing this job:

Step 2: Describe the incident

Exact location of the incident:	Exact time:

What part of employee's workday? ❑ Entering or leaving work ❑ Doing normal work activities ❑ During meal period ❑ During break ❑ Working overtime ❑ Other_____

Names of witnesses (if any):

Number of attachments:	Written witness statements:	Photographs:	Maps / drawings:

What personal protective equipment was being used (if any)?

Describe, step-by-step the events that led up to the injury. Include names of any machines, parts, objects, tools, materials and other important details.

Description continued on attached sheets: ❑

Step 3: Why did the incident happen?

Unsafe workplace conditions: (Check all that apply)
- ❑ Inadequate guard
- ❑ Unguarded hazard
- ❑ Safety device is defective
- ❑ Tool or equipment defective
- ❑ Workstation layout is hazardous
- ❑ Unsafe lighting
- ❑ Unsafe ventilation
- ❑ Lack of needed personal protective equipment
- ❑ Lack of appropriate equipment / tools
- ❑ Unsafe clothing
- ❑ No training or insufficient training
- ❑ Other: _____

Unsafe acts by people: (Check all that apply)
- ❑ Operating without permission
- ❑ Operating at unsafe speed
- ❑ Servicing equipment that has power to it
- ❑ Making a safety device inoperative
- ❑ Using defective equipment
- ❑ Using equipment in an unapproved way
- ❑ Unsafe lifting
- ❑ Taking an unsafe position or posture
- ❑ Distraction, teasing, horseplay
- ❑ Failure to wear personal protective equipment
- ❑ Failure to use the available equipment / tools
- ❑ Other: _____

Why did the unsafe conditions exist?

Why did the unsafe acts occur?

Is there a reward (such as "the job can be done more quickly", or "the product is less likely to be damaged") that may have encouraged the unsafe conditions or acts? ❑ Yes ❑ No
If yes, describe:

Were the unsafe acts or conditions reported prior to the incident? ❑ Yes ❑ No

Have there been similar incidents or near misses prior to this one? ❑ Yes ❑ No

Step 4: How can future incidents be prevented?

What changes do you suggest to prevent this incident/near miss from happening again?

❑ Stop this activity ❑ Guard the hazard ❑ Train the employee(s) ❑ Train the supervisor(s)

❑ Redesign task steps ❑ Redesign work station ❑ Write a new policy/rule ❑ Enforce existing policy

❑ Routinely inspect for the hazard ❑ Personal Protective Equipment ❑ Other: _____

What should be (or has been) done to carry out the suggestion(s) checked above?

Description continued on attached sheets: ❑

Step 5: Who completed and reviewed this form? (Please Print)

Written by: Department:	Title: Date:
Names of investigation team members:	
Reviewed by:	Title: Date: