Lapp Insulator Site

GENESEE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 819017

Prepared for:

New York State Department of Environmental Conservation

Division of Environmental Remediation

12th Floor, 625 Broadway

Albany, NY 12233-7017

Prepared by:

AECOM USA, Inc.

257 West Genesee Street, Suite 400

Buffalo, NY 14202

(716) 856-5636

MARCH 2021

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

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MARCH 2021

CERTIFICATION STATEMENT

I Donald A. McCall certify that I am currently a NYS registered professional engineer as in defined in 6 NYCRR Part 375 and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

P.E.

3/10/2021
DATE

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LIST OF ACRONYMS

Acronym	Definition
AECOM	AECOM USA, Inc.
AROD	Amendment to the Record of Decision
ASP	Analytical Service Protocol
bgs	below ground surface
CAMP	Community Air Monitoring Program
COC	Contaminant of Concern
CVOC	Chlorinated Volatile Organic Compound
cy	cubic yard(s)
DIR	Daily Inspection Report
DCA	dichloroethane
DOW	Division of Water (NYSDEC)
DUSR	Data Usability Summary Report
EC	Engineering Control
EWP	Excavation Work Plan
FER	Final Engineering Report
FS	Feasibility Study
FAP	Field Activities Plan
HASP	Health and Safety Plan
HDPE	High-Density Polyethylene
IC	Institutional Control
MDS	Material Data Sheet
mg/L	milligrams per liter
No.	number
NRC	National Response Corporation
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
Op-Tech	Op-Tech Environmental Services, Inc.
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
PFAS	Per- and polyfluoroalkyl substances
PID	Photoionization Detector
PPE	Personal Protective Equipment
PPB	parts per billion
PPM	parts per million
PVC	Polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control

RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
ROD	Record of Decision
RSO	Remedial Site Optimization
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSD	Subslab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
SVOC	Semivolatile Organic Compound
SWP	Safe Work Plan
TCA	Trichloroethane
TCE	Trichloroethene
TCL	Target Compound List
TOGS	Technical and Operational Guidance Series
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
URS	URS Corporation
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

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

Site Identification: Site No. 819017 Lapp Insulator Site

Institutional Controls:	1. The property may be used for commercial or industrial use It is currently zoned for industrial use;
	2. All ICs must be implemented as specified in this SMP; the property may be used for: commercial or industrial use; all ECs must be operated and maintained as specified in this SMP; all ECs must be inspected at a frequency and in a manner defined in the SMP; the use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Genesee County Department of Health to render it safe for use as drinking water or for commercial or industrial purposes, and the user must first notify and obtain written approval to do so from the Department; groundwater and other environmental or public health monitoring must be performed as defined in this SMP; data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP; all future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP; monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP; operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP; access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement; the potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 2, and any potential impacts that are identified must be monitored or mitigated.
Engineering Controls:	1. Groundwater Remedial Injection Piping 2. Subslab Depressurization Systems

Site Identification: Site No. 819017 Lapp Insulator Site

Inspections:	Frequency
1. Site-Wide Inspection 2. Groundwater Remedial Injection Piping 3. Subslab Depressurization Systems	Annually Annually Annually
Monitoring:	
1. Groundwater Monitoring Wells (See Table 3-2)	Annually
Maintenance:	
1. Groundwater Remedial Injection Piping 2. Subslab Depressurization Systems	As needed As needed
Reporting:	
1. Inspection Report	Annually
2. Periodic Review Report	Annual for first 5 years, followed by a re-evaluation.

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is a required element of the remedial program for the Lapp Insulator Site, located in Leroy, New York (hereinafter referred to as the "Site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 819017 which is administered by New York State Department of Environmental Conservation (NYSDEC). The site remedy was implemented in accordance with the Amended Record of Decision (AROD), however, monitoring will continue under site management to monitor areas where groundwater exceed standards for select volatile organic compounds (VOCs) and 1,4-Dioxane.

1.1.1 General

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

This Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. The Environmental Easement is included as Appendix A. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

It is important to note that:

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

All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in Appendix B of this SMP.

This SMP was prepared by AECOM USA, Inc. (AECOM), on behalf of the NYSDEC, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for the site.

1.1.2 Purpose

The site contains contamination left after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. The Environmental Easement granted to the NYSDEC, and recorded with the Genesee County Clerk, requires compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; and (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) Subslab Depressurization (SSD) System Operation and Maintenance Plan.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

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

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The site is located in the Village of LeRoy, County of Genesee, New York and is identified as Block 1 and Lot 90 on the Town of LeRoy Tax Map. The site is situated on an approximately 66-acre area bounded by Munson Street and a B&O Railroad tracks to the north, Oatka Creek to the south and east, B&O Railroad tracks to the west (see Figure 2). The boundaries of the site are described in the Environmental Easement in Appendix A: Survey Map, Metes and Bounds. Figure 3 presents a Site Plan showing the current layout of the Lapp Insulator Site, and significant site features.

1.2.2 Site History

Since 1917 Lapp has been actively engaged in the manufacture and production of ceramic insulators and electrical transformer bushings. Lapp discontinued manufacture of bushings in 2004. (The bushings portion of the business is leased to PCore electronics, which continues to operate in the buildings on-site on the east side of Gilbert Street.) Historical records indicate that oils, petroleum based products, and chlorinated solvents including: 1,l,l-trichloroethane (TCA), trichloroethene (TCE), and tetrachloroethene (PCE), were stored and utilized for production at the

Lapp Site, primarily on the east side of Gilbert Street. Further, two areas of the Site, referred to as the Northeast and South fill areas have been used for the disposal of crushed ceramic insulators.

In 1996, the Department first listed the site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a was a temporary classification assigned to a site that had inadequate and/or insufficient data for inclusion in any of the other classifications. In 1998, the Department listed the site as a Class 2 site in the Registry. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Investigations conducted to assess environmental conditions at the Site included: Phase I Environmental Due Diligence Examination, Phase II Environmental Due Diligence Examination, Phase I Site Characterization Report, and Supplemental Site Soil Characterization.

Results indicated that the groundwater and soil were impacted with site-related volatile organic compounds.

A remedial measure was attempted by Lapp Insulator without Department concurrence or involvement in December 1995. The remedial measure consisted of a soil vapor extraction system with a single extraction well placed in each of three areas of concern (Areas A, B, and C). The system was deemed ineffective at adequately addressing the contamination at the Site and was ultimately shut down in September 1999.

An Order on Consent between Lapp Insulator and the Department was signed in 2001. Remedial Investigation (RI) work activities required under the 2001 Order on Consent are presented in the November 2000 Remedial Investigation/Feasibility Study (RI/FS) Work Plan.

The RI work activities began in October 2001 with Site characterization tasks, installation of one upgradient deep bedrock monitoring well, and sampling of several media including soil, groundwater, surface water and sediments. Results of the Phase I RI were submitted to the Department in the form of a Technical Memorandum in November 2002.

A second phase of investigation was performed to confirm and expand upon the information obtained from the initial phase of investigation. The Phase II field program was performed in July and August 2003 and included installation of bedrock monitoring wells, and sampling of several media including sediment, surface water, water seep, and groundwater. The 2005 RI report provided the results of both phases of RI at the Lapp Site. The March 2007 FS

report evaluated remedial alternatives. The elected remedy was subsequently presented in the 2009 Record of Decision (ROD).

In October 2012, a Pilot Test was conducted at the site. The Pilot Test was conducted to evaluate the effectiveness of the proposed remedial alternative of excavation, soil screening, stockpiling and backfill in order to address impacts to site soils. The remedy chosen as outlined in the Amendment to the Record of Decision (AROD) was based on the results of the Pilot Test. The results of the Pilot Test revealed that excavation and soil screening would be an effective method for remediating contaminated soils at the site.

1.2.3 Geologic Conditions

The Lapp Insulator Site is located within the flat-lying Erie-Ontario Lowlands. The Site topography is nearly flat, dipping slightly from west to east toward Oatka Creek. The maximum relief of the Site is a drop in elevation of approximately 30 feet at the steep rock bank at the adjacent Oatka Creek.

Overburden soil thickness at the Site ranges from approximately 10 to 30 feet. Fill material was used to level topographically low areas and provide support to the steep bank of Oatka Creek along the eastern edge of the property. Two distinct areas contain most of the fill material at the Site. These two areas are the Northeast and the South fill areas. The south fill area is located to the south of Area C & D, as illustrated on Figure 3. The northeast fill area is located in the northeastern portion of the site, and is not in proximity to either remediation area discussed in this plan. Where present, fill is the uppermost overburden unit and was encountered up to 30 feet thick in the South fill area. The fill material consists primarily of anthropogenic materials including brick, coal, cinders, and fragments of porcelain from insulators mixed with disturbed natural soil material of clay, silt, sand, and gravel. The native overburden material at the Site is glacial till which is composed of unsorted silt with clay, sand, and gravel. This till is deposited directly on the underlying bedrock and, where not covered by fill, is present at the ground surface.

Bedrock was measured at the Site at depths ranging from 10 to 30 feet below grade. A total of four distinct bedrock units were encountered during rock well drilling at the Site. These are, in descending order: Levanna Shale, Stafford Limestone, Oatka Creek Shale, and Onondaga Limestone. Levanna Shale is present directly beneath overburden deposits at the Site. Levanna Shale is a light olive gray shale near the top and weathered fissile dark gray or black shale near the

base. Levanna Shale was observed along the eastern border of the Site at the western bank of Oatka Creek where it is exposed along a steep cliff approximately 30 feet high. This rock unit also underlies the creek by an estimated additional 50 feet. The thickness of this unit beneath the Site ranges from 50 to 70 feet.

Groundwater at the site flows generally to the east toward Oatka Creek on the eastern side of the site, and towards the west on the western side of the site (see Figure 4). The creek is a discharge for the overburden, shallow rock, and intermediate zones. Groundwater in the deepest rock zone flows downward.

1.3 NOTIFICATIONS

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

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

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

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the Environmental Easement, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1-1 below includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix B.

Table 1 - 1: Notifications*

Name	Contact Information
Lisa Gorton, P.E., NYSDEC Project Manager	(518) 402-9273/Lisa.Gorton@dec.ny.gov
David Pratt, NYSDEC Regional HW Engineer	(585) 226-5449

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

1.4 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A RI was performed (Phase I in October 2001, and Phase II in July and August 2003) to characterize the nature and extent of contamination at the site. The results of the RI are described in detail in the RI Report prepared by Malcolm Pirnie, Inc., September 2005.

Generally, the RI showed that chlorinated VOC contamination was present in subsurface soils and groundwater at the site. The RI confirmed the presence of 1,1,1-trichloroethane (TCA), trichloroethene (TCE) and tetrachloroethene (PCE), 1,1-dichloroethene (DCA) and 1,2-dichloroethene (DCE).

Four hotspot areas (Areas A through D) were identified during the RI. These four areas are where the vast majority of soil and groundwater contamination was observed. Eventually, Areas C and D would be consolidated into one area, and Area B was not considered for the remediation discussed in this SMP. Figure 3 shows the two hotspot areas derived from the RI, Area A and Area C & D

The soil cleanup objectives (SCOs) referenced in the RI were NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, which predated the DER-10 and Part 375 regulations. The water quality criteria referenced were NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 (including subsequent revisions). Table 1-2 below identifies the respective criteria for the main contaminants of concern (COCs) for this site. Additional contaminants were detected during the RI but not at significant levels.

TABLE 1-2
SCOs and Groundwater Quality Criteria for Primary COCs during the Remedial Investigation

COC	SCO for Soil Contamination (µg/kg)	Groundwater Quality Standard (ppb)
1,1-TCA	800	5
TCE	700	5
PCE	1,400	5
1,2-DCE	-	5
1,1-DCA	200	5

Below is a summary of site conditions when the RI was performed in 2001 and 2003.

Soil

The primary purpose of the soil sampling was to characterize overburden soils and help delineate the lateral and vertical extents of contamination in the four hotspot areas. Soil sample collection consisted of the advancement of approximately 100 soil borings throughout the four hotspot areas using direct-push sampling methods. The boreholes were generally advanced to between 8 and 12 feet below ground surface (bgs) with the exception of Area D where the boreholes were generally advanced to at least 16 feet bgs. Based on soil screening using a photoionization detector (PID), 55 total soil samples were submitted for analysis.

Three background soil samples were collected from off site from soil borings advanced to a depth of one to two feet below ground surface: two samples were collected from west of the railroad tracks to the west of the site, and one was collected from the northeast fill area adjacent to Gilbert Street; the analytical results did not show any of the COCs in exceedance of the SCOs.

The most significant chlorinated VOC contamination was identified in the subsurface soils at Areas A, C and D. The data collected during the soil investigation was used to determine the remediation boundaries for Area A and Area C & D.

Table 1-3 below summarizes the COCs observed in site soils during the RI.

TABLE 1-3
Summary of Soil Contamination Observed during Remedial Investigation

Hotspot Area	Primary COC(s) Detected	Highest COC Concentration Observed (µg/kg)	Depth of Chlorinated VOCs
A	TCA, TCE, 1,1-DCA	110,000 (TCA)	0 to 10 ft bgs
B	TCE, 1,2-DCE, 1,1-DCA	4,500 (TCE)	0 to 8 ft bgs
C	TCE, PCE, TCA	45,000 (TCE)	2 to 10 ft bgs
D	TCE, TCA	2,300 (TCE)	4 to 8 ft bgs

As shown in Table 1-3, the highest concentrations of COCs were identified in Areas A and C, and COCs were found in exceedance of SCOs at all four hotspots. It should be noted that Area D is directly adjacent to Area C. Semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and pesticides were not detected above SCOs in any of the samples. There were occasional detections of metals in exceedance of SCOs.

Sediment

Sediment samples were collected from five locations within Oatka Creek during each event (totaling 10 samples). Only one VOC (benzene) was found in exceedance of the NYSDEC Sediment Criteria, and only low levels of other VOCs were detected. A few of the COCs for this project were detected in the sediment samples, but not in exceedance of the criteria.

Surface Water

Surface water samples were collected concurrently with the sediment samples at the five locations within Oatka Creek during each phase of the RI. There were no organic compounds detected in any of the surface water samples.

Groundwater

During the RI, groundwater samples were collected from a total of 20 monitoring wells during Phase I and 24 monitoring wells during Phase II. The additional wells sampled during Phase II were four newly-installed bedrock wells. The Phase I samples were analyzed for TCL volatiles, semi-volatiles, pesticides/PCBs, TAL metals, and field parameters; based on the results of the Phase I samples, the Phase II samples were analyzed for a reduced list of parameters that only included TCL VOCs. In addition, samples were collected from five residential wells located near the site during Phase II; there were no VOCs detected in any of the residential wells.

As with the soil samples, the primary contaminants detected in the groundwater samples were chlorinated volatile organic compounds (CVOCs), primarily TCA, TCE and 1,1-dichloroethane (DCA). Overall, the sampling data indicated that the groundwater VOC contamination in exceedance of criteria was primarily found in the hot spot areas within the overburden and shallow bedrock zones, although VOCs were observed in intermediate and deep bedrock at lower concentrations. The groundwater contamination observed during the RI correlated well with historical groundwater data from the site.

The highest concentrations were observed in Areas A and D wells. The highest concentrations were of TCA and TCE at 49,000 ppb and 76,000 ppb, respectively, at well PMW-10 which is located in Area D.

Site-Related Soil Vapor Intrusion

A soil gas survey was conducted during the RI to evaluate whether soil or shallow groundwater VOC contamination may have been present outside of the hot spot areas. The soil gas survey revealed the presence of TCE and 1,1,1-TCA among other VOCs, but only in the hotspot areas.

URS Corporation – New York (URS) performed Soil Vapor Intrusion (SVI) sampling on May 10-12, 2017; August 30-31, 2017; and December 18-19, 2017 in five buildings at the Lapp Insulator Site (buildings B-31, B-35, B-37, the PCore Building and the FHW Building as identified on Figure 3). In January 2018, URS submitted the *Lapp Insulator SVI Data Summary Report* to the NYSDEC; this report summarized the sampling activities and data collected during the May, August and December 2017 SVI sampling events. Information from all three sampling events was used to determine future site activities. Based on the 2017 SVI sampling results, the NYSDEC, New York State Department of Health (NYSDOH), and URS determined that soil vapor mitigation would be implemented at the B-31, B-35 and the PCore Buildings. This mitigation was performed in the form of SSD system construction; a brief overview of the systems is presented below in Section 2.2.

1.5 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with the NYSDEC approved Remedial Design and the Record of Decision (ROD) dated March 2009 and with the Amendment to the ROD (AROD) dated March 2014.

The following is a summary of the Remedial Actions performed at the site:

1. Excavation and screening of all soils exceeding SCOs within the boundaries and to the depths identified on Figure 5, or to bedrock as applicable;
2. Installation of underground piping for chemical/biological treatment of contaminated water.
3. Removal and off-site disposal of components of one shed containing decommissioned soil vapor extraction equipment.
4. Backfill of excavation areas using either treated soils from on-site, or from certified off-site fill sources.
5. Installation of six bedrock monitoring wells for the purpose of evaluating groundwater at the site.
6. Injection of in-situ chemical oxidant via direct-push injections
7. Construction of sub-slab depressurization systems in Building B-31, Building B-35 and the PCore Building

Remedial activities 1 through 5 listed above were completed at the site in November 2014. Activities 6 and 7 were completed in May 2019 and January 2020 respectively.

1.5.1 Removal/Treatment of Contaminated Materials

During the 2014 remedial construction, all excavated soils were treated and reused on site. Only general construction and demolition debris, including the soil vapor extraction (SVE) shed and SVE System components, were disposed of off-site. The soil remediation achieved the New York State Subpart 375-6 Remedial Program SCOs for the Protection of Groundwater. Soil remediation was achieved by excavating, mechanical screening, stockpiling and backfilling. In total, approximately 15,000 cubic yards of soils were removed from two excavation areas (approximately 1,500 cy from the four portions of Area A and approximately 13,500 cy from Area C & D) as identified on Figure 5. All of the excavated material was re-used as backfill. Approximately 1,500 cy of imported No. 2 crusher run was used as backfill at Area A. No excavated native soils were used as backfill at Area A.

The SCOs for the COCs for the remedial construction were based on the New York State Subpart 375-6 Remedial Program Soil Cleanup Objectives for the Protection of Groundwater. Note that these replaced the original TAGM Criteria that were used during the RI. Excavated and screened soils that were found to be below SCOs were used as backfill. Figure 5 shows the areas of the site where excavation and backfill took place; also identified on this Figure are the soil stockpiling area and soil screening area.

The following list presents of the COCs and their respective SCOs, in ppb, for the remedial construction:

- 1,1,1-trichloroethane (TCA), 680 ppb
- Trichloroethene (TCE), 470 ppb
- Tetrachloroethene (PCE), 1,300 ppb

On August 25 and 26, 2015, URS performed a supplemental remedial injection in Area A, using the injection wells that were installed during backfill operations described previously. Over the two days, using the two injection wells, URS injected, via gravity feed, approximately 1,140 gallons (10,200 lb) of ABC® (Anaerobic BioChem) substrate material.

A second remedial injection was performed from December 9, 2019 through January 14, 2020, using direct-push injections with a GeoProbe. This work was performed by LaBella Associates DPC, a NYSDEC Stand-By call-out contractor. During this work, LaBella injected approximately 9,560 gallons of PersulfOx, a sodium persulfate product manufactured by Regenesis, into 60 locations around the PCore Building and in Area C & D.

1.5.2 Site-Related Treatment Systems

In the late 1990's, Lapp Insulator installed and operated a soil vapor extraction system in Areas A, B and C at the site. This system was not approved by the Department and was determined to be ineffective at addressing the site contamination. The operation of the system was stopped in 1999.

Based on the 2017-2018 SVI sampling results, soil vapor mitigation was implemented at the B-31, B-35 and the PCore Buildings. Mitigation was performed in the form of SSD system construction. The SSD systems installed in the PCore Building Laboratory and Building B-31 are constructed similar to residential radon mitigation systems. In Building B-31, four radon fan systems were installed. One radon fan system was also installed in the PCore Building Laboratory. Due to the large footprint, large scale industrial sized SSD systems were installed in the remaining areas of the PCore Building and Building B-35. URS completed the installation of three SSD systems in May 2019: two in the PCore Building and one in Building B-35. Certified as-built drawings of the SSD systems are included as Figures 1 through 4 of the SSD System O&M Manual (Appendix J). A brief overview of the systems is presented below in Section 2.2.

1.5.3 Remaining Contamination

Soils

Soils were excavated to the proposed depths as recommended by the AROD, or to bedrock, if shallower. Documentation soil sampling conducted during the excavation determined that there is no soil present in exceedance of the SCOs in Areas A or C & D. The documentation samples were collected from the perimeter and bottom of the excavation. Excavated soils were screened and then sampled to document the effectiveness of the remediation. Soil samples collected from stockpiled soils after screening showed that there were no COCs above SCOs in any post-screened soils. Once it was determined that screened soils were below SCOs, the soils were used as backfill. Prior to backfill, orange netting was placed as a demarcation layer.

Table 1-4 below summarizes the results of the documentation soil samples that were collected along with the results of the soil samples collected after screening took place (these soil samples document the contamination levels in all soils that were removed from the two excavation areas). The locations of the documentation samples are identified on Figure 5.

Based on the results of all soil samples collected, as shown on Table 1-4, it was determined that there is no soil contamination remaining above the SCOs in Areas A or C & D.

TABLE 1-4
EXCAVATION SIDEWALL AND BOTTOM DOCUMENTATION SAMPLE RESULTS

Excavation Area	Sample ID	Sample Type	Date Collected	Below SCOs (yes/no)
Area A - 1	Lapp-SW-A1-N-SS	Sidewall	9/4/2014	yes
Area A - 1	Lapp-SW-A1-W-SS	Sidewall	9/4/2014	yes
Area A - 2	Lapp-SW-A2-S-SS	Sidewall	9/5/2014	yes
Area A - 2	Lapp-SW-A2-W-SS	Sidewall	9/5/2014	yes
Area A - 2	Lapp-SW-A2-E-SS	Sidewall	9/5/2014	yes
Area A - 3	Lapp-SW-A3-NE-SS	Sidewall	9/4/2014	yes
Area A - 4	Lapp-SW-A4-SW-SS	Sidewall	9/5/2014	yes
Area A - 1	Lapp-SB-A1-SS	Bottom	9/4/2014	yes
Area A - 2	Lapp-SB-A2-SS	Bottom	9/5/2014	yes
Area A - 3	Lapp-SB-A3-SS	Bottom	9/4/2014	yes
Area A - 4	Lapp-SB-A4-SS	Bottom	9/5/2014	yes
Area C & D	SWE-01-SS	Sidewall	7/17/2014	yes
Area C & D	SWNE-02-SS	Sidewall	7/18/2014	yes
Area C & D	SWN-03-SS	Sidewall	8/26/2014	yes
Area C & D	SWNW-04-SS	Sidewall	9/9/2014	yes
Area C & D	SWSW-05-SS	Sidewall	9/19/2014	yes
Area C & D	SWS-06-SS	Sidewall	7/22/2014	yes
Area C & D	SB-01-SS	Bottom	7/23/2014	yes
Area C & D	SB-02-SS	Bottom	8/13/2014	yes
Area C & D	SB-03-SS	Bottom	8/25/2014	yes
Area C & D	SB-04-SS	Bottom	9/11/2014	yes

Note – QA/QC results are not shown in the table. For samples that had a duplicate, the higher results from the two samples were reported.

Groundwater

At the conclusion of the remedial construction, in October 2014, six bedrock groundwater monitoring wells were installed at the site (SR-001 through SR-006). Subsequently in December 2014, groundwater samples were collected from these six wells, along with seven other existing groundwater monitoring wells (BRW-01, BRW-02, SR-101, SR-104, SR-105, SR-106 and SR-108) around the site. Groundwater samples were also collected in September 2018, April 2019 and May 2020. The May 2020 sampling event followed the second remedial injection performed in December 2019/January 2020.

Samples for emerging contaminants [per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane] were collected in September 2018 in select upgradient, source are and downgradient monitoring wells. All PFAS detections were below NYSDOH maximum contaminant levels. Concentrations of 1,4-dioxane exceeded the NYSDOH maximum contaminant level of 1 µg/L in all locations sampled. 1,4-Dioxane analysis was included for all wells sampled in the April 2019 and May 2020 sampling event.

Groundwater samples were compared to NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 (including subsequent revisions). The analytical results for the groundwater samples that have been collected are summarized on Table 1-5 following the report text. As shown on Table 1-5, the analytical results indicated that there is contaminated groundwater present at the site in exceedance of the Class GA standards. 1,4-Dioxane was detected in every well in the May 2020 sampling event, with the highest concentration in BRW-01 (2,900 µg/L). Only location SR-104 (0.49 µg/L) was below the 1 µg/L maximum contaminant level. Figure 6 shows the results of the groundwater sampling and identifies the areas where groundwater contamination has been observed.

Soil Vapor

Indoor, outdoor and subslab air samples collected at the site since 2017 indicate the presence of contamination in subslab vapors and indoor air. The SSD systems are expected to contribute to reductions in indoor air concentrations of contaminants, but reduction in subslab vapor concentrations is not expected. Indoor air monitoring was last performed in February 2020.

Three indoor air sampling events have been conducted since the construction of the SSD systems. Overall, concentrations of compounds found in the sub-slab soil vapor samples continue

to decrease in the indoor air samples being collected. The SSD systems have resulted in reduced indoor air concentrations of VOCs that are found in subslab vapors. Consistently low VOC concentrations in indoor air samples collected in Buildings B-31 and B-35 are evidence of this. At the direction of NYSDEC, continued indoor air monitoring is not necessary. NYSDEC provided this direction under consultation with NYSDOH on the basis that indoor air monitoring results indicate that the SSD systems have proven effective in reducing indoor air concentrations to within acceptable levels. Findings of sampling events are documented in monitoring reports (June, September and December 2018; June, September and December 2019; and February 2020).

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

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

2.1.2 Purpose

This plan provides:

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

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Groundwater Remedial Injection Piping

Because of groundwater contamination found in Area A during investigation work prior to the issuance of the AROD, it was determined that groundwater remediation would need to take place in this area. Therefore, two slotted 4-inch polyvinyl chloride (PVC) piping laterals and associated risers were installed during the backfill phase of the remedial excavation in Area A. The laterals run approximately northeast to southwest as shown on Figure 7. Each of the laterals are

approximately 12 feet deep, and are connected to 4-inch PVC risers with injection points located as shown on Figure 7. The injection points are protected by flush-mount road boxes with concrete aprons. These two injection points allow for the remediation of groundwater via injection (i.e. chemical oxidation, etc.).

2.2.1.2 Subslab Depressurization Systems

As discussed above, URS performed Soil Vapor Intrusion (SVI) sampling on May 10-12, 2017; August 30-31, 2017; and December 18-19, 2017. URS then submitted the *Lapp Insulator SVI Data Summary Report* to the NYSDEC in January 2018. Based on the results of those sampling events, the NYSDEC, NYSDOH, and URS determined that soil vapor mitigation would be implemented at the B-31, B-35 and the PCore Buildings.

In July 2018 and March through May 2019, URS installed Sub-Slab Depressurization (SSD) systems in Buildings B-31, B-35 and the PCore Building. The SSD systems are designed to create a vacuum beneath the building slabs, thereby inducing a pressure gradient between the indoor air and the subslab air and preventing subslab vapors from entering the air above the building slabs. This helps to limit the potential for migration of VOCs; primarily TCE, PCE, 1,1,1-TCA, 1,1-DCE, carbon tetrachloride, methylene chloride and cis-1,2-DCE from soil gas into indoor air within buildings that are regularly occupied. A separate CCR is being prepared by AECOM to document the construction and testing of the SSD systems that were installed. Figures 8, 9 and 10 show the layouts of the SSD systems in Building B-35, the PCore Building, and Building B-31, respectively. Typical details of the extraction points are shown on Figure 11.

The July 2018 work also included a pilot study during which time an extraction point was installed in the PCore Building with a temporary blower system to collect data used to design the Building B-35 and PCore Building systems; this extraction point was left in place and became a part of the permanent SSD system in the PCore Building.

Building B-31

Four radon fan-style SSD systems were constructed in Building B-31: two outside a small office in the northeastern corner of building B-31, and two in the workshop area at the western end of building B-31. These systems each consist of one extraction point, 4-inch diameter Schedule 40 PVC piping, and a 6-inch in-line radon fan. System piping connects from the subslab through a sealed extraction point to the radon fan. From the fan, additional piping exits the building through

an exterior wall and then piping then discharges above the roofline. Each suction point includes a u-tube manometer that is used to monitor the vacuum that is induced at each suction point.

Building B-35

The Building B-35 system includes a regenerative blower and moisture separator inside a shed outside of Building B-35. Eight extraction points distributed throughout the building provide communication between the blower and the subslab via 4-inch diameter Schedule 40 PVC piping.

The piping exits the building through an exterior wall penetration where it feeds into the blower. The piping then discharges above the Building B-35 roofline. Each suction point includes a butterfly valve and a testing port so that airflow can be measured and controlled at each extraction point.

PCore Building

There are two SSD systems in the PCore Building: PCore-1 and PCore-2; there is one radon fan-style system in the polymer laboratory in the PCore Building. The radon fan-style system in the polymer laboratory is constructed similarly to the systems in Building B-31 as described above with two exceptions: The system uses 3-inch piping from the extraction point to the wall penetration; and the extraction point is installed in an existing drainage sump pit.

Each of the two SSD systems includes a regenerative blower and moisture separator with an auxiliary water storage tank inside a shed outside of the PCore Building. Extraction points distributed throughout the building provide communication between the blowers and the subslab via 4-inch diameter Schedule 40 PVC piping. System PCore-1 contains 5 extraction points, including the one used for the Pilot Study; System PCore-2 contains 3 extraction points.

The piping exits the building through exterior window or wall penetrations. After exiting the building, the piping connects to the blowers, and then from there the piping then discharges above the PCore Building roofline. Each suction point includes a butterfly valve and a testing port so that airflow can be measured and controlled at each extraction point.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10.

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

At the direction of NYSDEC, indoor air monitoring will not continue; the last indoor air monitoring event took place in February 2020. NYSDEC provided this direction under consultation with NYSDOH on the basis that indoor air monitoring results indicate that the SSD systems have proven effective in reducing indoor air concentrations to within acceptable levels. Findings of sampling events are documented in monitoring reports (June, September and December 2018; June, September and December 2019; and February 2020).

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the AROD to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and (3) restrict the use of groundwater as a source of potable or process water. Adherence to these Institutional Controls on the site is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;
- The remedial party or site owner must complete and submit to the Department periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for commercial or industrial use (although land is subject to local zoning laws) provided that the long-term Engineering and Institutional Controls included in this SMP are employed;
- The property may not be used for a higher level of use, such as unrestricted, residential, or restricted residential use, without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted in the Environmental Easement (Appendix A), and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The site has been remediated for the protection of groundwater in accordance with the AROD. Any future intrusive work that will disturb site soils, or encounter or disturb the remaining contamination will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix C to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A HASP is in included in Appendix D . Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Appendix C, Section C-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be

included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain remaining contamination and the potential for soil vapor intrusion has been identified, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner within 30 days of validation.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. A qualified environmental professional or health and safety professional will determine the best course of action for dealing with the emergency and follow-up requirements and actions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be

contacted. Prompt contact should also be made to the NYSDEC Department of Environmental Remediation. These emergency contact lists must be maintained in an easily accessible location at the site.

TABLE 2-1: EMERGENCY CONTACT NUMBERS

Medical, Fire, and Police:	911
Dig Safely New York:	(800) 962-7962 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

TABLE 2-2: OTHER CONTACT NUMBERS

NYSDEC-Department of Environmental Remediation (DER) – Albany, NY	(518) 402-9814

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: Lapp Insulator, 130 Gilbert Street, LeRoy, New York

Nearest Hospital Name: United Memorial Medical Center

Hospital Location: 127 North St., Batavia, NY 14020

Hospital Telephone: (585) 343-6030

Directions to the Hospital:

1. Head northeast on Gilbert Street
2. Turn left (west) onto NY-5, continue approximately 9 mi to Batavia, NY
3. Turn Right on Summit St. Destination is on right past North St.

Total Distance: 10.2 mi

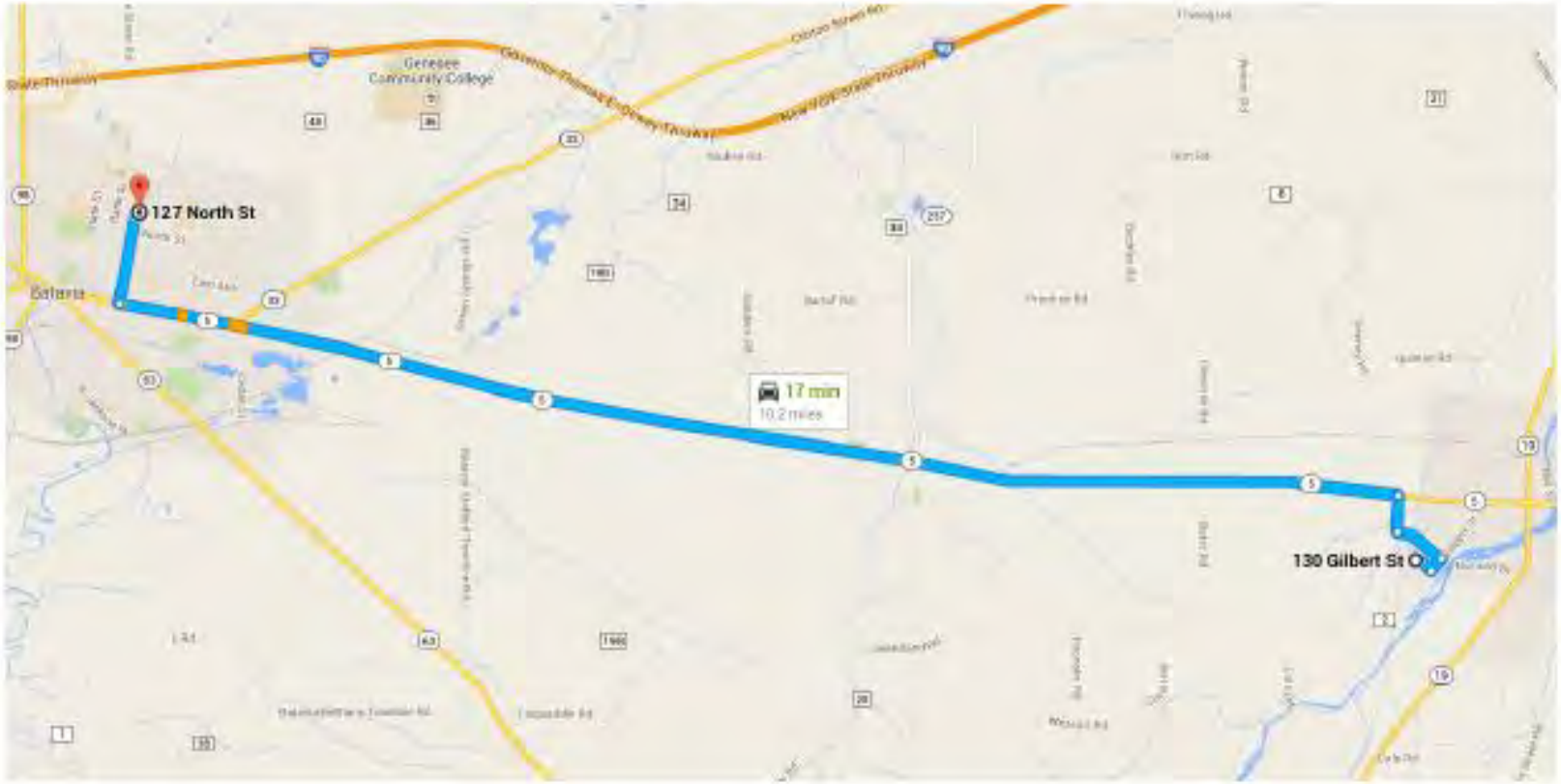
Total Estimated Time: 18 min

A map showing the route from the site to the nearest hospital is presented below:

Google

Drive 10.2 miles, 17 min

Directions from 130 Gilbert St to 127 North St



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 2-1). The list will also be posted prominently at the site and made readily available to all personnel at all times.

Contingency Procedures for Fire/Explosion

When fire or explosion appear imminent or have occurred, all normal activity in affected areas will cease. Firefighting will not be done at the risk to site workers. Local fire departments will be contacted in all situations in which fires and/or explosions have occurred. The following steps will be taken for localized fire:

- contact local fire departments;
- move all personnel to a safe upwind location;
- if the emergency is within onsite personnel capabilities, utilize most appropriate means of extinguishing fire (e.g., fire extinguishers, water, covering with soil); and
- once fire is extinguished, containerize and properly dispose of any spilled material, runoff, or soil.

If the situation appears uncontrollable or poses a direct threat to human life, fire departments will be contacted and the Emergency Evacuation Procedures will be implemented.

Contingency Procedures for Spills or Material Releases

If a hazardous waste spill or material release or process upset resulting in probable vapor release is identified, the onsite coordinator will immediately assess the magnitude and potential seriousness of the spill or release based upon:

- MSDS for the material spilled or released;
- source of the release or spillage of hazardous material;
- an estimate of the quantity released and the rate at which it is being released;
- the direction in which the spill or air release is moving;
- personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result;
- potential for fire and/or explosion resulting from the situation; and
- estimates of area under influence of the release.

If the spill or release is determined to be within the onsite emergency response capabilities, the remedial action will be implemented. If the accident is beyond the capabilities of the onsite personnel, all personnel not involved with the emergency response activity will be evacuated from the immediate area and the appropriate emergency response group(s) will be contacted.

Contingency Procedures for Severe Weather

If severe weather (e.g., high winds, flooding etc.) is predicted or is observed, the onsite coordinator will institute emergency shutdown procedures, and all personnel will be directed to proceed indoors after completing appropriate shutdown procedures. When the severe weather has passed, the onsite coordinator will direct personnel to inspect onsite equipment to ensure its readiness for operation prior to restarting operations.

If an inspection indicates a fire, explosion, or release has occurred as the result of a severe weather condition, the procedures for those events will be followed.

Contingency Procedures for Physical Injury to Workers

Upon notification that a worker has been injured, the onsite coordinator will immediately determine the severity of the accident, and whether the victim can be safely moved from the incident site. Appropriate medical assistance will be summoned immediately. A report of the injury or incident will be completed as required by the Site Health and Safety Plan.

Minor injuries sustained by workers will be treated onsite using materials from the first aid kits. Whenever possible such treatment will be administered by trained personnel in a "clean zone". Examples of minor injuries include small scrapes and blisters.

Major injuries sustained by workers will require professional medical attention at a hospital. The onsite coordinator will immediately summon an ambulance and contact the hospital to which the injured worker will be transported. The onsite coordinator will notify the NYSDEC manager as soon as practical. The hospital and ambulance should be advised of:

- the nature of the injury;
- whether the injured worker will be decontaminated prior to transport;
- when and where the injury was sustained; and
- the present condition of the injured worker (e.g., conscious, breathing).

Contingency Procedures for Chemical Injury to Workers

Upon notification that a chemical injury has been sustained or severe symptoms of chemical exposure are being experienced, the onsite coordinator will notify the hospital and

ambulance of the occurrence. The onsite coordinator will provide, to the extent possible, the following information:

- the nature of the injury (e.g., eyes contaminated);
- the chemical(s) involved;
- the present condition of the injured worker (e.g., conscious, breathing);
- whether the injured worker will be decontaminated prior to transport; and
- when and where the injury was sustained.

Steps will immediately be taken to remove the victim from the incident site using whatever personal protective equipment (PPE) and safety equipment is necessary. Rescuers will check for vital signs and, if possible, remove contaminated outer clothing. If the victim's eyes have been contaminated, personnel trained in administering first aid will flush the victim's eyes with eyewash solution until the emergency response team arrives.

Details on the nature of the contaminant and methods for treating exposure or injury can be obtained from the material safety data sheets (SDSs) or Occupational Health Guidelines as provided in the Site Health and Safety Plan.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site and all affected site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of groundwater;
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly TOGS 1.1.1 Class GA for ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria;
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

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

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures;
- Inspection and maintenance requirements for SSD systems; and
- Annual inspection and periodic certification.

Monitoring of the performance of the remedy and overall reduction in contamination on-site will be conducted annually for the first five years. The frequency thereafter will be determined by NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas,

will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 3-1 and outlined in detail in Section 3.3 below.

Annual groundwater monitoring reports will be submitted annually with the Periodic Review Report (PRR).

SSDS inspections will be documented in Department's daily report format with a summary of inspection observations as part of the annual report. These daily reports will be submitted no later than noon on the day following an inspection or maintenance event. If mitigation and/or correction is needed as a result of a quarterly inspection then the Department will be consulted immediately and follow up inspections.

Table 3-1: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater Monitoring	Annually	Groundwater	TCL VOCs by SW8260C 1,4-dioxane by SW846 8270D SIM
Monitoring Well Inspection	Annually	Not applicable	Not Applicable
SSD System Inspection	Quarterly	Not applicable	Not Applicable

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 GROUNDWATER MONITORING PROGRAM

Groundwater monitoring will be performed on an annual basis in order to assess the effectiveness of the remedial construction. The groundwater monitoring program will include the sampling of 13 monitoring wells (BRW-1, BRW-2, SR-001 through SR-006, SR-101, SR-104, SR-105, SR-106 and SR-108) as shown on Figure 3. Monitoring well construction logs and development logs are included in Appendix E and F, respectively. The network of wells covers an

area both up-gradient and down-gradient from the remediation areas at the site. The groundwater monitoring program will consist of measuring groundwater elevations using an electronic water level indicator, and using low-flow sampling procedures to collect groundwater samples. A complete discussion of the sampling procedures is presented in the Field Activities Plan (FAP) (Appendix G). Table 3-2 below summarizes the well identification number, location, depth and diameter. All of the wells identified are bedrock wells and are therefore not screened.

Table 3 -2 – Monitoring Well Construction Details

Monitoring Well ID	Well Location	Northing	Easting	Well Diameter (inches)	Elevation (above mean sea level)	
					Riser	Surface
BRW-1	On-Site	1081955.7	1302497.01	4	905.73	906.2
BRW-2	On-Site	1081989.96	1302381.13	4	906.74	907.3
SR-001	On-Site	1081544.97	1301853.72	4	914.47	912.7
SR-002	On-Site	1081427.91	1301972.95	4	915.27	912.7
SR-003	On-Site	1081298.23	1302026.42	4	911.38	908.6
SR-004	On-Site	1082056.57	1302364.92	4	907.77	908.3
SR-005	On-Site	1081969.28	1302451.49	4	906.14	906.7
SR-006	On-Site	1081939.17	1302489.7	4	906.02	906.4
SR-101	Upgradient	1083000.81	1301985.55	4	916.16	913.8
SR-104	On-Site	1081314.14	1301853.16	4	910.74	909.2
SR-105	On-Site	1082001.41	1302493.65	4	905.2	905.9
SR-106	Downgradient	1082265.68	1302789.02	4	898.81	897.0
SR-108	On-Site	1081256.31	1301824.97	4	910.57	908.1

The wells will be used to monitor groundwater conditions in the bedrock at the site. All samples will be analyzed for Target Compound List (TCL) VOCs by USEPA Method SW8260C and any wells in the treatment areas (see Figure 1 in the FAP) with concentrations of 1,4-dioxane exceeding NYSDOH guidelines (1 µg/L) will also be analyzed for 1,4-dioxane by USEPA Method SW8270D selected ion monitoring (SIM).

The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC. To date, one round of groundwater samples has been collected from the wells following the December 2019-January 2020 remedial injection.

3.2.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

As stated above, the current groundwater monitoring program consists of measuring groundwater elevations using an electronic water level indicator, and using low-flow sampling procedures (e.g., peristaltic pump) to collect groundwater samples. Water quality measurements will be recorded and documented on a purge log.

Groundwater samples shall be collected in appropriate laboratory grade containers. A complete discussion of sampling procedures is presented in the FAP (Appendix G). Samples shall be properly labeled and stored as outlined in the FAP (Appendix G). The analytical program including chemical parameters, methods, and quality assurance/quality control (QA/QC) samples is discussed further in Appendix G. Also included in the FAP is an example of the sampling log used by AECOM. A data usability assessment shall be performed on the laboratory data from each sampling event.

Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody procedures. Chain-of-custody procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples. A complete discussion of Chain-of-custody procedures is in the FAP (Appendix G).

Samples shall be collected in appropriate laboratory containers. The sample containers shall be properly wrapped in protective material (such as bubble wrap) and placed in laboratory provided coolers. The sample containers shall be shipped on ice following procedures outlined in the FAP (Appendix G). Sample containers shall be shipped to a NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory within 24 hours of collection following proper Chain-of-custody protocol. NYSDEC Analytical Services Protocol (ASP) Category B (or equivalent) data deliverables shall be provided by the laboratory.

All sample data must be submitted to the NYSDEC in electronic format. The NYSDEC uses the database software application EQuIS™ from EarthSoft® Inc. Further information

concerning electronic data submission can be found on NYSDEC's website under Environmental Data Submission.

3.2.2 Monitoring Well Repairs, Replacement and Decommissioning

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

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

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.3 AIR MONITORING PROGRAM

Until February 2020, indoor air monitoring was being performed on a quarterly basis in order to assess the conditions of the air within buildings B-31, B-35, B-37 and the PCore Building. The indoor air monitoring program included the collection of indoor air samples at 10 locations within the four buildings identified above. Sampling locations were added or removed at the request of NYSDEC or NYSDOH. Indoor air sampling is not required as part of the Site Management Plan per the NYSDOH.

In the event that NYSDEC or NYSDOH requests air sampling in the future, the air samples will be collected using Summa Canisters with 24-hour regulators. Sampling procedures will be in accordance with the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York, Final*, (NYSDOH, October 2006). A complete discussion of the sampling procedures is presented in the FAP (Appendix G). The analytical program including chemical parameters, methods, and quality assurance/quality control (QA/QC) samples is discussed further in Appendix G. Samples are analyzed for VOCs following United States Environmental Protection Agency (USEPA)

Compendium Method TO-15, Determination of VOCs in Air Collected in Specially Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). All sample data must be submitted to the NYSDEC's EQuIS group's EDD format.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. Additionally, the SSD systems will be inspected on a quarterly basis. During these inspections, inspection forms will be completed (Appendix H). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site (Appendix I). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC ASP requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.

- The laboratory will follow all calibration procedures and schedules as specified in the analytical methods that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. The report will include, at a minimum:

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

Data will be reported in hard copy or digital format as determined by NYSDEC.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

This Operation and Maintenance (O&M) Plan describes the measures necessary to operate, monitor and maintain the various components of the remedy. A copy of this SMP and related documents will be kept with the property owner. This section will be updated periodically to reflect changes in or the manner in which the remedial systems are operated and maintained. This section includes:

- The steps necessary to allow individuals unfamiliar with the Site to operate and maintain the sub-slab depressurization systems;
- The steps necessary to allow individuals unfamiliar with the site to operate and maintain the engineering and institutional controls defined for the Site; and
- An operation and maintenance contingency plan.

4.2 ENGINEERING CONTROLS SYSTEM OPERATION AND MAINTENANCE

Four SSD systems were installed in building B-31, one was installed in Building B-35, and two were installed in the PCore Building. The purpose of the SSD systems is to limit the potential for migration of VOCs; primarily TCE, PCE, 1,1,1-TCA, 1,1-DCE, carbon tetrachloride, methylene chloride and cis-1,2-DCE; from soil gas into indoor air within buildings that are regularly occupied. The Operation, Maintenance and Monitoring Plan for the SSD systems is included in Appendix J.

4.3 ENGINEERING CONTROLS SYSTEM PERFORMANCE MONITORING

The SSD system will be inspected quarterly, at a minimum. Unscheduled inspections and monitoring may occur when a suspected failure of a system has been reported, or when an unanticipated event occurs which is likely to affect the operation of a system.

If equipment readings are not within their typical range, equipment is observed to be malfunctioning, or a system is not performing within specifications, maintenance and repairs will be implemented as soon as feasible to return the system(s) to normal operation. NYSDEC will be advised of any problems encountered, and any repairs or adjustments that are made to any of the systems.

4.3.1 Routine System Operation and Maintenance

The Operation &Maintenance Plan for the SSD systems is included in Appendix J. Routine reports will include ground water sampling reports and the PRR. SSD inspections will be reported as daily inspection reports and submitted the NYSDEC PM.

4.3.2 Routine Maintenance Reports

Checklists or forms (see Appendix J) will be completed during each routine maintenance event. Checklists/forms will include, but not be limited to the following information:

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

4.4 NON-ROUTINE MAINTENANCE REPORTS

In the event of any non-routine maintenance work being completed, a non-routine maintenance report will be submitted to NYSDEC. The following information will be included on the standard inspection form:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance or repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 O&M Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections will also be conducted when a severe condition has taken place, such as an erosion or flooding event.

5.1.2 Inspection Forms, Sampling data and Maintenance Reports

A general site-wide inspection form will be completed during the site-wide inspection (see Appendix H). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the Remedial Action Work Plan (RAWP) and FER.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a Professional Engineer (P.E.) licensed in the State of New York or a Qualified Environmental Professional (QEP) will prepare the following certification:

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

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as Owner's Designated Site Representative for the site.

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

5.3 PERIODIC REVIEW REPORT

A PRR will be submitted to the Department every year for the first five years. After that, the site will be re-evaluated to determine if the reporting frequency should be changed. PRP Submittals will begin fifteen months after the approval of the Final Engineering Report. In the event that the site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the site as described in the metes and bounds presented in the Environmental Easement (Appendix A). The report will be prepared in accordance with NYSDEC

DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.

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

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective

measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 CLIMATE CHANGE VULNERABILITY ASSESSMENT

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

No vulnerability assessments have been performed at the site to date. Monitoring wells are a major component of the remedy, but they are not very vulnerable to extreme weather events. Trees are vulnerable to severe weather. Trees will be inspected after sever weather events. Any damaged trees will be pruned or will be removed and replaced, if necessary. The site is not in a flood hazard area according to Genesee county flood map.

6.2 GREEN REMEDIATION EVALUATION

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology.

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

6.3 REMEDIAL SYSTEM OPTIMIZATION

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

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

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				BRW-01	BRW-01	BRW-01	BRW-01	BRW-01
Sample ID				BRW-1	BRW-01	BRW-01	FD-20190422	BRW-01
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	04/22/19	04/22/19	05/20/20
Parameter	Units	(1)	(2)				Field Duplicate (1-1)	
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	120,000 D	1,700	100	99	1,100
1,1,2-Trichloroethane	UG/L	1	-	23 U	23 U	0.19 U	0.19 U	0.23 U
1,1-Dichloroethane	UG/L	5	-	43,000 D	4,000	210	200	2,200
1,1-Dichloroethene	UG/L	5	-	8,600	840	54	51	220
1,2-Dichloroethane	UG/L	0.6	-	94 J	21 U	0.20 U	0.20 U	1.2
1,2-Dichloroethene (cis)	UG/L	5	-	2,700	1,100	52	50	520
1,2-Dichloroethene (trans)	UG/L	5	-	90 U	90 U	0.23 U	0.23 U	1.6
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	120 U	120 U	1.3 UR	1.3 UR	1.2 U
Acetone	UG/L	50	-	300 U	300 U	2.7 UR	2.7 UR	10 U
Benzene	UG/L	1	-	41 U	41 U	0.85 J	0.78 J	2.9
Carbon disulfide	UG/L	60	-	19 UJ	19 U	0.22 U	0.22 U	0.19 U
Chloroethane	UG/L	5	-	40 J	32 U	0.51 J	0.57 J	20
Chloroform	UG/L	7	-	34 U	34 U	0.23 U	0.23 U	0.34 U
Chloromethane	UG/L	5	-	35 U	35 U	0.36 U	0.36 U	0.35 U
Cyclohexane	UG/L	-	-	18 U	18 U	4.8 J	4.5 J	0.18 U
Ethylbenzene	UG/L	5	-	74 U	74 U	0.39 J	0.41 J	0.87 J
Isopropylbenzene (Cumene)	UG/L	5	-	79 U	79 U	0.33 U	0.33 U	0.79 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	130 U	130 U	2.6 UR	2.6 UR	1.3 U
Methylcyclohexane	UG/L	-	-	16 U	16 U	8.2	7.8	7.2

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PF

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				BRW-01	BRW-01	BRW-01	BRW-01	BRW-01
Sample ID				BRW-1	BRW-01	BRW-01	FD-20190422	BRW-01
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	04/22/19	04/22/19	05/20/20
Parameter	**Units**	**(1)**	**(2)**				Field Duplicate (1-1)	
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	44 U	44 U	1.0 U	1.0 U	0.44 U
Tetrachloroethene	UG/L	5	-	36 U	36 U	0.14 U	0.14 U	0.36 U
Toluene	UG/L	5	-	51 U	51 U	1.7	1.7	5.1
Trichloroethene	UG/L	5	-	14,000 D	350	76	75	250 D
Vinyl chloride	UG/L	2	-	90 U	90 U	2.1	2.0	64
Xylene (total)	UG/L	5	-	66 U	66 U	2.4 J	2.4 J	5.8
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	NA	NA	110	120	2,900 J
Metals								
Iron	UG/L	300	-	NA	NA	13,500	14,500	30,300
Manganese	UG/L	300	-	NA	NA	660 J+	660 J+	530
Dissolved Metals								
Iron	UG/L	300 *	-	NA	NA	6,500	6,100	4,200
Manganese	UG/L	300 *	-	NA	NA	740 J+	720 J+	410
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	NA	2.0 UJ	30.0 UJ	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	NA	24.8	31.1	35.0
Nitrate-Nitrogen	MG/L	10000	-	NA	NA	0.025 UJ	0.025 UJ	0.25 U
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	NA	32.3	31.8	10.3 J

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PF

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

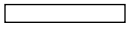
Location ID				BRW-02	BRW-02	SR-001	SR-001	SR-001
Sample ID				BRW-02	BRW-02	SR-1	SR-001	SR-001
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				04/19/19	05/21/20	12/02/14	09/27/18	04/18/19
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	4,000	2,300	0.82 U	1.6 U	0.19 U
1,1,2-Trichloroethane	UG/L	1	-	3.8 U	4.6 U	0.23 U	0.46 U	0.19 U
1,1-Dichloroethane	UG/L	5	-	3,700	2,200	1.9	0.76 U	61
1,1-Dichloroethene	UG/L	5	-	170	200	0.29 U	0.58 U	0.62 J
1,2-Dichloroethane	UG/L	0.6	-	4.0 U	4.2 U	0.21 U	0.42 U	0.20 U
1,2-Dichloroethene (cis)	UG/L	5	-	4.2 U	16 U	2.8	1.6 U	27
1,2-Dichloroethene (trans)	UG/L	5	-	4.6 U	18 U	0.90 U	1.8 U	29
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	26 UR	25 U	1.2 U	2.5 U	1.3 UR
Acetone	UG/L	50	-	53 UR	60 U	9.8 J	28	2.7 UR
Benzene	UG/L	1	-	4.0 U	8.2 U	69	37	0.20 U
Carbon disulfide	UG/L	60	-	4.4 U	3.8 U	0.19 UJ	0.38 U	0.22 U
Chloroethane	UG/L	5	-	7.9 J	6.4 U	0.32 U	0.64 U	0.36 U
Chloroform	UG/L	7	-	4.6 U	6.8 U	0.34 U	0.68 U	0.23 U
Chloromethane	UG/L	5	-	7.2 U	7.0 U	0.35 U	0.70 U	0.36 U
Cyclohexane	UG/L	-	-	20 J	3.6 U	74	45	0.13 U
Ethylbenzene	UG/L	5	-	3.8 U	15 U	23	8.8	0.19 U
Isopropylbenzene (Cumene)	UG/L	5	-	6.6 U	16 U	3.1	1.6 U	0.33 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	53 UR	26 U	1.3 U	3.7 J	2.6 UR
Methylcyclohexane	UG/L	-	-	22 J	12 J	14	12	0.68 J

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.


Concentration Exceeds (1)


Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PF

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				BRW-02	BRW-02	SR-001	SR-001	SR-001
Sample ID				BRW-02	BRW-02	SR-1	SR-001	SR-001
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				04/19/19	05/21/20	12/02/14	09/27/18	04/18/19
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	20 U	8.8 U	0.44 U	0.88 U	1.0 U
Tetrachloroethene	UG/L	5	-	2.8 U	7.2 U	0.36 U	0.72 U	0.14 U
Toluene	UG/L	5	-	8.0 J	10 U	170 D	62	0.17 U
Trichloroethene	UG/L	5	-	14 J	12 J	24	0.92 U	6.4
Vinyl chloride	UG/L	2	-	3.6 U	18 U	0.90 U	1.8 U	3.9
Xylene (total)	UG/L	5	-	13 J	13 U	180 D	55	0.58 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	22	2.5	NA	NA	7.5
Metals								
Iron	UG/L	300	-	42,000	7,900	NA	NA	9,800
Manganese	UG/L	300	-	550 J+	320	NA	NA	39 J+
Dissolved Metals								
Iron	UG/L	300 *	-	14,500	3,600	NA	NA	69 J-
Manganese	UG/L	300 *	-	440 J+	280	NA	NA	13
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	2.0 U	2.0 U	NA	NA	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	35.4	35.4	NA	NA	31.1
Nitrate-Nitrogen	MG/L	10000	-	0.025 UJ	0.13 UJ	NA	NA	0.050 U
Sulfate (as SO4)	MG/L	2.50E+05	-	5.2	36.8	NA	NA	2.4 J

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PFI

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

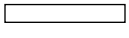
Location ID				SR-001	SR-002	SR-002	SR-002	SR-002
Sample ID				SR-001	SR-2	SR-002	SR-002	SR-002
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				05/20/20	12/02/14	09/27/18	04/18/19	05/20/20
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	0.82 U	19	3.3 U	86	16 U
1,1,2-Trichloroethane	UG/L	1	-	0.23 U	0.23 U	0.92 U	0.19 U	4.6 U
1,1-Dichloroethane	UG/L	5	-	0.38 U	140 D	46	97	56
1,1-Dichloroethene	UG/L	5	-	0.29 U	25	2.9 J	20	9.0 J
1,2-Dichloroethane	UG/L	0.6	-	0.21 U	0.21 U	0.84 U	0.20 U	4.2 U
1,2-Dichloroethene (cis)	UG/L	5	-	0.81 U	600 D	210	1,800 D	960
1,2-Dichloroethene (trans)	UG/L	5	-	0.90 U	38	12	26	18 U
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	1.2 U	1.2 U	5.0 U	1.3 UR	25 U
Acetone	UG/L	50	-	60	3.0 U	17 J	2.7 UR	60 U
Benzene	UG/L	1	-	4.8	150 D	170	0.20 U	15 J
Carbon disulfide	UG/L	60	-	0.19 U	0.19 UJ	0.76 U	0.48 J	3.8 U
Chloroethane	UG/L	5	-	0.32 U	0.32 U	1.3 U	0.36 U	6.4 U
Chloroform	UG/L	7	-	0.34 U	0.34 U	1.4 U	0.23 U	6.8 U
Chloromethane	UG/L	5	-	0.35 U	0.35 U	1.4 U	0.36 U	7.0 U
Cyclohexane	UG/L	-	-	22	34	40	0.13 U	18 J
Ethylbenzene	UG/L	5	-	2.4	14	19	0.19 U	15 U
Isopropylbenzene (Cumene)	UG/L	5	-	0.79 U	0.86 J	3.2 U	0.33 U	16 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	3.3 J	1.3 U	5.3 U	2.6 UR	26 U
Methylcyclohexane	UG/L	-	-	15	5.6	7.2	0.090 U	11 J

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.


Concentration Exceeds (1)


Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

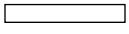
Location ID				SR-001	SR-002	SR-002	SR-002	SR-002
Sample ID				SR-001	SR-2	SR-002	SR-002	SR-002
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				05/20/20	12/02/14	09/27/18	04/18/19	05/20/20
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	0.44 U	0.44 U	1.8 U	1.0 U	8.8 U
Tetrachloroethene	UG/L	5	-	0.36 U	0.60 J	1.4 U	0.14 U	7.2 U
Toluene	UG/L	5	-	1.3	200 D	81	0.17 U	14 J
Trichloroethene	UG/L	5	-	0.46 U	570 D	8.5	4,300 D	99
Vinyl chloride	UG/L	2	-	0.90 U	28	160	2.8	89
Xylene (total)	UG/L	5	-	6.1	84	28	0.58 U	13 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	1.2	NA	NA	0.60	3.9
Metals								
Iron	UG/L	300	-	13,600	NA	NA	17,200	13,000
Manganese	UG/L	300	-	190	NA	NA	140 J+	95
Dissolved Metals								
Iron	UG/L	300 *	-	2,700	NA	NA	990 J-	2,700
Manganese	UG/L	300 *	-	140	NA	NA	71	79
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	3.0 U	NA	NA	6.0 UJ	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	28.3	NA	NA	7.6 J	22.6
Nitrate-Nitrogen	MG/L	10000	-	0.13 U	NA	NA	0.025 U	0.13 U
Sulfate (as SO4)	MG/L	2.50E+05	-	81.7	NA	NA	17.7	42.9

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.


Concentration Exceeds (1)


Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.
D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-003	SR-003	SR-003	SR-003	SR-003
Sample ID				SR-3	SR-003	SR-003	FD-052020	SR-003
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	04/18/19	05/20/20	05/20/20
Parameter	**Units**	**(1)**	**(2)**				Field Duplicate (1-1)	
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	300 D	82 U	0.19 U	33 U	21
1,1,2-Trichloroethane	UG/L	1	-	0.90 J	23 U	0.19 U	9.2 U	0.23 U
1,1-Dichloroethane	UG/L	5	-	250 D	260	0.24 U	170	180 D
1,1-Dichloroethene	UG/L	5	-	70	57 J	0.25 U	29 J	31
1,2-Dichloroethane	UG/L	0.6	-	0.50 J	21 U	0.20 U	8.4 U	0.21 U
1,2-Dichloroethene (cis)	UG/L	5	-	3,600 D	2,400	0.21 U	1,900	2,000 D
1,2-Dichloroethene (trans)	UG/L	5	-	17	90 U	0.23 U	36 U	11
1,4-Dioxane	UG/L	-	1	NA	13	NA	NA	NA
2-Hexanone	UG/L	50	-	1.2 U	120 UJ	1.3 U	50 U	1.2 U
Acetone	UG/L	50	-	3.0 U	300 U	24 J	120 U	3.0 U
Benzene	UG/L	1	-	0.41 U	41 U	12	16 U	0.41 U
Carbon disulfide	UG/L	60	-	0.19 UJ	19 U	0.22 U	7.6 U	0.19 U
Chloroethane	UG/L	5	-	0.54 J	32 U	0.36 U	13 U	3.7
Chloroform	UG/L	7	-	0.69 J	34 U	0.23 U	14 U	0.34 U
Chloromethane	UG/L	5	-	0.35 U	35 U	0.36 U	14 U	0.35 U
Cyclohexane	UG/L	-	-	0.18 U	18 U	54	7.2 U	0.18 U
Ethylbenzene	UG/L	5	-	0.74 U	74 U	3.3	30 U	0.74 U
Isopropylbenzene (Cumene)	UG/L	5	-	0.79 U	79 U	0.62 J	32 U	0.79 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	1.3 U	130 UJ	2.6 UR	53 U	1.3 U
Methylcyclohexane	UG/L	-	-	0.62 J	16 U	40	6.4 U	0.16 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-003	SR-003	SR-003	SR-003	SR-003
Sample ID				SR-3	SR-003	SR-003	FD-052020	SR-003
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	04/18/19	05/20/20	05/20/20
Parameter	**Units**	**(1)**	**(2)**				Field Duplicate (1-1)	
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	0.44 U	48 J	1.0 U	18 U	0.44 U
Tetrachloroethene	UG/L	5	-	34	36 U	0.14 U	14 U	6.6
Toluene	UG/L	5	-	0.51 U	51 U	18	20 U	0.51 U
Trichloroethene	UG/L	5	-	6,000 D	2,900	0.20 U	1,900	2,000 D
Vinyl chloride	UG/L	2	-	28	90 U	0.18 U	36 U	22
Xylene (total)	UG/L	5	-	0.66 U	66 U	21	26 U	0.66 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	NA	NA	1.3	20	19
Metals								
Iron	UG/L	300	-	NA	NA	86,400	870	860
Manganese	UG/L	300	-	NA	NA	1,100 J+	85	87
Dissolved Metals								
Iron	UG/L	300 *	-	NA	NA	3,300 J-	750	770
Manganese	UG/L	300 *	-	NA	NA	160	72	70
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	NA	3.0 UJ	2.0 U	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	NA	43.6	22.9	24.5
Nitrate-Nitrogen	MG/L	10000	-	NA	NA	0.13 U	0.13 U	0.13 U
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	NA	106	211	212

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

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Detection Limits shown are MDL

Advanced Selection: amk-tem
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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PF

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

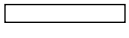
Location ID				SR-004	SR-004	SR-004	SR-005	SR-005
Sample ID				SR-4	SR-004	SR-004	SR-5	SR-005
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	04/19/19	05/19/20	12/02/14	09/27/18
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	0.82 U	0.19 U	0.82 U	7,000 D	13,000
1,1,2-Trichloroethane	UG/L	1	-	0.23 U	0.19 U	0.23 U	5.2	120 U
1,1-Dichloroethane	UG/L	5	-	0.38 U	0.24 U	0.38 U	7,000 D	30,000
1,1-Dichloroethene	UG/L	5	-	0.29 U	0.25 U	0.29 U	340 J	1,400
1,2-Dichloroethane	UG/L	0.6	-	0.21 U	0.20 U	0.21 U	18	110 U
1,2-Dichloroethene (cis)	UG/L	5	-	0.81 U	0.21 U	0.81 U	26	2,200
1,2-Dichloroethene (trans)	UG/L	5	-	0.90 U	0.23 U	0.90 U	0.90 U	450 U
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	1.2 U	1.3 UR	1.2 U	2.9 J	620 U
Acetone	UG/L	50	-	3.0 U	225 UR	6.1 J	130	1,500 U
Benzene	UG/L	1	-	140 D	6.8	7.3	300 D	210 U
Carbon disulfide	UG/L	60	-	0.19 UJ	0.22 U	0.19 U	0.66 J	95 U
Chloroethane	UG/L	5	-	0.32 U	0.36 U	0.32 U	10	160 U
Chloroform	UG/L	7	-	0.34 U	0.23 U	0.34 U	0.82 J	170 U
Chloromethane	UG/L	5	-	0.35 U	0.36 U	0.35 U	0.35 U	180 U
Cyclohexane	UG/L	-	-	39	6.9	5.0	14	90 U
Ethylbenzene	UG/L	5	-	8.9	1.5	1.7	12	370 U
Isopropylbenzene (Cumene)	UG/L	5	-	0.79 U	0.33 U	0.79 U	0.79 U	400 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	1.3 U	2.6 UR	1.3 U	15	660 U
Methylcyclohexane	UG/L	-	-	5.8	3.3 J	3.2	3.0	80 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.


Concentration Exceeds (1)


Concentration Exceeds (2)

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D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

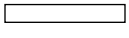
Location ID				SR-004	SR-004	SR-004	SR-005	SR-005
Sample ID				SR-4	SR-004	SR-004	SR-5	SR-005
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	04/19/19	05/19/20	12/02/14	09/27/18
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	0.44 U	1.0 U	0.44 U	7.4	220 U
Tetrachloroethene	UG/L	5	-	0.36 U	0.14 U	0.36 U	0.36 U	180 U
Toluene	UG/L	5	-	160 D	2.4	5.8	250 D	260 U
Trichloroethene	UG/L	5	-	0.69 J	0.20 U	0.46 U	1,300 D	3,200
Vinyl chloride	UG/L	2	-	0.90 U	0.18 U	0.90 U	5.4	450 U
Xylene (total)	UG/L	5	-	130	5.4	5.4	68	330 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	NA	0.57	11	NA	NA
Metals								
Iron	UG/L	300	-	NA	48,900	13,800	NA	NA
Manganese	UG/L	300	-	NA	620 J+	89	NA	NA
Dissolved Metals								
Iron	UG/L	300 *	-	NA	190	1,400	NA	NA
Manganese	UG/L	300 *	-	NA	48 J+	38	NA	NA
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	2.0 UJ	2.0 U	NA	NA
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	50.2	5.0 U	NA	NA
Nitrate-Nitrogen	MG/L	10000	-	NA	0.025 UJ	0.13 U	NA	NA
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	23.3	1.7 U	NA	NA

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.


Concentration Exceeds (1)


Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.
D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-005	SR-005	SR-006	SR-006	SR-006
Sample ID				SR-005	SR-005	SR-6	SR-006	SR-006
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				04/19/19	05/21/20	12/02/14	09/27/18	04/22/19
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	1,200	29,000	77,000 D	2,900	2,200
1,1,2-Trichloroethane	UG/L	1	-	19 U	23 U	10	120 U	9.5 U
1,1-Dichloroethane	UG/L	5	-	17,000	37,000	34,000 D	31,000	7,100
1,1-Dichloroethene	UG/L	5	-	500	940	15,000 J	850	360
1,2-Dichloroethane	UG/L	0.6	-	20 U	42 J	35	110 U	10 U
1,2-Dichloroethene (cis)	UG/L	5	-	230	230	4,200 D	410 U	550
1,2-Dichloroethene (trans)	UG/L	5	-	23 U	90 U	0.90 U	450 U	12 U
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	130 UR	120 U	1.2 U	620 U	64 UR
Acetone	UG/L	50	-	2,500 UR	7,800	100	1,500 U	130 UR
Benzene	UG/L	1	-	83 J	75 J	86	210 U	33 J
Carbon disulfide	UG/L	60	-	22 U	19 U	8.6 J	95 U	11 U
Chloroethane	UG/L	5	-	78 J	120	42	160 J	18 U
Chloroform	UG/L	7	-	23 U	34 U	2.9	170 U	12 U
Chloromethane	UG/L	5	-	36 U	35 U	0.35 U	180 U	18 U
Cyclohexane	UG/L	-	-	72 J	18 U	0.18 U	90 U	6.5 U
Ethylbenzene	UG/L	5	-	19 U	74 U	19	370 U	9.5 U
Isopropylbenzene (Cumene)	UG/L	5	-	33 U	79 U	1.7	400 U	17 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	260 UR	1,200	1.3 U	660 U	130 UR
Methylcyclohexane	UG/L	-	-	38 J	26 J	12	80 U	30 J

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-005	SR-005	SR-006	SR-006	SR-006
Sample ID				SR-005	SR-005	SR-6	SR-006	SR-006
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				04/19/19	05/21/20	12/02/14	09/27/18	04/22/19
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	100 U	44 U	36	220 U	50 U
Tetrachloroethene	UG/L	5	-	14 U	36 U	3.2	180 U	7.0 U
Toluene	UG/L	5	-	96 J	100	140 J	260 U	43 J
Trichloroethene	UG/L	5	-	1,900	12,000	9,500 D	3,600	680
Vinyl chloride	UG/L	2	-	18 U	90 U	150 J	450 U	9.0 U
Xylene (total)	UG/L	5	-	58 U	66 U	120	330 U	29 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	1,200	1,300	NA	NA	290
Metals								
Iron	UG/L	300	-	140,000	93,300	NA	NA	16,000
Manganese	UG/L	300	-	1,700 J+	1,200	NA	NA	280 J+
Dissolved Metals								
Iron	UG/L	300 *	-	129,000	85,100	NA	NA	3,500
Manganese	UG/L	300 *	-	1,500 J+	1,200	NA	NA	170 J+
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	9.3	28.8	NA	NA	2.0 UJ
Chemical Oxygen Demand (COD)	MG/L	-	-	80.6	107	NA	NA	39.3
Nitrate-Nitrogen	MG/L	10000	-	0.025 UJ	0.50 UJ	NA	NA	0.025 UJ
Sulfate (as SO4)	MG/L	2.50E+05	-	31.4	7.7 J	NA	NA	31.2

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-006	SR-101	SR-101	SR-101	SR-101
Sample ID				SR-006	SR-101	SR-101	SR-101	SR-101
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				05/21/20	12/02/14	09/27/18	04/17/19	05/19/20
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	2,500	0.82 U	0.82 U	0.19 U	0.82 U
1,1,2-Trichloroethane	UG/L	1	-	12 U	0.23 U	0.23 U	0.19 U	0.23 U
1,1-Dichloroethane	UG/L	5	-	7,600 D	0.38 U	0.38 U	0.24 U	0.38 U
1,1-Dichloroethene	UG/L	5	-	230	0.29 U	0.29 U	0.25 U	0.29 U
1,2-Dichloroethane	UG/L	0.6	-	11 U	0.21 U	0.21 U	0.20 U	0.21 U
1,2-Dichloroethene (cis)	UG/L	5	-	420	0.81 U	0.81 U	0.21 U	0.81 U
1,2-Dichloroethene (trans)	UG/L	5	-	45 U	0.90 U	0.90 U	0.23 U	0.90 U
1,4-Dioxane	UG/L	-	1	NA	NA	2.8	NA	NA
2-Hexanone	UG/L	50	-	62 U	1.2 U	1.2 U	1.3 UR	1.2 U
Acetone	UG/L	50	-	500 U	3.0 U	3.8 J	2.7 UR	3.0 U
Benzene	UG/L	1	-	29 J	7.2	0.59 J	0.20 U	0.41 U
Carbon disulfide	UG/L	60	-	9.5 U	0.19 UJ	1.0 U	0.22 U	0.19 U
Chloroethane	UG/L	5	-	16 U	0.32 U	0.32 U	0.36 U	0.32 U
Chloroform	UG/L	7	-	17 U	0.34 U	0.34 U	0.23 U	0.34 U
Chloromethane	UG/L	5	-	18 U	0.35 U	0.35 U	0.36 U	0.35 U
Cyclohexane	UG/L	-	-	9.0 U	0.18 U	0.18 U	0.13 U	0.18 U
Ethylbenzene	UG/L	5	-	37 U	0.74 U	0.74 U	0.19 U	0.74 U
Isopropylbenzene (Cumene)	UG/L	5	-	40 U	0.79 U	0.79 U	0.33 U	0.79 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	190 J	1.3 U	1.3 U	2.6 UR	1.3 U
Methylcyclohexane	UG/L	-	-	8.0 U	0.16 U	0.16 U	0.93 J	0.16 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.

D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

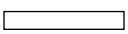
Location ID				SR-006	SR-101	SR-101	SR-101	SR-101
Sample ID				SR-006	SR-101	SR-101	SR-101	SR-101
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				05/21/20	12/02/14	09/27/18	04/17/19	05/19/20
Parameter	**Units**	**(1)**	**(2)**					
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	22 U	0.44 U	0.44 U	1.0 U	0.44 U
Tetrachloroethene	UG/L	5	-	18 U	0.36 U	0.36 U	0.14 U	0.36 U
Toluene	UG/L	5	-	36 J	0.51 U	0.51 U	0.17 U	0.51 U
Trichloroethene	UG/L	5	-	860	0.46 U	0.46 U	0.20 U	0.46 U
Vinyl chloride	UG/L	2	-	45 U	0.90 U	0.90 U	0.18 U	0.90 U
Xylene (total)	UG/L	5	-	33 U	0.66 U	0.66 U	0.58 U	0.66 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	290	NA	NA	3.3	1.9
Metals								
Iron	UG/L	300	-	7,700	NA	NA	4,100 J-	470
Manganese	UG/L	300	-	160	NA	NA	61	20
Dissolved Metals								
Iron	UG/L	300 *	-	3,300	NA	NA	110	120
Manganese	UG/L	300 *	-	130	NA	NA	28 J-	17
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	2.2	NA	NA	2.0 U	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	38.8	NA	NA	29.4	5.0 U
Nitrate-Nitrogen	MG/L	10000	-	0.13 UJ	NA	NA	0.050 U	0.13 U
Sulfate (as SO4)	MG/L	2.50E+05	-	13.2	NA	NA	118	116

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.


Concentration Exceeds (1)


Concentration Exceeds (2)

- - No criteria. UG/L - Micrograms per liter. MG/L - Milligrams per liter. NA - Not analyzed.
D - Result reported from a secondary dilution analysis.
J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-104	SR-104	SR-104	SR-104	SR-104
Sample ID				SR-104	FD-092718	SR-104	SR-104	SR-104
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	09/27/18	04/18/19	05/20/20
Parameter	Units	(1)	(2)		Field Duplicate (1-1)			
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	1.3	330 U	160 U	45	61
1,1,2-Trichloroethane	UG/L	1	-	0.23 U	92 U	46 U	1.9 U	2.3 U
1,1-Dichloroethane	UG/L	5	-	15	150 U	76 U	230	74
1,1-Dichloroethene	UG/L	5	-	4.2	120 U	58 U	46	14
1,2-Dichloroethane	UG/L	0.6	-	0.21 U	84 U	42 U	2.0 U	2.1 U
1,2-Dichloroethene (cis)	UG/L	5	-	280 D	800	670	1,800	2,900
1,2-Dichloroethene (trans)	UG/L	5	-	16	360 U	180 U	9.0 J	14
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	1.2 U	500 U	250 U	13 U	12 U
Acetone	UG/L	50	-	3.0 U	1,200 U	600 U	27 UR	30 U
Benzene	UG/L	1	-	0.41 U	160 U	82 U	4.9 J	4.1 U
Carbon disulfide	UG/L	60	-	0.19 UJ	76 U	38 U	2.2 U	1.9 U
Chloroethane	UG/L	5	-	0.32 U	130 U	64 U	3.6 U	3.2 U
Chloroform	UG/L	7	-	0.34 U	140 U	68 U	2.3 U	3.4 U
Chloromethane	UG/L	5	-	0.35 U	140 U	70 U	3.6 U	3.5 U
Cyclohexane	UG/L	-	-	0.18 U	72 U	36 U	1.3 U	1.8 U
Ethylbenzene	UG/L	5	-	0.74 U	300 U	150 U	1.9 U	7.4 U
Isopropylbenzene (Cumene)	UG/L	5	-	0.79 U	320 U	160 U	3.3 U	7.9 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	1.3 U	530 U	260 U	26 UR	13 U
Methylcyclohexane	UG/L	-	-	0.16 U	64 U	32 U	0.90 U	1.6 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

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Detection Limits shown are MDL

Advanced Selection: amk-tem
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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-104	SR-104	SR-104	SR-104	SR-104
Sample ID				SR-104	FD-092718	SR-104	SR-104	SR-104
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	09/27/18	04/18/19	05/20/20
Parameter	**Units**	**(1)**	**(2)**		Field Duplicate (1-1)			
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	0.44 U	180 U	93 J	10 U	4.4 U
Tetrachloroethene	UG/L	5	-	0.36 U	140 U	72 U	10	3.6 U
Toluene	UG/L	5	-	0.51 U	200 U	100 U	1.7 U	5.1 U
Trichloroethene	UG/L	5	-	12,000 D	15,000	14,000	2,700 D	2,800
Vinyl chloride	UG/L	2	-	0.90 U	360 U	180 U	33	9.0 U
Xylene (total)	UG/L	5	-	0.66 U	260 U	130 U	5.8 U	6.6 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	NA	NA	NA	12	0.49
Metals								
Iron	UG/L	300	-	NA	NA	NA	940	19,100
Manganese	UG/L	300	-	NA	NA	NA	61 J+	120
Dissolved Metals								
Iron	UG/L	300 *	-	NA	NA	NA	380 J-	1,200
Manganese	UG/L	300 *	-	NA	NA	NA	51	88
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	NA	NA	2.0 U	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	NA	NA	11.3	33.1
Nitrate-Nitrogen	MG/L	10000	-	NA	NA	NA	0.050 U	0.050 U
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	NA	NA	36.4	11.0

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

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J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-105	SR-105	SR-105	SR-105	SR-105
Sample ID				FD-120214-01	SR-105	SR-105	SR-105	SR-105
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	12/02/14	09/27/18	04/22/19	05/21/20
Parameter	Units	(1)	(2)	Field Duplicate (1-1)				
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	220,000 D	140,000 D	180,000 J	200,000	170,000
1,1,2-Trichloroethane	UG/L	1	-	23 U	25	1,200 UJ	95 U	120 U
1,1-Dichloroethane	UG/L	5	-	79,000 D	64,000 D	94,000 J	75,000	74,000
1,1-Dichloroethene	UG/L	5	-	11,000 J	21,000 J	2,100 J	3,100	3,700
1,2-Dichloroethane	UG/L	0.6	-	160	130 J	1,100 UJ	100 U	110 J
1,2-Dichloroethene (cis)	UG/L	5	-	3,600	3,200 J	7,600 J	7,600	9,200
1,2-Dichloroethene (trans)	UG/L	5	-	90 U	0.90 U	4,500 UJ	120 U	450 U
1,4-Dioxane	UG/L	-	1	NA	NA	4,600	NA	NA
2-Hexanone	UG/L	50	-	120 U	1.6 J	6,200 UJ	640 UR	620 U
Acetone	UG/L	50	-	1,300 J	480 J	22,000 J	19,000 J	22,000
Benzene	UG/L	1	-	41 U	1.2	2,100 UJ	100 U	210 U
Carbon disulfide	UG/L	60	-	19 UJ	4.6 J	5,000 UJ	110 U	95 U
Chloroethane	UG/L	5	-	150	160 J	1,600 UJ	180 U	160 U
Chloroform	UG/L	7	-	34 U	3.9	1,700 UJ	120 U	170 U
Chloromethane	UG/L	5	-	35 U	0.87 J	1,800 UJ	180 U	180 U
Cyclohexane	UG/L	-	-	18 U	0.18 U	900 UJ	65 U	90 U
Ethylbenzene	UG/L	5	-	74 U	0.74 U	3,700 UJ	95 U	370 U
Isopropylbenzene (Cumene)	UG/L	5	-	79 U	0.79 U	4,000 UJ	170 U	400 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	130 U	1.3 U	6,600 UJ	1,300 UR	660 U
Methylcyclohexane	UG/L	-	-	16 U	0.16 U	800 UJ	45 U	80 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

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D - Result reported from a secondary dilution analysis.

J - The reported concentration is an estimated value. J- - Estimated value, low bias. J+ - Estimated value, high bias.

Only Detected Results Reported.

Detection Limits shown are MDL

Advanced Selection: amk-tem
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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PF

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-105	SR-105	SR-105	SR-105	SR-105
Sample ID				FD-120214-01	SR-105	SR-105	SR-105	SR-105
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	12/02/14	09/27/18	04/22/19	05/21/20
Parameter	**Units**	**(1)**	**(2)**	Field Duplicate (1-1)				
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	44 U	87	2,200 J	500 U	220 U
Tetrachloroethene	UG/L	5	-	36 U	8.0	1,800 UJ	70 U	180 U
Toluene	UG/L	5	-	51 U	2.1	2,600 UJ	85 U	260 U
Trichloroethene	UG/L	5	-	76,000 DJ	45,000 DJ	82,000 J	92,000	81,000
Vinyl chloride	UG/L	2	-	120 J	310 J	4,500 UJ	90 U	450 U
Xylene (total)	UG/L	5	-	66 U	1.2 J	3,300 UJ	290 U	330 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	NA	NA	NA	3,100	2,400 J
Metals								
Iron	UG/L	300	-	NA	NA	NA	14,100	8,300
Manganese	UG/L	300	-	NA	NA	NA	310 J+	260
Dissolved Metals								
Iron	UG/L	300 *	-	NA	NA	NA	11,100	6,900
Manganese	UG/L	300 *	-	NA	NA	NA	270 J+	240
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	NA	NA	57.8 J	48.1 J-
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	NA	NA	127	121
Nitrate-Nitrogen	MG/L	10000	-	NA	NA	NA	0.025 UJ	0.25 U
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	NA	NA	11.8	184

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

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Only Detected Results Reported.

Detection Limits shown are MDL

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[SITEID] = '11176787' AND [MATRIX] = 'WG' AND [LOGDATE] >= #1/1/2014# AND [PRCCODE] <> 'PF

TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-106	SR-106	SR-106	SR-106	SR-106
Sample ID				SR-106	FD2-092718	SR-106	SR-106	SR-106
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	09/27/18	04/17/19	05/21/20
Parameter	Units	(1)	(2)		Field Duplicate (1-1)			
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/L	5	-	3,600 D	NA	1,800	1,100	890
1,1,2-Trichloroethane	UG/L	1	-	3.0	NA	46 U	3.8 U	4.6 U
1,1-Dichloroethane	UG/L	5	-	9,900 D	NA	7,200	3,300	2,700 D
1,1-Dichloroethene	UG/L	5	-	210 D	NA	89 J	59	54
1,2-Dichloroethane	UG/L	0.6	-	2.0	NA	42 U	4.0 U	4.2 U
1,2-Dichloroethene (cis)	UG/L	5	-	450 D	NA	420	250	200
1,2-Dichloroethene (trans)	UG/L	5	-	11	NA	180 U	8.8 J	18 U
1,4-Dioxane	UG/L	-	1	NA	550	520	NA	NA
2-Hexanone	UG/L	50	-	1.2 U	NA	250 U	26 UR	25 U
Acetone	UG/L	50	-	8.6 J	NA	600 U	53 UR	60 U
Benzene	UG/L	1	-	0.68 J	NA	82 U	4.0 U	8.2 U
Carbon disulfide	UG/L	60	-	0.19 UJ	NA	38 U	4.4 U	3.8 U
Chloroethane	UG/L	5	-	100 J	NA	160 J	91	110
Chloroform	UG/L	7	-	0.34 J	NA	68 U	4.6 U	6.8 U
Chloromethane	UG/L	5	-	0.35 U	NA	70 U	7.2 U	7.0 U
Cyclohexane	UG/L	-	-	0.18 U	NA	36 U	2.6 U	3.6 U
Ethylbenzene	UG/L	5	-	0.74 U	NA	150 U	3.8 U	15 U
Isopropylbenzene (Cumene)	UG/L	5	-	0.79 U	NA	160 U	6.6 U	16 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	1.3 U	NA	260 U	53 UR	26 U
Methylcyclohexane	UG/L	-	-	0.57 J	NA	32 U	1.8 U	3.2 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

Concentration Exceeds (1)

Concentration Exceeds (2)

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-106	SR-106	SR-106	SR-106	SR-106
Sample ID				SR-106	FD2-092718	SR-106	SR-106	SR-106
Matrix				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-	-
Date Sampled				12/02/14	09/27/18	09/27/18	04/17/19	05/21/20
Parameter	**Units**	**(1)**	**(2)**		Field Duplicate (1-1)			
Volatile Organic Compounds								
Methylene chloride	UG/L	5	-	1.5	NA	88 U	20 U	8.8 U
Tetrachloroethene	UG/L	5	-	13	NA	72 U	2.8 U	7.2 U
Toluene	UG/L	5	-	1.8	NA	100 U	3.4 U	10 U
Trichloroethene	UG/L	5	-	69	NA	92 U	58	56
Vinyl chloride	UG/L	2	-	95	NA	180 U	100	110
Xylene (total)	UG/L	5	-	1.5 J	NA	130 U	12 U	13 U
Semivolatile Organic Compounds								
1,4-Dioxane	UG/L	-	1	NA	NA	NA	240	250
Metals								
Iron	UG/L	300	-	NA	NA	NA	2,900 J-	910
Manganese	UG/L	300	-	NA	NA	NA	49	52
Dissolved Metals								
Iron	UG/L	300 *	-	NA	NA	NA	690	620
Manganese	UG/L	300 *	-	NA	NA	NA	41 J-	47
Miscellaneous Parameters								
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	NA	NA	2.0 UJ	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	NA	NA	119	33.4
Nitrate-Nitrogen	MG/L	10000	-	NA	NA	NA	0.79	0.83 J
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	NA	NA	142	157

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

Flags assigned during chemistry validation are shown.

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Concentration Exceeds (2)

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-108	SR-108	SR-108	SR-108
Sample ID				SR-108	SR-108	SR-108	SR-108
Matrix				Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-
Date Sampled				12/02/14	09/27/18	04/18/19	05/20/20
Parameter	**Units**	**(1)**	**(2)**				
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5	-	8.2 U	3.3 U	12	0.82 U
1,1,2-Trichloroethane	UG/L	1	-	2.3 U	0.92 U	0.19 U	0.23 U
1,1-Dichloroethane	UG/L	5	-	190	130	43	57
1,1-Dichloroethene	UG/L	5	-	16 J	2.1 J	9.5	1.1
1,2-Dichloroethane	UG/L	0.6	-	2.1 U	0.84 U	0.20 U	0.21 U
1,2-Dichloroethene (cis)	UG/L	5	-	520	39	480 D	29
1,2-Dichloroethene (trans)	UG/L	5	-	52	50	17	42
1,4-Dioxane	UG/L	-	1	NA	NA	NA	NA
2-Hexanone	UG/L	50	-	12 U	5.0 U	1.3 UR	1.2 U
Acetone	UG/L	50	-	30 U	17 J	2.7 UR	3.0 U
Benzene	UG/L	1	-	4.1 U	1.6 U	2.8	0.41 U
Carbon disulfide	UG/L	60	-	1.9 UJ	0.76 U	0.22 U	0.19 U
Chloroethane	UG/L	5	-	3.2 U	1.3 U	0.36 U	0.32 U
Chloroform	UG/L	7	-	3.4 U	1.4 U	0.23 U	0.34 U
Chloromethane	UG/L	5	-	3.5 U	1.4 U	0.36 U	0.35 U
Cyclohexane	UG/L	-	-	1.8 UJ	2.0 J	6.0	0.18 U
Ethylbenzene	UG/L	5	-	7.4 U	3.0 U	0.34 J	0.74 U
Isopropylbenzene (Cumene)	UG/L	5	-	7.9 U	3.2 U	0.33 U	0.79 U
Methyl ethyl ketone (2-Butanone)	UG/L	50	-	13 U	5.3 U	2.6 UR	1.3 U
Methylcyclohexane	UG/L	-	-	1.6 U	2.2 J	8.4	1.5

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

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TABLE 1-5
HISTORICAL SUMMARY OF DETECTED COMPOUNDS IN GROUNDWATER SAMPLES
LAPP INSULATOR SITE

Location ID				SR-108	SR-108	SR-108	SR-108
Sample ID				SR-108	SR-108	SR-108	SR-108
Matrix				Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)				-	-	-	-
Date Sampled				12/02/14	09/27/18	04/18/19	05/20/20
Parameter	**Units**	**(1)**	**(2)**				
Volatile Organic Compounds							
Methylene chloride	UG/L	5	-	4.4 U	1.8 U	1.0 U	0.44 U
Tetrachloroethene	UG/L	5	-	3.6 U	1.4 U	0.35 J	0.36 U
Toluene	UG/L	5	-	5.1 U	2.0 U	1.4	0.51 U
Trichloroethene	UG/L	5	-	200	3.5 J	530 D	2.1
Vinyl chloride	UG/L	2	-	9.0 U	18	47	9.0
Xylene (total)	UG/L	5	-	6.6 U	2.6 U	0.58 U	0.66 U
Semivolatile Organic Compounds							
1,4-Dioxane	UG/L	-	1	NA	NA	1.7	7.4
Metals							
Iron	UG/L	300	-	NA	NA	28,500	12,100
Manganese	UG/L	300	-	NA	NA	160 J+	34
Dissolved Metals							
Iron	UG/L	300 *	-	NA	NA	1,300 J-	86
Manganese	UG/L	300 *	-	NA	NA	58	8.1
Miscellaneous Parameters							
Biochemical Oxygen Demand (BOD)	MG/L	-	-	NA	NA	3.0 U	2.0 U
Chemical Oxygen Demand (COD)	MG/L	-	-	NA	NA	21.2	23.2
Nitrate-Nitrogen	MG/L	10000	-	NA	NA	0.050 U	0.13 U
Sulfate (as SO4)	MG/L	2.50E+05	-	NA	NA	11.8	1.7 U

(1)- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998 (includes 4/2000 and 6/2004 Addenda) Class GA.

(2)- Recommended Screening Level - New York State Drinking Water Quality Council (DWQC), January 2019

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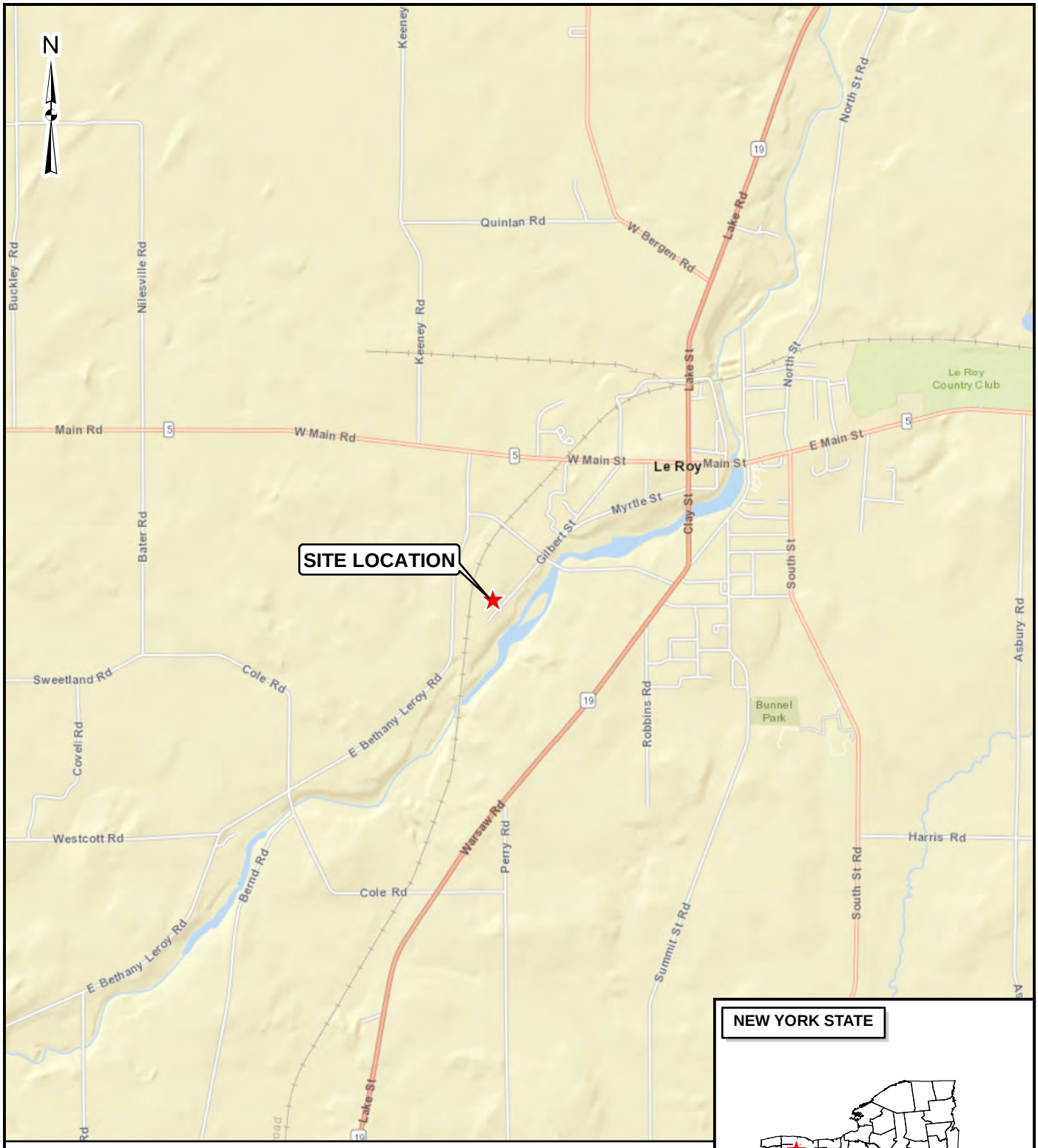
FIGURES



J:\Projects\11176787\GIS\Maps\Site Location (AECOM).mxd 7/16/2020

AECOM

LAPP INSULATOR
130 GILBERT STREET, LEROY, NY
SITE LOCATION

FIGURE 1

120' 0 120'
SCALE IN FEET

J:\Projects\11176787\CADD\REPORT FIGURES\SITE MANAGEMENT PLAN\FIGURE 2.dwg 1=1 3/31/2015-1 JJS

WARNING
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NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CWP
DRAWN BY: JJS
CHECKED BY: ___
PROJ. ENGR. CWP

URS Corporation
New York
257 West Genesee Street, Buffalo, New York 14202
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

GENESEE COUNTY

LAPP INSULATOR SITE
NYS REGISTRY NO: 819017

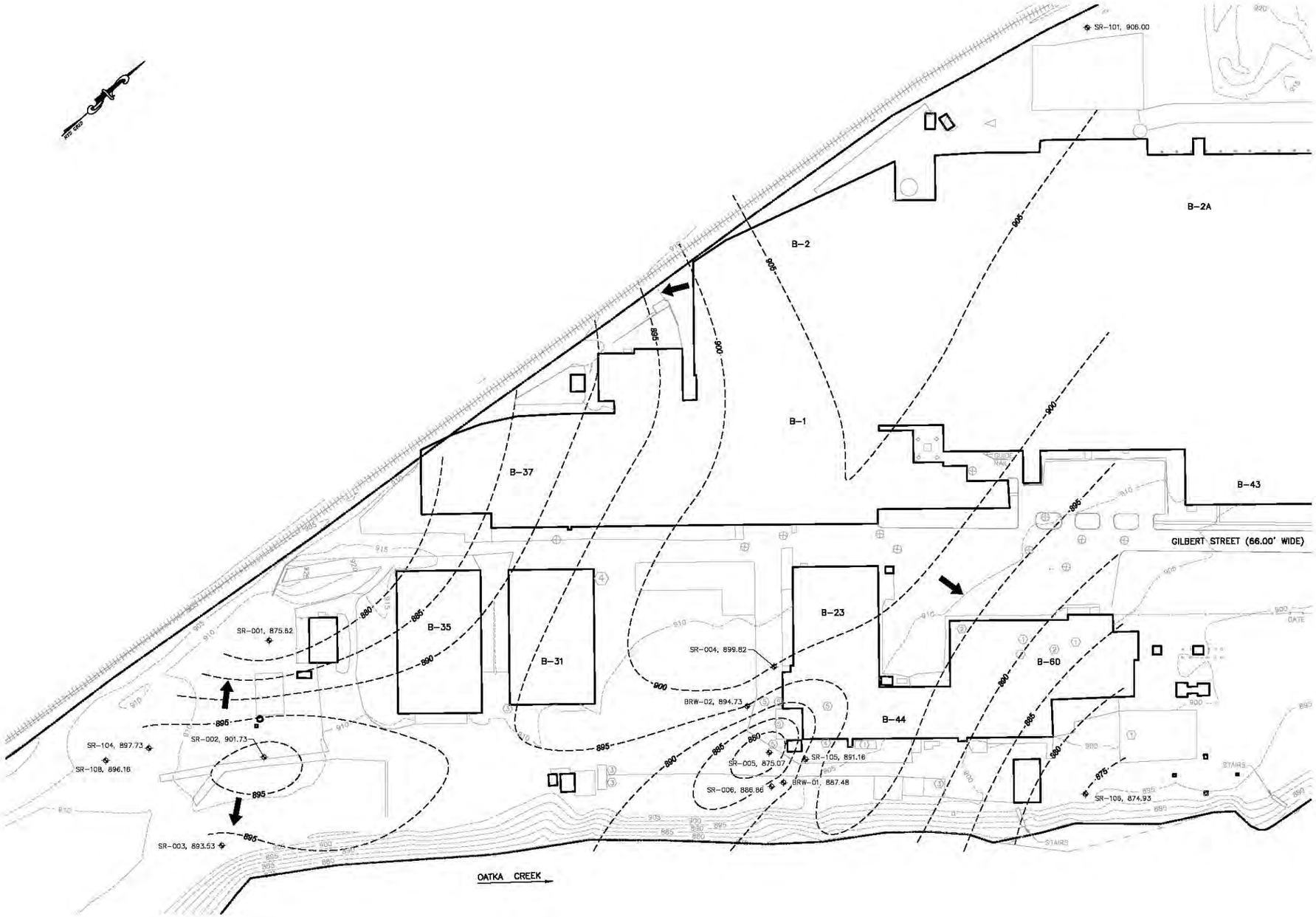
VILLAGE OF LEROY STATE OF NEW YORK

SITE MANAGEMENT PLAN

AERIAL PHOTO OF SITE

Scale: AS SHOWN | Date: APRIL 2015 | **FIGURE 2**


N
E BETHANY LE ROY RD
SR-101
B-37
GILBERT ST
B-35
B-31
FHW
SR-001
SR-004
BRW-02
P-CORE
SR-104
SR-108
SR-002
SR-005
SR-105
AREA A
AREA C/D
SR-006
BRW-01
SR-106
SR-003
MUNSON ST
OATKA CREEK
Legend
Monitoring Well
Site Boundary
Railroad
SOURCE: ESRI World Imagery
200
0
200 Feet
LAPP INSULATOR
SITE PLAN
AECOM
FIGURE 3
J:\Projects\11176787\GIS\Maps\Site Plan (AECOM).mxd 7/16/2020



J:\Projects\11176787\CADD\REPORT FIGURES\SITE MANAGEMENT PLAN\FIGURE 4.dwg 1-1 3/20/2015-1 JJS

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NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CWP
DRAWN BY: JJS
CHECKED BY: RW
PROJ. ENGR. CWP

URS Corporation
New York
257 West Genesee Street, Buffalo, New York 14202
(716)856-5636 - (716)856-2545 Fax

JOB NO. 11176787

GENESEE COUNTY

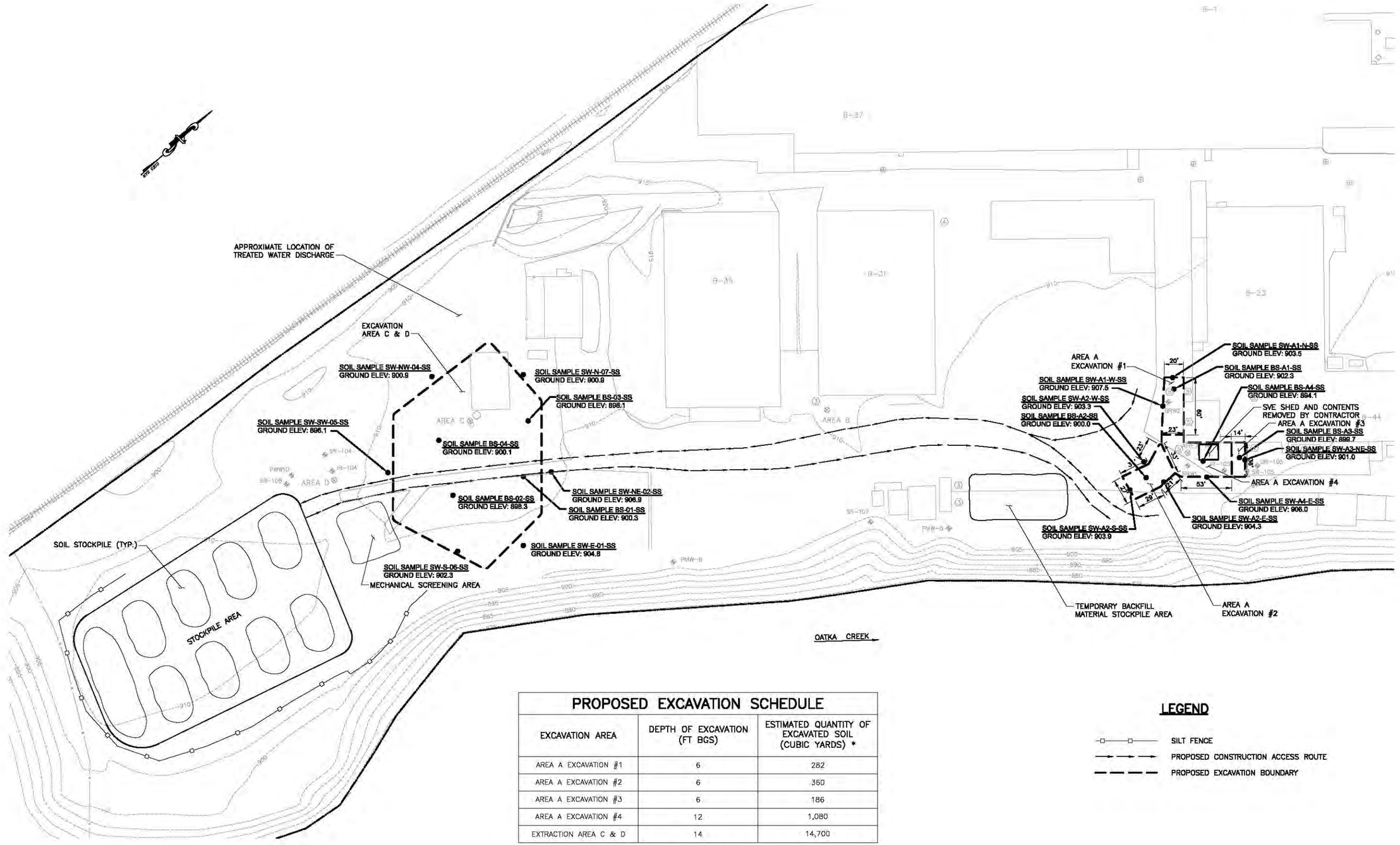
LAPP INSULATOR SITE
NYS REGISTRY NO: 819017

VILLAGE OF LEROY STATE OF NEW YORK

SITE MANAGEMENT PLAN

GROUNDWATER CONTOUR MAP

Scale: AS SHOWN | Date: APRIL 2015 | **FIGURE 4**



PROPOSED EXCAVATION SCHEDULE

EXCAVATION AREA	DEPTH OF EXCAVATION (FT BGS)	ESTIMATED QUANTITY OF EXCAVATED SOIL (CUBIC YARDS) *
AREA A EXCAVATION #1	6	282
AREA A EXCAVATION #2	6	350
AREA A EXCAVATION #3	6	186
AREA A EXCAVATION #4	12	1,080
EXTRACTION AREA C & D	14	14,700

* THE ESTIMATED SOIL QUANTITY IS BASED ON THE SOIL CONTAINED WITHIN THE LIMITS OF EXCAVATION. THIS SOIL SHALL BE SCREENED AND MANAGED IN ACCORDANCE WITH SECTION 02220. SOIL EXCAVATED OUTSIDE THE LIMITS AS NECESSARY TO SAFELY EXCAVATE SOIL WITHIN THE LIMITS SHALL NOT BE SCREENED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

LEGEND

- SILT FENCE
- PROPOSED CONSTRUCTION ACCESS ROUTE
- PROPOSED EXCAVATION BOUNDARY

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CWP
DRAWN BY: JJS
CHECKED BY: ___
PROJ. ENGR. CWP

URS Corporation
New York
257 West Genesee Street, Buffalo, New York 14202
(716)856-5636 - (716)856-2545 fax

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GENESEE COUNTY

LAPP INSULATOR SITE
NYS REGISTRY NO: 819017

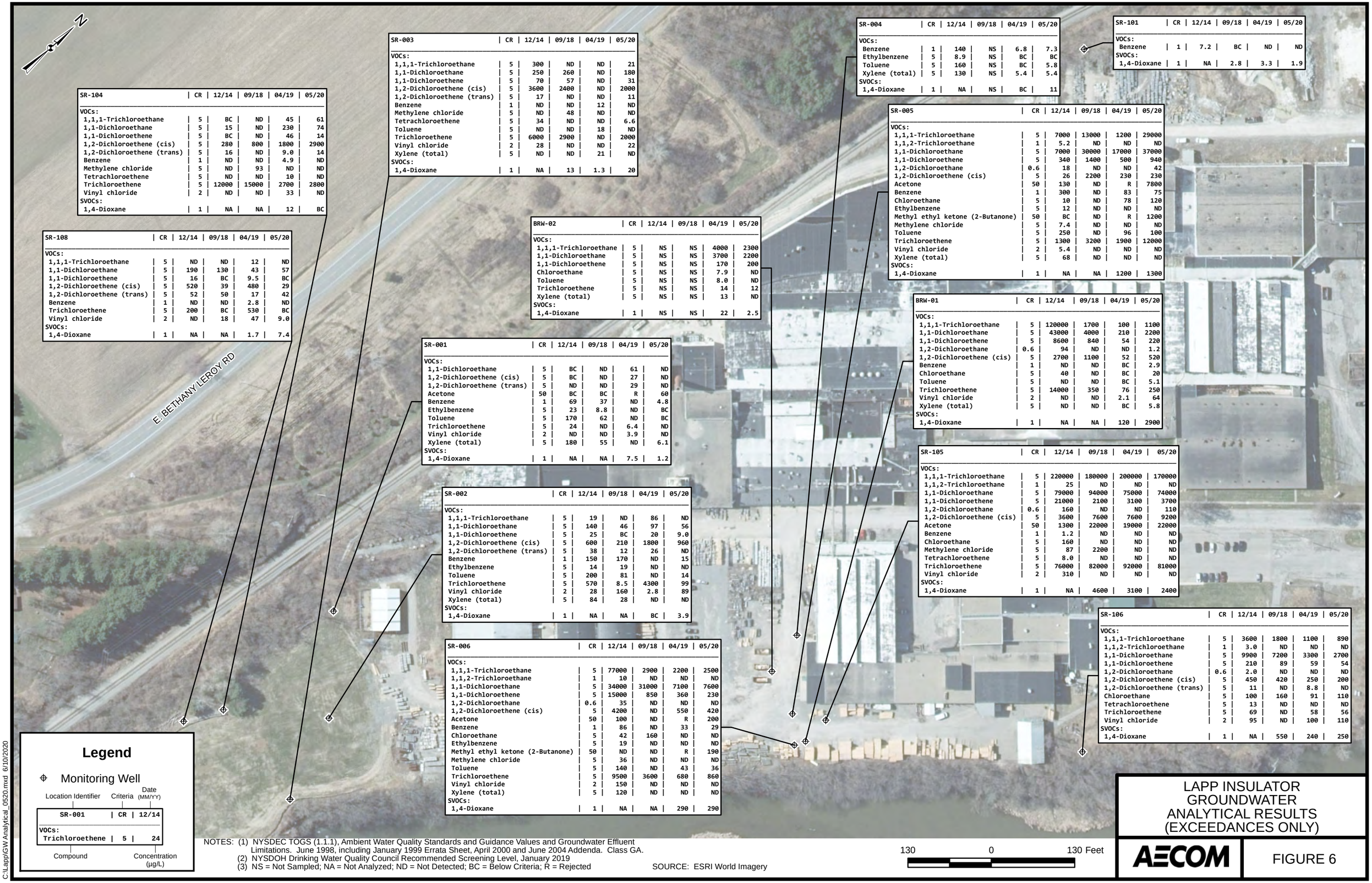
VILLAGE OF LEROY STATE OF NEW YORK

SITE MANAGEMENT PLAN

SOIL MANAGEMENT PLAN

Scale: AS SHOWN | Date: APRIL 2015 | **FIGURE 5**

J:\Projects\11176787\CADD\REPORT FIGURES\SITE MANAGEMENT PLAN\FIGURE 5.dwg 1=1 3/31/2015-1 JJS



SR-104	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	BC	ND	45	61
1,1-Dichloroethane	5	15	ND	230	74
1,1-Dichloroethene	5	BC	ND	46	14
1,2-Dichloroethene (cis)	5	280	800	1800	2900
1,2-Dichloroethene (trans)	5	16	ND	9.0	14
Benzene	1	ND	ND	4.9	ND
Methylene chloride	5	ND	93	ND	ND
Tetrachloroethene	5	ND	ND	10	ND
Trichloroethene	5	12000	15000	2700	2800
Vinyl chloride	2	ND	ND	33	ND
SVOCs:					
1,4-Dioxane	1	NA	NA	12	BC

SR-108	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	ND	ND	12	ND
1,1-Dichloroethane	5	190	130	43	57
1,1-Dichloroethene	5	16	BC	9.5	BC
1,2-Dichloroethene (cis)	5	520	39	480	29
1,2-Dichloroethene (trans)	5	52	50	17	42
Benzene	1	ND	ND	2.8	ND
Trichloroethene	5	200	BC	530	BC
Vinyl chloride	2	ND	18	47	9.0
SVOCs:					
1,4-Dioxane	1	NA	NA	1.7	7.4

SR-003	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	300	ND	ND	21
1,1-Dichloroethane	5	250	260	ND	180
1,1-Dichloroethene	5	70	57	ND	31
1,2-Dichloroethene (cis)	5	3600	2400	ND	2000
1,2-Dichloroethene (trans)	5	17	ND	ND	11
Benzene	1	ND	ND	12	ND
Methylene chloride	5	ND	48	ND	ND
Tetrachloroethene	5	34	ND	ND	6.6
Toluene	5	ND	ND	18	ND
Trichloroethene	5	6000	2900	ND	2000
Vinyl chloride	2	28	ND	ND	22
Xylene (total)	5	ND	ND	21	ND
SVOCs:					
1,4-Dioxane	1	NA	13	1.3	20

BRW-02	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	NS	NS	4000	2300
1,1-Dichloroethane	5	NS	NS	3700	2200
1,1-Dichloroethene	5	NS	NS	170	200
Chloroethane	5	NS	NS	7.9	ND
Toluene	5	NS	NS	8.0	ND
Trichloroethene	5	NS	NS	14	12
Xylene (total)	5	NS	NS	13	ND
SVOCs:					
1,4-Dioxane	1	NS	NS	22	2.5

SR-001	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1-Dichloroethane	5	BC	ND	61	ND
1,2-Dichloroethene (cis)	5	BC	ND	27	ND
1,2-Dichloroethene (trans)	5	ND	ND	29	ND
Acetone	50	BC	BC	R	60
Benzene	1	69	37	ND	4.8
Ethylbenzene	5	23	8.8	ND	BC
Toluene	5	170	62	ND	BC
Trichloroethene	5	24	ND	6.4	ND
Vinyl chloride	2	ND	ND	3.9	ND
Xylene (total)	5	180	55	ND	6.1
SVOCs:					
1,4-Dioxane	1	NA	NA	7.5	1.2

SR-002	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	19	ND	86	ND
1,1-Dichloroethane	5	140	46	97	56
1,1-Dichloroethene	5	25	BC	20	9.0
1,2-Dichloroethene (cis)	5	600	210	1800	960
1,2-Dichloroethene (trans)	5	38	12	26	ND
Benzene	1	150	170	ND	15
Ethylbenzene	5	14	19	ND	ND
Toluene	5	200	81	ND	14
Trichloroethene	5	570	8.5	4300	99
Vinyl chloride	2	28	160	2.8	89
Xylene (total)	5	84	28	ND	ND
SVOCs:					
1,4-Dioxane	1	NA	NA	BC	3.9

SR-006	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	77000	2900	2200	2500
1,1,2-Trichloroethane	1	10	ND	ND	ND
1,1-Dichloroethane	5	34000	31000	7100	7600
1,1-Dichloroethene	5	15000	850	360	230
1,2-Dichloroethane	0.6	35	ND	ND	ND
1,2-Dichloroethene (cis)	5	4200	ND	550	420
Acetone	50	100	ND	R	200
Benzene	1	86	ND	33	29
Chloroethane	5	42	160	ND	ND
Ethylbenzene	5	19	ND	ND	ND
Methyl ethyl ketone (2-Butanone)	50	ND	ND	R	190
Methylene chloride	5	36	ND	ND	ND
Toluene	5	140	ND	43	36
Trichloroethene	5	9500	3600	680	860
Vinyl chloride	2	150	ND	ND	ND
Xylene (total)	5	120	ND	ND	ND
SVOCs:					
1,4-Dioxane	1	NA	NA	290	290

SR-004	CR	12/14	09/18	04/19	05/20
VOCs:					
Benzene	1	140	NS	6.8	7.3
Ethylbenzene	5	8.9	NS	BC	BC
Toluene	5	160	NS	BC	5.8
Xylene (total)	5	130	NS	5.4	5.4
SVOCs:					
1,4-Dioxane	1	NA	NS	BC	11

SR-101	CR	12/14	09/18	04/19	05/20
VOCs:					
Benzene	1	7.2	BC	ND	ND
SVOCs:					
1,4-Dioxane	1	NA	2.8	3.3	1.9

SR-005	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	7000	13000	1200	29000
1,1,2-Trichloroethane	1	5.2	ND	ND	ND
1,1-Dichloroethane	5	7000	30000	17000	37000
1,1-Dichloroethene	5	340	1400	500	940
1,2-Dichloroethane	0.6	18	ND	ND	42
1,2-Dichloroethene (cis)	5	26	2200	230	230
Acetone	50	130	ND	R	7800
Benzene	1	300	ND	83	75
Chloroethane	5	10	ND	78	120
Ethylbenzene	5	12	ND	ND	ND
Methyl ethyl ketone (2-Butanone)	50	BC	ND	R	1200
Methylene chloride	5	7.4	ND	ND	ND
Toluene	5	250	ND	96	100
Trichloroethene	5	1300	3200	1900	12000
Vinyl chloride	2	5.4	ND	ND	ND
Xylene (total)	5	68	ND	ND	ND
SVOCs:					
1,4-Dioxane	1	NA	NA	1200	1300

BRW-01	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	120000	1700	100	1100
1,1-Dichloroethane	5	43000	4000	210	2200
1,1-Dichloroethene	5	8600	840	54	220
1,2-Dichloroethane	0.6	94	ND	ND	1.2
1,2-Dichloroethene (cis)	5	2700	1100	52	520
Benzene	1	ND	ND	BC	2.9
Chloroethane	5	40	ND	BC	20
Toluene	5	ND	ND	BC	5.1
Trichloroethene	5	14000	350	76	250
Vinyl chloride	2	ND	ND	2.1	64
Xylene (total)	5	ND	ND	BC	5.8
SVOCs:					
1,4-Dioxane	1	NA	NA	120	2900

SR-105	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	220000	180000	200000	170000
1,1,2-Trichloroethane	1	25	ND	ND	ND
1,1-Dichloroethane	5	79000	94000	75000	74000
1,1-Dichloroethene	5	21000	2100	3100	3700
1,2-Dichloroethane	0.6	160	ND	ND	110
1,2-Dichloroethene (cis)	5	3600	7600	7600	9200
Acetone	50	1300	22000	19000	22000
Benzene	1	1.2	ND	ND	ND
Chloroethane	5	160	ND	ND	ND
Methylene chloride	5	87	2200	ND	ND
Tetrachloroethene	5	8.0	ND	ND	ND
Trichloroethene	5	76000	82000	92000	81000
Vinyl chloride	2	310	ND	ND	ND
SVOCs:					
1,4-Dioxane	1	NA	4600	3100	2400

SR-106	CR	12/14	09/18	04/19	05/20
VOCs:					
1,1,1-Trichloroethane	5	3600	1800	1100	890
1,1,2-Trichloroethane	1	3.0	ND	ND	ND
1,1-Dichloroethane	5	9900	7200	3300	2700
1,1-Dichloroethene	5	210	89	59	54
1,2-Dichloroethane	0.6	2.0	ND	ND	ND
1,2-Dichloroethene (cis)	5	450	420	250	200
1,2-Dichloroethene (trans)	5	11	ND	8.8	ND
Chloroethane	5	100	160	91	110
Tetrachloroethene	5	13	ND	ND	ND
Trichloroethene	5	69	ND	58	56
Vinyl chloride	2	95	ND	100	110
SVOCs:					
1,4-Dioxane	1	NA	550	240	250

Legend

Monitoring Well

Location Identifier | Criteria | Date (MM/YY)

SR-001	CR	12/14
VOCs:		
Trichloroethene	5	24

Compound | Concentration (µg/L)

NOTES: (1) NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, including January 1999 Errata Sheet, April 2000 and June 2004 Addenda. Class GA.
(2) NYSDOH Drinking Water Quality Council Recommended Screening Level, January 2019
(3) NS = Not Sampled; NA = Not Analyzed; ND = Not Detected; BC = Below Criteria; R = Rejected

SOURCE: ESRI World Imagery

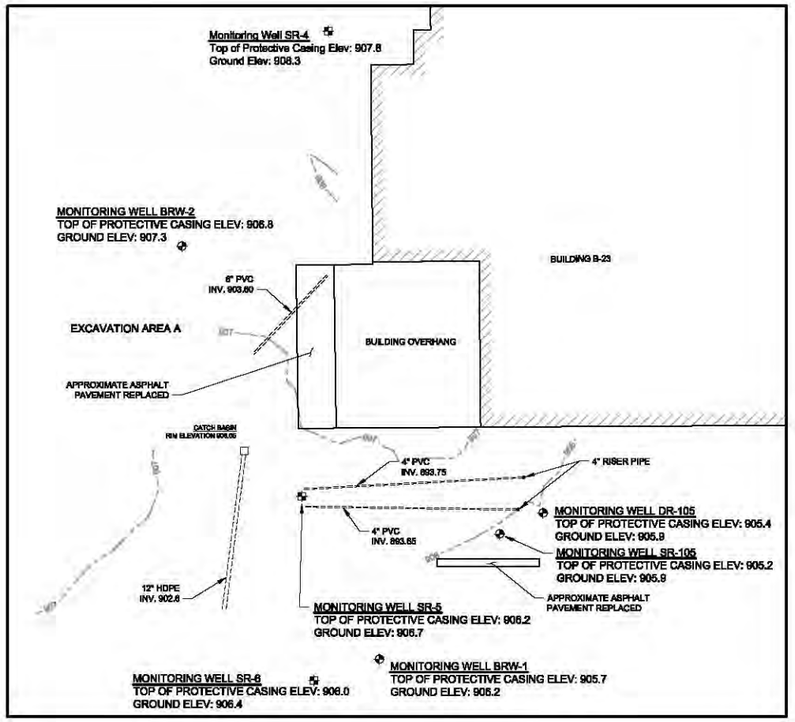
130 0 130 Feet

LAPP INSULATOR GROUNDWATER ANALYTICAL RESULTS (EXCEEDANCES ONLY)

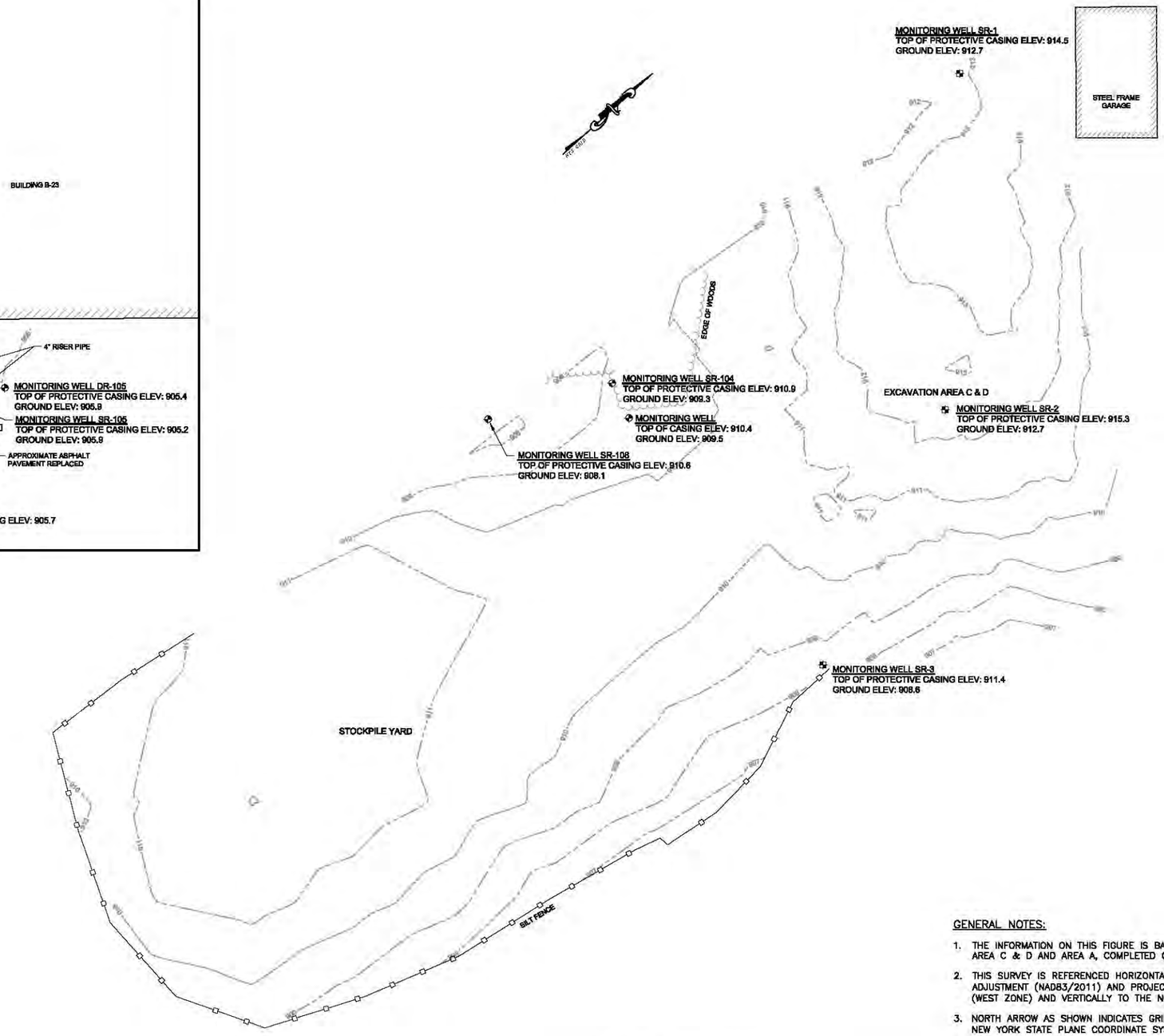
AECOM

FIGURE 6

C:\Lapp\GW Analytical_0520.mxd 6/10/2020



EXCAVATION AREA A
SCALE - 1"=20'



LEGEND:

- EXCAVATION LIMITS
- MAJOR CONTOUR
- MINOR CONTOUR
- SILT FENCE
- MONITORING WELL
- MONITORING WELL INSTALLED AFTER REMEDIAL CONSTRUCTION

GENERAL NOTES:

1. THE INFORMATION ON THIS FIGURE IS BASED ON THE FINAL AS-BUILT TOPOGRAPHIC SURVEY FOR AREA C & D AND AREA A, COMPLETED ON NOVEMBER 4, 2014 BY THEW ASSOCIATES.
2. THIS SURVEY IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983, 2011 ADJUSTMENT (NAD83/2011) AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (WEST ZONE) AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. NORTH ARROW AS SHOWN INDICATES GRID NORTH REFERENCED TO NAD83 AND PROJECTED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (WEST ZONE).
4. THE REFERENCE HORIZONTAL AND VERTICAL CONTROL STATION IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION (CORS) DESIGNATED AS "BATAVIA CORS ARP" (NYBT). NYBT IS A SPECIAL CORS HORIZONTAL AND VERTICAL CONTROL STATION, ESTABLISHED BY THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION IN JUNE 2006. ELEVATION 974.15 FEET.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CWP
DRAWN BY: JJS
CHECKED BY: ___
PROJ. ENGR. CWP

URS Corporation
New York
257 West Genesee Street, Buffalo, New York 14202
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

GENESEE COUNTY

LAPP INSULATOR SITE
NYS REGISTRY NO: 819017

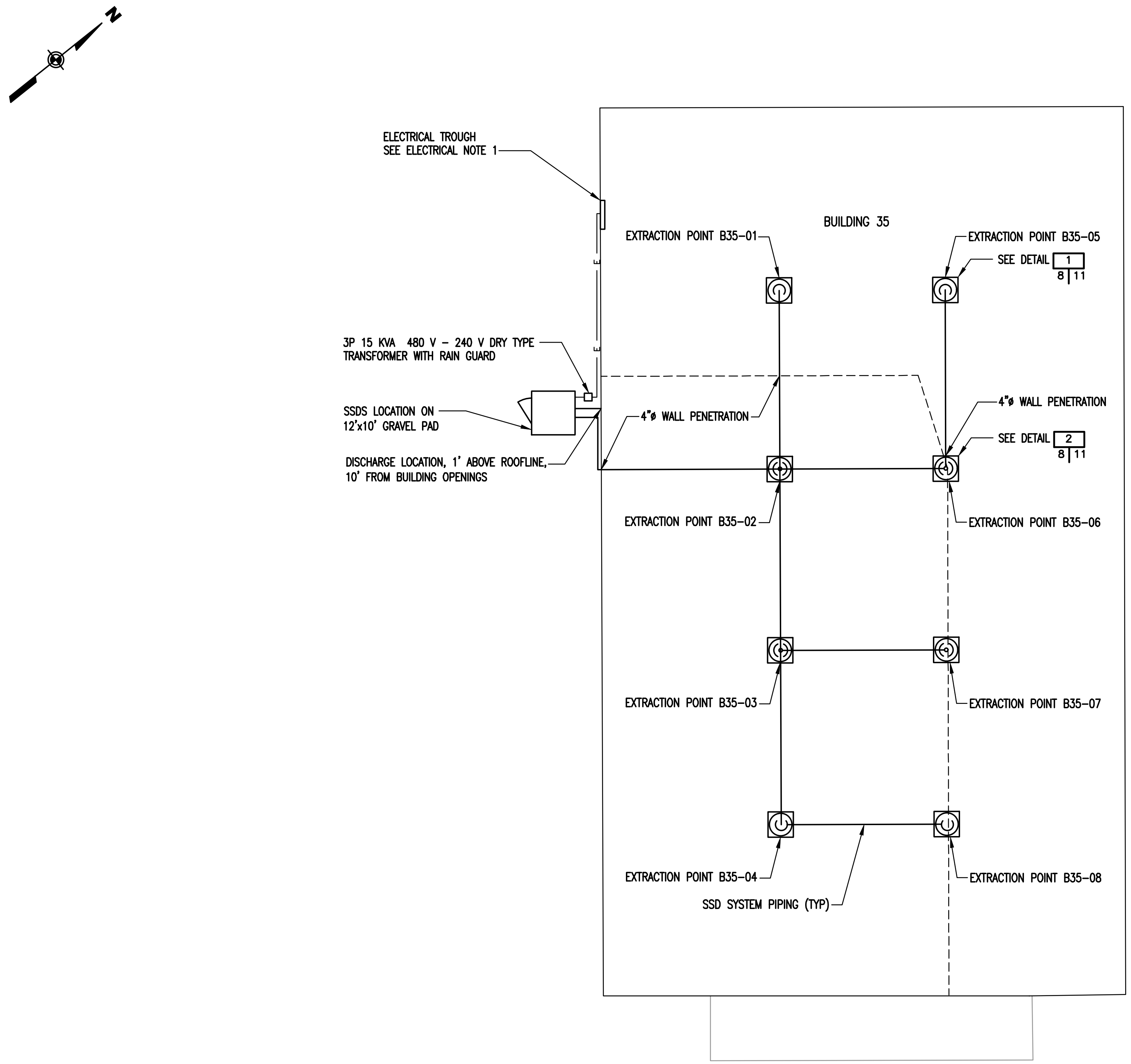
VILLAGE OF LEROY STATE OF NEW YORK

SITE MANAGEMENT PLAN

FINAL SITE CONDITIONS

Scale: AS SHOWN | Date: APRIL 2015 | **FIGURE 7**

J:\Projects\11176787\CADD\REPORT FIGURES\SITE MANAGEMENT PLAN\FIGURE 7.dwg, 1=1, 3/20/2015-1, JJS



PLAN

0' 8' 16' 24' 32'
SCALE: 1/16"= 1'-0"

GENERAL NOTES:

1. THREE (3) SKID-MOUNTED SUB-SLAB DEPRESSURIZATION SYSTEMS WERE INSTALLED. ONE IS LOCATED AT BUILDING 35 AND TWO ARE LOCATED AT PCORE BUILDING (FIGURE 9).
2. EACH SUB-SLAB DEPRESSURIZATION SYSTEM IS HOUSED IN AN INSULATED 8'x8'x8' STORAGE SHED.
3. THE BUILDING B-35 SSD SHED IS INSTALLED ON A 10'x12' GRADED LAYER OF COMPACTED GRAVEL. THE PCORE BUILDING SSD SHEDS ARE INSTALLED ON EXISTING ASPHALT PAVEMENT.
4. ALL EXTRACTION POINT PIPING IS SECURED TO BUILDING COLUMNS. THE LOCATION OF THE EXTRACTION POINTS ON COLUMNS ARE SHOWN IN A SIMPLIFIED MANNER ON THE DRAWINGS. EXTRACTION POINTS IN HIGH-TRAFFIC AREAS ARE PROTECTED WITH OMEGA 30-INCH HEAVY DUTY CORNER GUARDS.
5. ALL HORIZONTAL PIPING IS INSTALLED LEVEL OR PITCHED TOWARDS THE EXTRACTION POINT OR SSD SYSTEM TO PREVENT THE ACCUMULATION OF ENTRAINED WATER IN LOW AREAS IN THE PIPING. A RELIEF DRAIN WAS INSTALLED WHERE THERE IS THE POTENTIAL FOR WATER ACCUMULATION.
6. AN EXTRACTION HOLE WAS INSTALLED AT EACH EXTRACTION POINT. THIS HOLE WAS CREATED BY CORE CUTTING A 5-INCH DIAMETER ROUND HOLE THROUGH THE FLOOR SLAB, THEN REMOVING SUB-SLAB SOIL TO A DEPTH OF APPROXIMATELY 12 INCHES. THE EXCAVATED SOILS WERE TRANSPORTED OUT OF THE BUILDING AND PLACED INTO A DRUM FOR WASTE CHARACTERIZATION AND DISPOSAL.
7. THE EXISTING EXTRACTION POINT THAT WAS USED FOR THE PILOT TEST IS A COMPONENT OF THE SSD SYSTEM AT THE PCORE BUILDING.
8. A SEPARATE SSD SYSTEM, UTILIZING A RADON FAN, WAS INSTALLED IN THE "LABORATORY AREA" IN THE LOWER LEVEL OF THE NORTHEAST PORTION OF THE PCORE BUILDING.

ELECTRICAL NOTES:

1. AT BUILDING B-35, O'CONNELL ELECTRIC CONNECTED 3P 240 V BREAKER PANEL AT SSD SYSTEM SHED TO 480V ELECTRICAL TROUGH VIA A 20A 3P ENCLOSED CIRCUIT BREAKER AND A 3P 15KVA 480V-240V DRY TYPE TRANSFORMER.
2. AT THE PCORE BUILDING, O'CONNELL ELECTRIC CONNECTED 3P 240 V BREAKER PANEL AT EACH SSD SYSTEM SHED TO 480V POWER PANEL PP-11 VIA A 3P 15KVA 480V-240V DRY TYPE TRANSFORMER.
3. AT THE PCORE LABORATORY, O'CONNELL ELECTRIC INSTALLED A 120V, 20A WEATHERPROOF DUPLEX RECEPTACLE ON BUILDING EXTERIOR FOR CONNECTION TO NEW RADON FAN. RECEPTACLE POWERED FROM EXISTING 120/208V PANEL LOCATED IN LABORATORY AREA.
4. ALL ELECTRICAL EQUIPMENT INSIDE THE SSD SHEDS RATED FOR CLASS I DIVISION I LOCATION. CONDUIT SEALS INSTALLED AT LOCATIONS INSIDE THE SSD SHED.
5. AT EACH OF THE SSDS LOCATIONS, URS INSTALLED: ONE 5HP EXPLOSION PROOF REGENERATIVE BLOWER; ONE MOTOR STARTER; ONE 3P 240V BREAKER PANEL WITH ONE 3P 240V BREAKER AND THREE 1P 120V BREAKERS; ONE 30A 3P DISCONNECT SWITCH; ONE 3P 240V CONTROL PANEL; ONE EXHAUST FAN; ONE LOCAL ALARM; ONE LIGHT FIXTURE; ONE DUPLEX RECEPTACLE; AND ALL ASSOCIATED WIRING AND CONDUIT WITHIN THE SSD SHED.

CERTIFIED AS-BUILT DRAWINGS ARE INCLUDED IN APPENDIX J - OPERATION AND MAINTENANCE PLAN

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\BUILDING 35 SSDS SITE PLAN -FIG 8.dwg 1:2 2/22/21 - 1 EJH

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CP
DRAWN BY: RL
CHECKED BY: CD
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

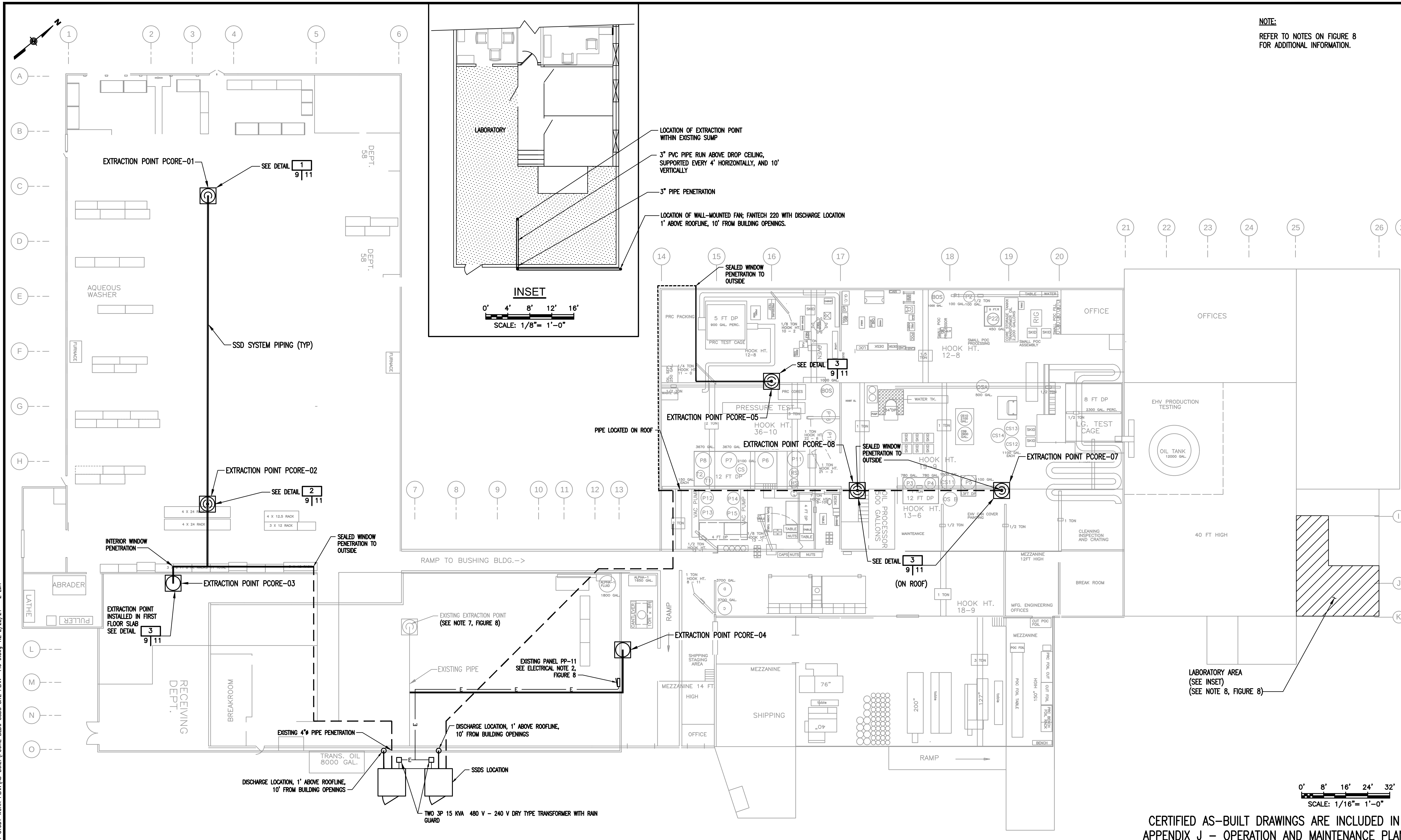
JOB NO. 11176787

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SUB-SLAB DEPRESSURIZATION SYSTEM
NYSDEC SITE 819017

BUILDING 35
SSDS SITE PLAN

Scale: AS SHOWN | Date: MARCH 2019 | 8



CERTIFIED AS-BUILT DRAWINGS ARE INCLUDED IN APPENDIX J – OPERATION AND MAINTENANCE PLAN

WARNING
IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON OTHER THAN WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CP
DRAWN BY: RL
CHECKED BY: CD
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

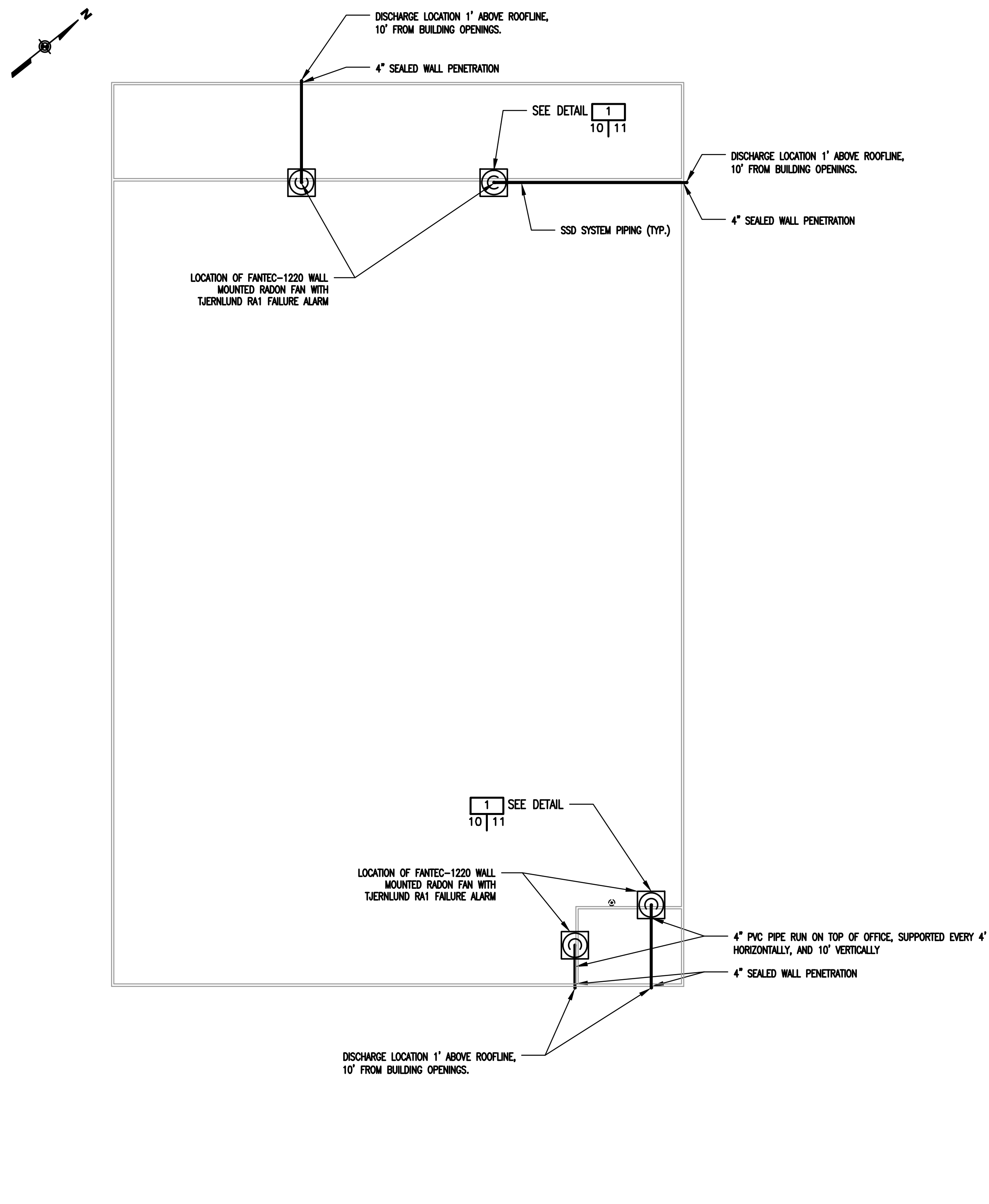
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SUB-SLAB DEPRESSURIZATION SYSTEM
NYSDEC SITE 819017

PCORE BUILDING
SSDS SITE PLAN

Scale: AS SHOWN | Date: MARCH 2019 | 9

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\PCORE BLDG SSDS SITE PLAN -FIG 9.dwg 1:2 2/22/21 - 2 EJH



CERTIFIED AS-BUILT DRAWINGS ARE INCLUDED IN APPENDIX J – OPERATION AND MAINTENANCE PLAN

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\BUILDING 31 SSDS SITE PLAN -FIG 10.dwg 1:2 2/22/21 - 2 EJH

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: DNM
DRAWN BY: EJH
CHECKED BY: CP
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

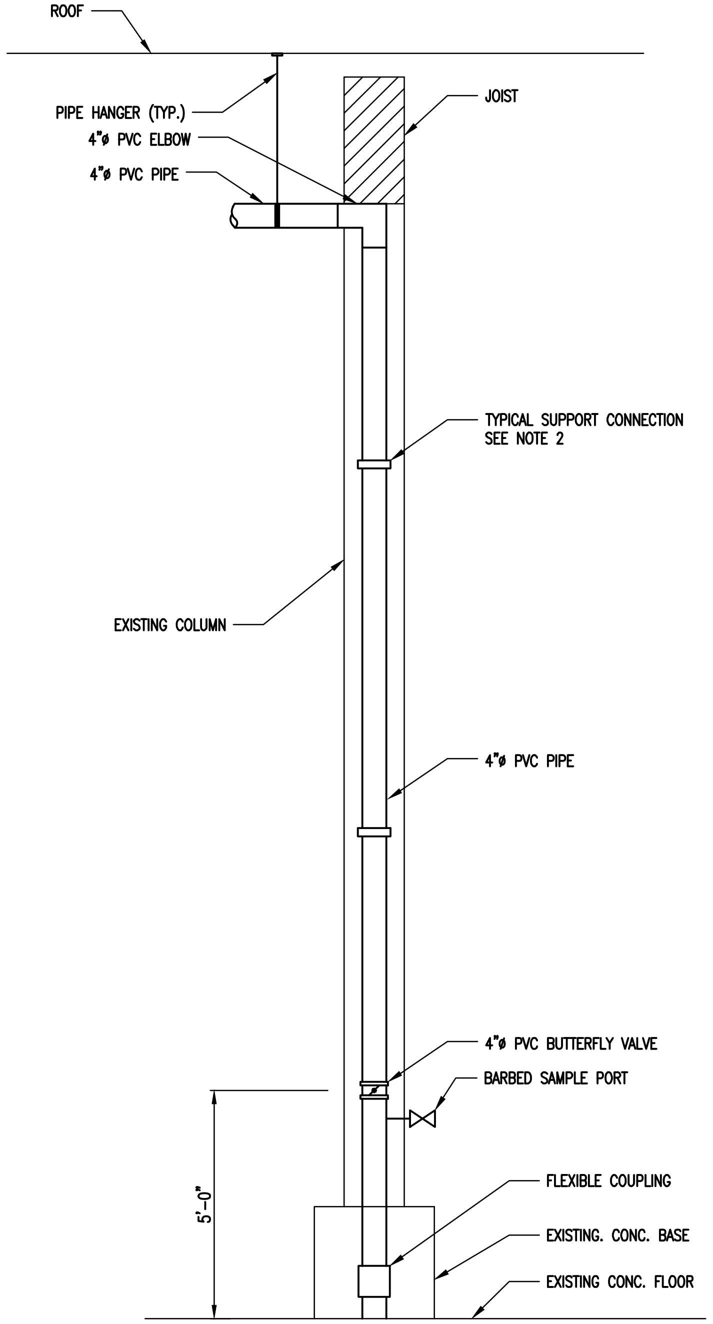
JOB NO. 11176787

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SOIL VAPOR MITIGATION PILOT TEST AND BUILDING B-31 WORK PLAN
NYSDEC SITE 819017

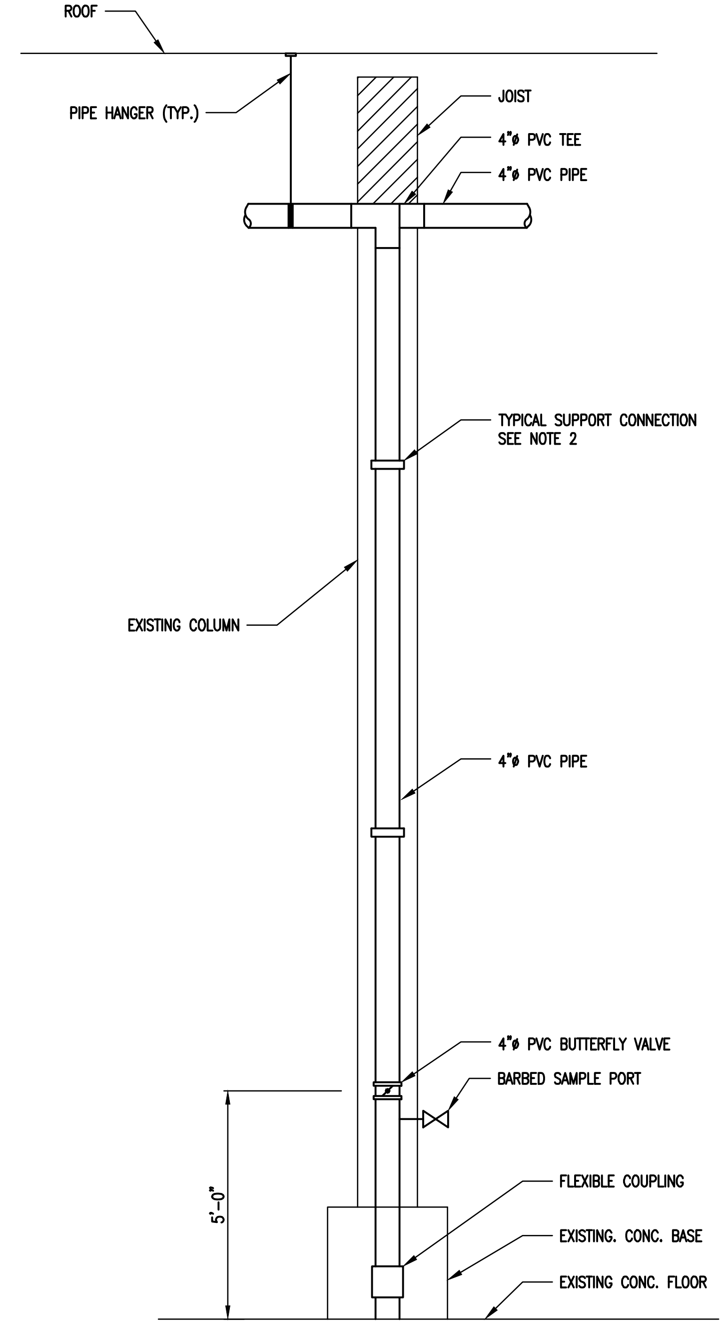
BUILDING 31
SSDS SITE PLAN

Scale: AS SHOWN | Date: MAY 2018 | 10



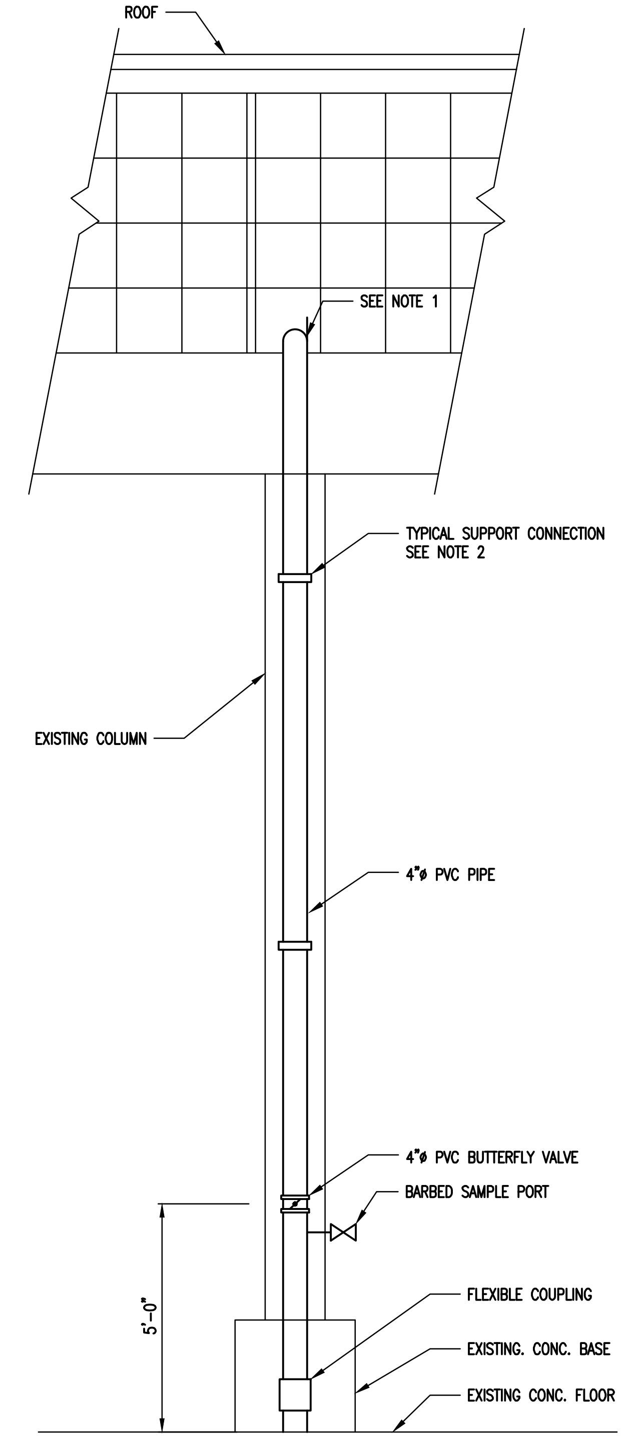
TYPICAL EXTRACTION POINT INSTALLATION DETAIL (TYPE 1) 1 / 8 | 11

NOT TO SCALE



TYPICAL EXTRACTION POINT INSTALLATION DETAIL (TYPE 2) 2 / 8 | 11

NOT TO SCALE



TYPICAL EXTRACTION POINT INSTALLATION DETAIL (TYPE 3) 3 / 9 | 11

NOT TO SCALE

NOTES:

1. EXISTING GLASS PANEL REMOVED AND BE REPLACED WITH SEALED PIPE PENETRATION AS APPROVED BY THE OWNER.
2. ALL 4"ø PVC PIPE SUPPORTED EVERY 4' HORIZONTALLY AND 10' VERTICALLY.
3. BUTTERFLY VALVES AND SAMPLE PORTS INSTALLED APPROXIMATELY 5 FEET ABOVE FLOOR.

CERTIFIED AS-BUILT DRAWINGS ARE INCLUDED IN APPENDIX J – OPERATION AND MAINTENANCE PLAN

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\TYP EXTRACTION POINT INSTALLATION DETAILS – FIG 11.dwg 1:2 2/22/21 – 2 EJH

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NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CP
DRAWN BY: RL
CHECKED BY: CD
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SUB-SLAB DEPRESSURIZATION
SYSTEMS DESIGN
NYSDEC SITE 819017

TYPICAL EXTRACTION POINT INSTALLATION DETAILS

Scale: AS SHOWN | Date: MARCH 2019 | 11

APPENDIX A

ENVIRONMENTAL EASEMENT

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

THIS INDENTURE made this 28th day of March, 2018, between Owner(s) Pfisterer Lapp LLC f/k/a Lapp Insulators LLC, having an office at 130 Gilbert Street, LeRoy, New York 14482, County of Genesee, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

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

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

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

WHEREAS, Grantor, is the owner of real property located at the address of 130 Gilbert Street in the Village of LeRoy, Town of LeRoy, County of Genesee and State of New York, known and designated on the tax map of the County Clerk of Genesee as tax map parcel numbers: 29.-1-90; 29.-1-92.2; 29.-1-111; 1.-1-1.12; 1.-1-2; 1.-1-3; 1.-1-16; and 1.-1-1.11, being the same as that property conveyed to Grantor by deed dated March 6, 2006 and recorded in the Genesee County Clerk's Office in Liber and Page 848/64, and by deed dated September 6, 2017 and recorded in the Genessee County Clerk's Office as Instrument # DE2017-1490. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 66.053 +/- acres, and is hereinafter more fully described in the Land Title Survey dated June 28, 2017 and last revised February 28, 2018 prepared by Scott E. Measday, P.L.S. of O'Neill-Rodak Land Surveying Associates, P.C., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the

protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: B9-0548-99-02, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

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

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

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

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

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

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

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

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

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

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

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

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

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

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

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation

pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

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

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

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

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

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

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

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

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

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

(7) the information presented is accurate and complete.

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

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

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

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

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

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

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

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

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

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

Parties shall address correspondence to:

Site Number: 819017
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

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

communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

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

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

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

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

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

Pfisterer Lapp LLC f/k/a Lapp Insulator LLC:

By: _____

Print Name: William C. Scheuerman

Title: Vice President of Finance, Treasurer/Corporate Sec. Date: March , 2018

Grantor's Acknowledgment

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

On the 14th day of March, in the year 20 18, before me, the undersigned, personally appeared William C. Scheuerman, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

CYNTHIA J. BISHOP
Notary Public, State of New York
Qualified in Genesee County
No. 01BI5042716
Commission Expires April 24, 2019

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

By: _____
Michael J. Ryan, Assistant Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 28th day of March, in the year 2018 before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2018

SCHEDULE "A" PROPERTY DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND situate in the Town and Village of LeRoy, County of Genesee, State of New York, situate in Lots 2 and 3, Range 2; and Lots 2 and 3, Range 3 of the Craigie Tract, bounded and described as follows:

BEGINNING on the centerline of Gilbert Street at the intersection of the southwesterly line of Munson Street extension, said point being the most southerly corner of a 100.0 foot wide parcel of land conveyed by Interpace Corp. to the Village of LeRoy by deed recorded in Liber 414 of Deeds at Page 846 for the purpose of creating Munson Street extension as it now exist (1984) from Gilbert Street northwesterly to and across the B & O Railroad;

Thence south 46° 35' west along the center of Gilbert Street (53.69) feet;

Thence north 43° 25' west, leaving Gilbert Street along the northeasterly line of land conveyed to S. Freeman by Deed recorded in Liber 450 of Deeds at Page 836 (242.3) feet to Freeman's most northerly corner;

Thence south 46° 35' west along the north westerly line of Freeman's land (70.0) feet to a corner in the land of Freeman on the northeasterly line of land conveyed to G. Maddock by Deed recorded in Liber 297 of Deeds at Page 309;

Thence north 43° 25' west, along said Maddock's land (45.8) feet to Maddock's most northerly corner;

Thence south 46° 35' west, along the northwesterly line of said Maddock's land (73.0) feet to a corner in the land of said Maddock's on the northeasterly line of land of R. Anzalone by deed recorded in Liber 408 of Deeds at Page 896;

Thence north 43° 25' west, along said Anzalone land (4.2) feet to said Anzalone's most northerly corner;

Thence south 46° 35' west (156.50) feet along the northwesterly line of Anzalone as aforesaid, R. Lowe by deed recorded in Liber 469 of Deeds at Page 788 and D. Moore by deed recorded in Liber 466 of Deeds at Page 734 to the most westerly corner of said Moore's land;

Thence south 43° 37' east, in part along the northeasterly line of land conveyed to Interpace Corp. by deed recorded in Liber 456 of Deeds at Page 385, (291.93) feet to a point in the center of Gilbert Street, which point is 147.70 feet northeasterly from an angle point in said street;

Thence south 46° 35' west along the center of Gilbert Street (116.60) feet to a point that is (31.10) feet northeasterly from said angle point in said street;

Thence south 43° 25' east (33.00) feet to a point, said point being in the southeasterly bounds of Gilbert Street;

Thence south 36° 48' east leaving the street, being along the northeasterly line of land conveyed to Interpace Corp. by deed recorded in Liber 409 of Deeds at Page 739 (240.1) feet to the bank of Oatka Creek;

Thence southwesterly along said creek bank the following three (3) courses and distances:
1) south 33° 17' west (183.5) feet
2) south 41° 14' 50" west (392.85) feet
3) south 49° 25' 30" west (585.95) feet to the west line of Lot 2, Range 3, of the Craigie Tract and the east line of Lot 3, Range 3;

Thence south 07° 31' 30" west along said lot line, crossing Oatka Creek (723.0) feet to the top of the bank on the southeasterly side of said creek;

Thence southwesterly passing into Lot 3, Range 3, Craigie Tract, along the southeasterly boundary of lands conveyed to Lapp Insulator Co., Inc. by deeds recorded in Liber 313 at Page 315 and Liber 278 at Page 106, to the easterly line of the B & O Railroad at the southwest corner of lands of Lapp Insulator Co., Inc. by deed recorded in Liber 278 of Deeds at Page 106 the two ends of the last course above described being connected by a line that bears south 50° 30' 25" west, (1251.14) feet;

Thence north 13° 09' 55" east, parallel with and (80.0) feet southeasterly at right angles from the center of the railroad, along said railroad right of way line (738.8) feet to the northwest corner of Lapp Insulator Co., Inc. by deed recorded in Liber 278 of Deeds at Page 106; Thence north 42° 11' 50" west (36.5) feet to a point that is (50.0) feet southeasterly at right angles from the center of railroad;

Thence north 13° 09' 55" east, parallel with and (50.0) feet southeasterly at right angles from the centerline of said railroad (588.48) feet to a point on said easterly right of way line that is at the intersection of the centerline of Gilbert Street extended southwesterly;

Thence north 13° 07' 00" east still along said railroad right of way line, parallel with and (50.0) feet southeasterly at right angles from the center of railroad (865.0) feet;

Thence still along said railroad line the following three courses:

l) north 83° 28' 15" west (6.33) feet
2) north 11° 37' 10" east, (202.40) feet to a concrete monument
3) south 75° 50' east, (16.83) feet

Thence still along said railroad along a curve to the right with a radius of (2815.5) feet and a length of (363.9) feet, the two ends of which are connected by a chord that bears north 19° 59' 33" east, (363.64) feet;

Thence north 71° 43' west, (16.87) feet to a concrete monument, said monument being (33.0) feet easterly, measured radial from the center of said railroad;

Thence continuing along a curve to the right of said railroad with a radius of (2832.0) feet and a length of (1156.73 measured) (1156.83 per deed) feet to a point on the southwesterly line of Munson Street extension, the two ends of said curve being connected by a chord that bears north 35° 27' 09" east, (1148.8) feet;

Thence south 43° 50' 55" east along said southwesterly line of Munson Street extension (733.44) feet, said line being (50.0) feet southwesterly from and parallel with the center of Munson Street

extension;

Thence south 45° 12' 30" east, still along said southwesterly line of the street (326.45) feet to the point of beginning in the center of Gilbert Street, said line being (50.0) feet southwesterly from and parallel with the center of Munson Street extension.

Containing an area of approximately 2,877,270 square feet or 66.053 acres more or less.

Legal Description

ALL THAT TRACT OR PARCEL OF LAND situate in the Town and Village of LeRoy, County of Genesee, State of New York, situate in Lots 2 and 3, Range 2; and Lots 2 and 3, Range 3 of the Craigie Tract, bounded and described as follows:

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Thence south 46° 35' west, along the northwesterly line of said Maddock's land (73.0) feet to a corner in the land of said Maddock's on the northeasterly line of land of R. Anzalone by deed recorded in Liber 408 of Deeds at Page 896;

Thence north 43° 25' west, along said Anzalone land (4.2) feet to said Anzalone's most northerly corner;

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Thence south 36° 48' east leaving the street, being along the northeasterly line of land conveyed to Interpace Corp. by deed recorded in Liber 409 of Deeds at Page 739 (240.1) feet to the bank of Oatka Creek;

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3) south 49° 25' 30" west (585.95) feet to the west line of Lot 2, Range 3, of the Craigie Tract and the east line of Lot 3, Range 3;

Thence south 07° 31' 30" west along said lot line, crossing Oatka Creek (723.0) feet to the top of the bank on the southeasterly side of said creek;

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Thence north 13° 09' 55" east, parallel with and (80.0) feet southeasterly at right angles from the center of the railroad, along said railroad right of way line (738.8) feet to the northwest corner of Lapp Insulator Co., Inc. by deed recorded in Liber 278 of Deeds at Page 106; Thence north 42° 11' 50" west (36.5) feet to a point that is (50.0) feet southeasterly at right angles from the center of railroad;

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1) north 83° 28' 15" west (6.33) feet
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3) south 75° 50' east, (16.83) feet

Thence still along said railroad along a curve to the right with a radius of (2815.5) feet and a length of (363.9) feet, the two ends of which are connected by a chord that bears north 19° 59' 33" east, (363.64) feet;

Thence north 71° 43' west, (16.87) feet to a concrete monument, said monument being (33.0) feet easterly, measured radial from the center of said railroad;

Thence continuing along a curve to the right of said railroad with a radius of (2832.0) feet and a length of (1156.73 measured) (1156.83 deed) feet to a point on the southwesterly line of Munson Street extension, the two ends of said curve being connected by a chord that bears north 35° 27' 09" east, (1148.8) feet;

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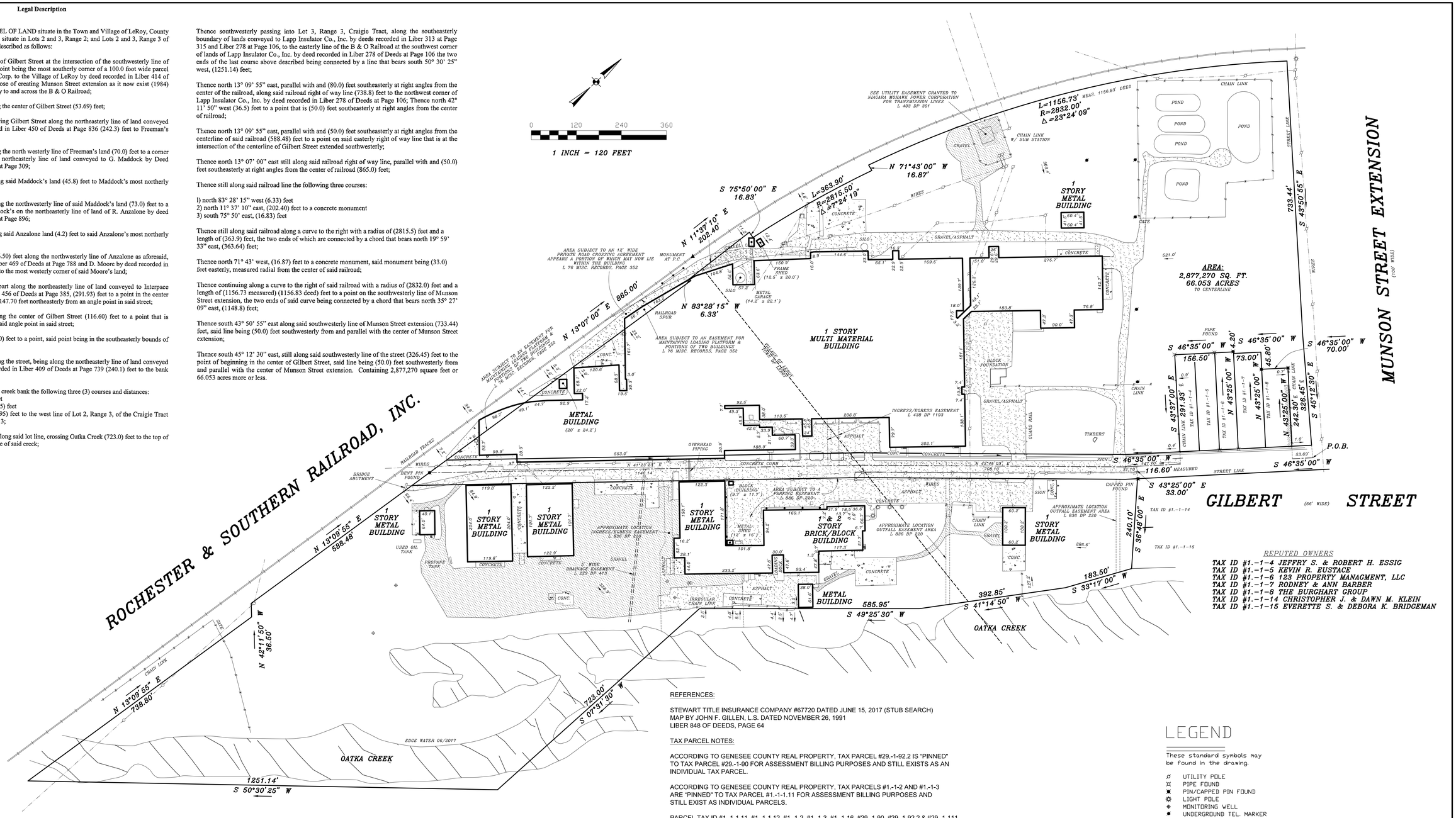


REPUTED OWNERS

TAX ID #1.-1-4 JEFFRY S. & ROBERT H. ESSIC
TAX ID #1.-1-5 KEVIN R. EUSTACE
TAX ID #1.-1-6 123 PROPERTY MANAGMENT, LLC
TAX ID #1.-1-7 RODNEY & ANN BARBER
TAX ID #1.-1-8 THE BURCHART GROUP
TAX ID #1.-1-14 CHRISTOPHER J. & DAWN M. KLEIN
TAX ID #1.-1-15 EVERETTE S. & DEBORA K. BRIDGEMAN

REFERENCES:

STEWART TITLE INSURANCE COMPANY #67720 DATED JUNE 15, 2017 (STUB SEARCH)
MAP BY JOHN F. GILLEN, L.S. DATED NOVEMBER 26, 1991
LIBER 848 OF DEEDS, PAGE 64

TAX PARCEL NOTES:

ACCORDING TO GENESEE COUNTY REAL PROPERTY, TAX PARCEL #29.-1-92.2 IS "PINNED" TO TAX PARCEL #29.-1-90 FOR ASSESSMENT BILLING PURPOSES AND STILL EXISTS AS AN INDIVIDUAL TAX PARCEL.

ACCORDING TO GENESEE COUNTY REAL PROPERTY, TAX PARCELS #1.-1-2 AND #1.-1-3 ARE "PINNED" TO TAX PARCEL #1.-1-1.11 FOR ASSESSMENT BILLING PURPOSES AND STILL EXIST AS INDIVIDUAL PARCELS.

PARCEL TAX ID #1.-1-1.11, #1.-1-1.12, #1.-1-2, #1.-1-3, #1.-1-16, #29.-1-90, #29.-1-92.2 & #29.-1-111

NOTES:

REFERENCE IS MADE TO A GAS MAIN EASEMENT GRANTED TO SOCONY-VACUUM OIL COMPANY AS SET FORTH IN LIBER 286 OF DEEDS, PAGE 8; LIBER 285 OF DEEDS, PAGE 23 AND LIBER 285 OF DEEDS, PAGE 25.

PARCEL IS SUBJECT TO AN EASEMENT GRANTED TO NIAGARA, LOCKPORT & ONTARIO POWER CORP. FOR FIXTURES AS SET FORTH IN LIBER 274 OF DEEDS, PAGE 544 AND LIBER 280 OF DEEDS, PAGE 6.

PARCEL IS SUBJECT TO AN EASEMENT GRANTED TO ROCH. TELEPHONE CORP. FOR FIXTURES AS SET FORTH IN LIBER 360 OF DEEDS, PAGE 483.

PUBLIC RIGHTS AND PRIVATE RIGHTS OF OTHERS THAN INSURED IN AND TO THE BED AND WATERS OF OATKA CREEK INCLUDING ANY REGULATORY STATUTES AFFECTING THE SAME MAY APPLY TO THE PROPERTY. NO DOCUMENTATION WAS PROVIDED IN ORDER TO VERIFY THIS.

WE, O'NEILL-RODAK LAND SURVEYING ASSOCIATES, P.C., CERTIFY TO LAPP INSULATORS LLC; HARTER SECREST & EMERY LLP AND THE PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH THEIR COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, ITS/THEIR SUCCESSOR AND/OR ASSIGNS THAT THIS MAP WAS PREPARED FROM NOTES OF AN INSTRUMENT SURVEY COMPLETED JUNE 22, 2017.

SCOTT E. MEASDAY, P.L.S. #050910

LEGEND

These standard symbols may be found in the drawing.

- UTILITY POLE
- PIPE FOUND
- PIN/CAPPED PIN FOUND
- LIGHT POLE
- MONITORING WELL
- UNDERGROUND TEL. MARKER

"THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW. THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN MORE DETAIL IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT DERWEB@DEC.NY.GOV".

"GUARANTEES OR CERTIFICATIONS INDICATED HEREON SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. GUARANTEES OR CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS."

COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID COPY.

"UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY MAP IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW."

NO.	REVISION	DATE	BY
8			
7			
6			
5	REVISED LEGAL	02/28/18	SEM
4	REVISED LEGAL	02/16/18	SEM
3	REVISED MAP	02/09/18	SEM
2	REVISED LEGAL DESC.	08/03/17	SEM
1	REVISED PER CLIENT COMMENTS	06/30/17	TMO

O'NEILL-RODAK
LAND SURVEYING ASSOCIATES, P.C.
LAND SURVEYORS - PLANNERS
BOUNDARY CONSULTANTS
FLOOD ZONE DETERMINATIONS
ALTA/NSPS SURVEYS
5 SOUTH FITZHUGH STREET
ROCHESTER, NY
14614
PHONE (585) 325-7520 FAX (585) 325-1708
e-mail oneillrodak@frontiernet.net

SCALE 1" = 120'
DATE 06/28/2017
REDATED
PROJECT NO. 2017-0794
SHEET 1 OF 1

MAP OF A SURVEY
PARCEL SITUATE IN TOWN LOTS 2 & 3
RANGES 2 & 3 OF THE CRAIGIE TRACT
VILLAGE & TOWN OF LEROY
GENESEE COUNTY, NEW YORK

LOCATION 130 GILBERT STREET
PREPARED FOR HARTER SECREST & EMERY LLP

APPENDIX B

LIST OF SITE CONTACTS

APPENDIX B – LIST OF SITE CONTACTS

Name	Phone/Email Address
Ron Richards, Lapp Insulator Facilities and Health and Safety Manager	(585) 967-5885
Dan McDaid, AECOM Project Engineer	(716) 903-6500; daniel.mcdaid@aecom.com
Lisa Gorton, P.E., NYSDEC Project Manager	(518) 402- 9574; lisa.gorton@dec.ny.gov
David Pratt, NYSDEC Regional HW Engineer	(585) 226-5449
Jennifer Andoloro, Remedial Party Attorney	518-402-9199

APPENDIX C

EXCAVATION WORK PLAN

EXCAVATION WORK PLAN

C-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

David Pratt

Regional Hazardous Waste Remediation Engineer

6274 Avon-Lima Road (Rtes. 5 and 20)
Avon, NY 14414-9516
(585) 226-5449

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in Appendix D of this document,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

C-2 SOIL SCREENING METHODS

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

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

C-3 STOCKPILE METHODS

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

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

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

C-4 MATERIALS EXCAVATION AND LOAD OUT

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

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

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

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

A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

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

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

C-5 MATERIALS TRANSPORT OFF-SITE

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

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

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

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

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

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

C-6 MATERIALS DISPOSAL OFF-SITE

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

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

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

C-7 MATERIALS REUSE ON-SITE

Material reuse on site must be approved by the NYSDEC. Chemical criteria for on-site reuse of material must be obtained from the NYSDEC. A qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

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

C-8 FLUIDS MANAGEMENT

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

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

C-9 BACKFILL FROM OFF-SITE SOURCES

All backfill from off-site borrow sources, unless otherwise approved by the NYSDEC, shall be free from organic or other perishable material, roots, frozen material, stones or any other objectionable materials. Materials shall be classified in ASTM D2487 as GW, GP, GM, GC, SW, SP, SM, SC, ML or CL; or an approved combination of these classifications. The sieve analysis shall be in accordance with the following: 1-1/2 inch-100% passing by weight; ¼ inch-30-65% passing by weight; and 200-0-10 % passing by weight. A full TCL analysis shall be performed on a sample collected from each off-site borrow source. The backfill material must meet the cleanup objectives specified in 6NYCRR Subpart 375 for commercial use.

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

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

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Materials brought on site must not exceed the soil cleanup objectives for commercial use specified in Table 375-6.8(b) of 6NYCRR 375. Soils that meet ‘exempt’ fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

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

C-10 STORMWATER POLLUTION PREVENTION

For construction projects exceeding 1 acre, a Stormwater Pollution Prevention Plan that conforms to the requirements of NYSDEC Division of Water guidelines and NYS regulations shall be submitted to the NYSDEC for approval

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

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

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

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

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

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

C-11 CONTINGENCY PLAN

Describe the procedures to be followed upon discovery of an unknown source of contamination that may require remediation (underground storage tanks, stained soil, drums, etc.). This should include procedures for suspending excavation work, pumping fluids from tanks or containers, and reporting to the spill hotline. Include the following text:

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

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless

the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

C-12 COMMUNITY AIR MONITORING PLAN

Community air monitoring shall be in accordance with the NYSDOH Generic Community Air Monitoring Plan included as Appendix 1A of DER-10. The Community Air Monitoring Plan for this site is included in Appendix D.

Air sampling stations shall be located upwind and downwind of the work area based on prevailing wind conditions. Other stations may be placed as requested by the NYSDEC. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

All Community Air Monitoring data will be reported to the NYSDEC and NYSDOH on a regular basis. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers as they occur.

C-13 ODOR CONTROL PLAN

If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

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

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

C-14 DUST CONTROL PLAN

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

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

C-15 OTHER NUISANCES

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

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

APPENDIX D

HEALTH AND SAFETY PLAN/ COMMUNITY AIR MONITORING PLAN

HEALTH AND SAFETY PLAN AND

COMMUNITY AIR MONITORING PLAN

LAPP INSULATOR SITE

VILLAGE OF LE ROY, GENESEE COUNTY, NEW YORK

HEALTH AND SAFETY PLAN

1.0 SITE DESCRIPTION

1.1 Site Location and Description

The site is located in the Village of LeRoy County of Genesee, New York. The site is an approximately 66-acre industrial facility bounded by bounded by Munson Street to the north, Oatka Creek to the south and east, and B&O Railroad tracks to the west. Contaminated soils in two areas of the site were remediated in 2014. Following the remediation it was determined that chlorinated VOC contamination above the cleanup objectives is still present in overburden and bedrock groundwater throughout the site.

1.2 Residual Contamination

Documentation sampling performed during the remedial excavation in 2014 showed that there is no remaining soil contamination above cleanup objectives. Remaining contamination identified from groundwater sampling is discussed in the Site Management Plan (SMP).

2.0 OVERVIEW OF PRECAUTIONS TO ENSURE THE SAFETY OF HUMAN HEALTH AND THE ENVIRONMENT

The following precautions must be considered for any excavation work on this site. The applicability and extent of each precaution will need to be determined based upon the actual work location and depth of excavation.

Workers should proceed with caution at all depths and evaluate soil handling, personal protective equipment, equipment decontamination and backfilling requirements based on the guidance provided below. In all circumstances, workers should err on the side of caution and treat any suspected contamination as possible hazardous waste.

Notification to the New York State Department of Environmental Conservation (NYSDEC) as soon as practical, preferably prior to excavation (see Contact List).

Personal Hygiene, at a minimum, should consist of workers washing hands prior to leaving area of excavation, smoking, eating, drinking and/or using toilets. Eating and/or drinking are not permitted in the vicinity of the excavation. Smoking is not permitted anywhere on the property.

Personal Protective Equipment (PPE), at minimum, workers should don long sleeve shirt, long pants, work boots and work gloves. If soil is stained, then workers should don rubber boots, tyvek suits or rain suits and nitrile or other chemical resistant inner gloves.

OSHA 40-Hour Hazardous Waste Operator (HAZWOPER) trained workers will be required to perform excavation in highly contaminated areas unless otherwise directed by the NYSDEC.

Air Monitoring is required for worker and community safety for volatile organic compounds (VOCs) and dust if excavations encounter heavily contaminated soils. The Community Air Monitoring Plan shall be followed. This plan is included in this document.

Soil Handling. Contaminated or stained soil should be handled to minimize contaminating adjacent areas. Contaminated or stained soil should be placed on polyethylene sheeting (poly) or in either 55-gallon drums or waste wranglers. If sidewall and bottom of excavation is heavily stained, then the excavation should be lined with poly prior to workers entering excavation.

Dewatering Excavation. Water that contains sheen should not be discharged without NYSDEC approval. Contaminated or stained water should be placed in storage containers (i.e. 55-gallon drums or larger containers).

Dust Control should be accomplished by wetting soil with water.

Equipment Decontamination, prior to leaving the work area, soil that has accumulated on equipment should be removed. Contaminated equipment will require washing prior to leaving the area of excavation. At no time shall rinse water or contaminated soil removed from equipment be allowed to contact surface soils or clean backfill material. Decontamination residuals should be handled and disposed of in accordance with all applicable regulations.

Personnel Decontamination, at a minimum, should consist of removing soil from footwear and clothing prior to leaving the area of excavation. Workers should wash hands prior to leaving area of excavation, smoking, eating, drinking and/or using toilets.

Material Storage. Bulk soil and containerized waste materials (i.e., soil, water, PPE and poly) should be placed in a designated area at the site.

CONTACT LIST

NYSDEC: Lisa Gorton, P.E.
NYSDEC-Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7017
Office Phone: (518) 402-9574
E-mail: lisa.gorton@dec.ny.gov

NYSDOH: Stephen Lawrence
NYSDOH - Bureau of Environmental Exposure Investigation
Corning Tower - Rm 1787
Albany, NY 12223
(518) 402-0450
BEEI@health.ny.gov
E-mail: Stephen.Lawrence@health.ny.gov

COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for volatile organic compounds will be conducted at the perimeter of the

Exclusion Zone during the intrusive activities as follows:

- Volatile organic compounds and dust particulates will be monitored at the downwind perimeter of the exclusion zone on a continuous basis. If total organic vapor levels exceed 5 parts per million (ppm) above background, work activities will be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review if requested.
- If particulate levels at the downwind station exceed particulate levels at the upwind station by more than 100 micrograms per cubic meter (mcg/m^3), work activities will be halted and appropriate dust suppression measures will be employed. All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review if requested.

Vapor Emission Response Plan

If the ambient air concentration of total organic vapors at the downwind perimeter of the Work Area or Exclusion Zone exceed 5 ppm above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the Exclusion Zone, activities can resume provided the organic vapor level 200 feet downwind of the Exclusion Zone or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 10 ppm at the perimeter of the Exclusion Zone, activities must be shut down. When work shutdown occurs, downwind air monitoring as directed by the Site HSO will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission Response Plan.

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

Major Vapor Emission Response Plan

If any organic vapor levels greater than 5 ppm over background are identified 200 feet downwind from the Exclusion Zone or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of work activities, or as the result of an emergency, organic vapor levels persist above 5 ppm above background 200 feet downwind from the Exclusion Zone or half the distance to the nearest residential or commercial property, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20-foot zone).

If efforts to abate the emission source are unsuccessful and organic vapor levels approaching 5 ppm persist for more than 30 minutes in the 20-foot zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect. Also, the Major Vapor Emission Response Plan shall be immediately placed into effect if 20-foot zone organic vapor levels are greater than 10 ppm above background.

Upon activation of the Major Vapor Emission Response Plan, the following activities will be undertaken:

- All Emergency Response authorities will immediately be contacted by the Site HSO and advised of the situation.
- Air monitoring will be conducted at 30 minute intervals within the 20-foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Site HSO.

Particulate Monitoring, Response Levels and Actions

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

If the downwind PM-10 particulate is 100 mcg/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that either of the downwind stations report PM-10 particulate levels do not exceed 150 mcg/m^3 above the up wind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the up wind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 above the upwind level and preventing visible dust migration.

All readings will be recorded and available for NYSDEC and NYSDOH personnel to review.

APPENDIX E
MONITORING WELL CONSTRUCTION LOGS

GeoLogic
PO Box 350, Homer, NY 13077
607-749-5000 / 607-749-5063 (fax)

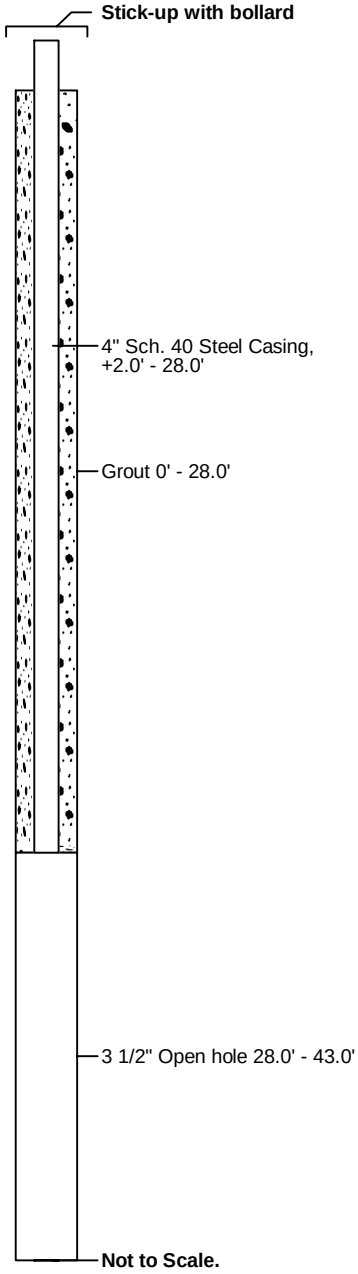
SUBSURFACE LOG

Lapp Insulator Site
130 Gilbert Street
LeRoy, New York

NYSDEC Site No. 819017

Boring No: : SR-1
Project No.: : 214001A-D
Date Started: : 10/6/14
Date Completed: : 10/14/14

Depth (ft)	Sample No.	Blow Count	N-Value	Recovery (ft)	DESCRIPTION
0					6 1/4" Hollow Stem Augers to 23.0'
5					**No soil or rock samples taken**
10					
15					
20					
25					AUGER REFUSAL AT 23.0' Top of Rock at 23.0' 5 5/8" Down Hole Hammer 23.0' - 28.0' 3 1/2" Down Hole Hammer 28.0' - 43.0'
30					
35					
40					BORING TERMINATED AT 43.0'



Sampling Method: ASTM D-1586, unless otherwise noted.
Notes: 6 1/4" Hollow Stem Augers / 5 5/8" & 3 1/2" Down Hole Hammer
File: 214001A-D/tech/B-1

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GeoLogic
PO Box 350, Homer, NY 13077
607-749-5000 / 607-749-5063 (fax)

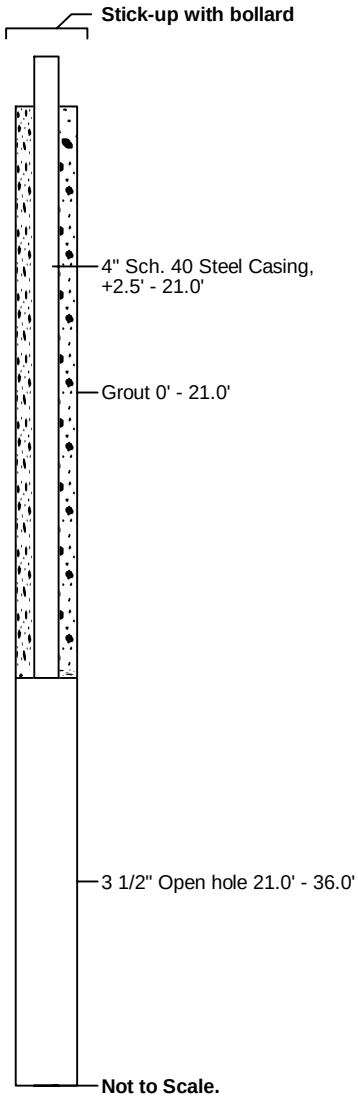
SUBSURFACE LOG

Lapp Insulator Site
130 Gilbert Street
LeRoy, New York

NYSDEC Site No. 819017

Boring No: : SR-2
Project No.: : 214001A-D
Date Started: : 10/10/14
Date Completed: : 10/13/14

Depth (ft)	Sample No.	Blow Count	N-Value	Recovery (ft)	DESCRIPTION
0					6 1/4" Hollow Stem Augers to 16.0'
5					**No soil or rock samples taken**
10					
15					AUGER REFUSAL AT 16.0' Top of Rock at 16.0' 5 5/8" Down Hole Hammer 16.0' - 21.0'
20					3 1/2" Down Hole Hammer 21.0' - 36.0'
25					
30					
35					BORING TERMINATED AT 36.0'
40					



Sampling Method: ASTM D-1586, unless otherwise noted.
Notes: 6 1/4" Hollow Stem Augers / 5 5/8" & 3 1/2" Down Hole Hammer
File: 214001A-D/tech/B-2

10-22-2014 P:\PROJECTS\2014\214001A-D - Lapp Insulator - LeRoy\TECH\B-2.bor

GeoLogic
PO Box 350, Homer, NY 13077
607-749-5000 / 607-749-5063 (fax)

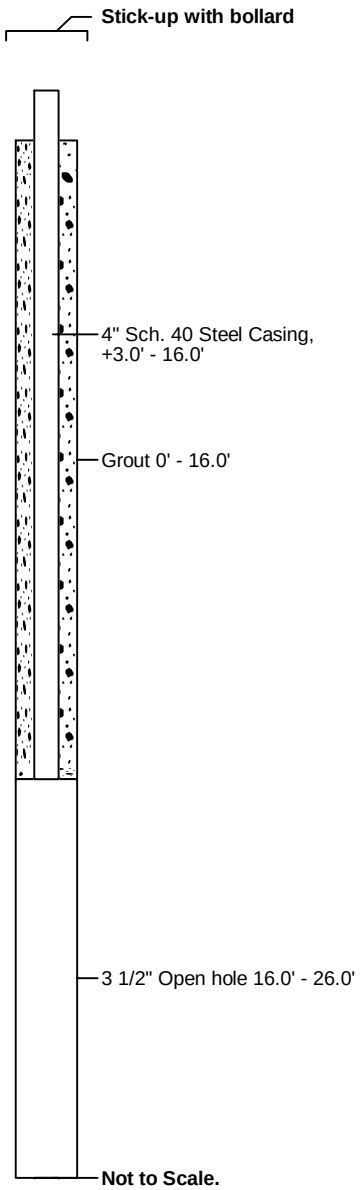
SUBSURFACE LOG

Lapp Insulator Site
130 Gilbert Street
LeRoy, New York

NYSDEC Site No. 819017

Boring No: : SR-3
Project No.: : 214001A-D
Date Started: : 10/07/14
Date Completed: : 10/14/14

Depth (ft)	Sample No.	Blow Count	N-Value	Recovery (ft)	DESCRIPTION
0					6 1/4" Hollow Stem Augers to 11.0'
5					**No soil or rock samples taken**
10					AUGER REFUSAL AT 11.0' Top of Rock at 11.0' 5 5/8" Down Hole Hammer 11.0' - 16.0'
15					3 1/2" Down Hole Hammer 16.0' - 26.0'
20					
25					BORING TERMINATED AT 26.0'
30					



Sampling Method: ASTM D-1586, unless otherwise noted.
Notes: 6 1/4" Hollow Stem Augers / 5 5/8" & 3 1/2" Down Hole Hammer
File: 214001A-D/tech/B-3

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GeoLogic
PO Box 350, Homer, NY 13077
607-749-5000 / 607-749-5063 (fax)

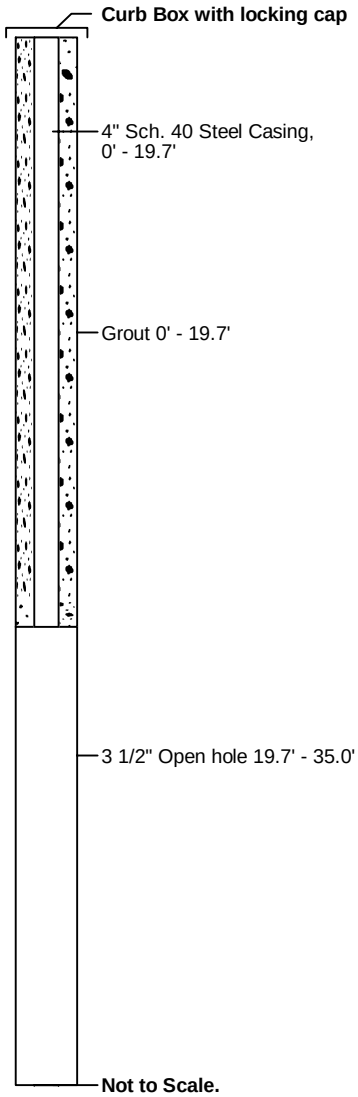
SUBSURFACE LOG

Lapp Insulator Site
130 Gilbert Street
LeRoy, New York

NYSDEC Site No. 819017

Boring No: : SR-4
Project No.: : 214001A-D
Date Started: : 10/09/14
Date Completed: : 10/16/14

Depth (ft)	Sample No.	Blow Count	N-Value	Recovery (ft)	DESCRIPTION
0					6 1/4" Hollow Stem Augers to 14.7'
5					**No soil or rock samples taken**
10					
15					AUGER REFUSAL AT 14.7' Top of Rock at 14.7' 5 5/8" Down Hole Hammer 14.7' - 19.7'
20					3 1/2" Down Hole Hammer 19.7' - 35.0'
25					
30					
35					BORING TERMINATED AT 35.0'
40					



Sampling Method: ASTM D-1586, unless otherwise noted.
Notes: 6 1/4" Hollow Stem Augers / 5 5/8" & 3 1/2" Down Hole Hammer
File: 214001A-D/tech/B-6

GeoLogic
PO Box 350, Homer, NY 13077
607-749-5000 / 607-749-5063 (fax)

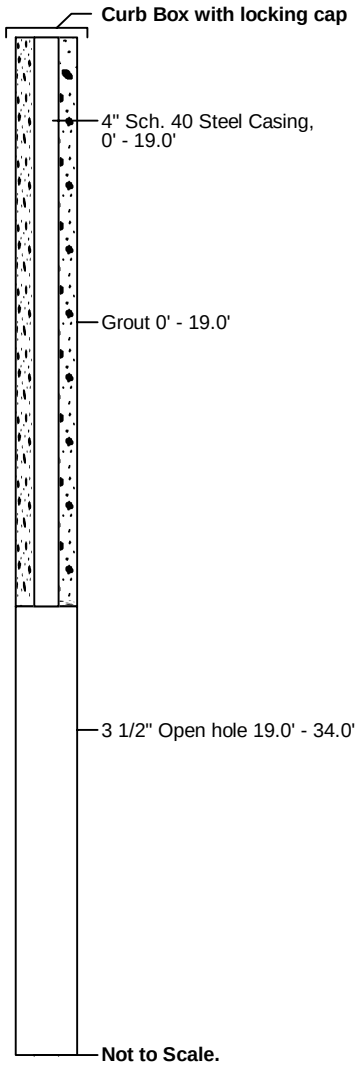
SUBSURFACE LOG

Lapp Insulator Site
130 Gilbert Street
LeRoy, New York

NYSDEC Site No. 819017

Boring No: : SR-5
Project No.: : 214001A-D
Date Started: : 10/09/14
Date Completed: : 10/15/14

Depth (ft)	Sample No.	Blow Count	N-Value	Recovery (ft)	DESCRIPTION
0					6 1/4" Hollow Stem Augers to 14.0'
5					**No soil or rock samples taken**
10					
15					AUGER REFUSAL AT 14.0' Top of Rock at 14.0' 5 5/8" Down Hole Hammer 14.0' - 19.0"
20					3 1/2" Down Hole Hammer 19.0' - 34.0'
25					
30					
35					BORING TERMINATED AT 34.0'
40					



Sampling Method: ASTM D-1586, unless otherwise noted.
Notes: 6 1/4" Hollow Stem Augers / 5 5/8" & 3 1/2" Down Hole Hammer
File: 214001A-D/tech/B-5

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GeoLogic
PO Box 350, Homer, NY 13077
607-749-5000 / 607-749-5063 (fax)

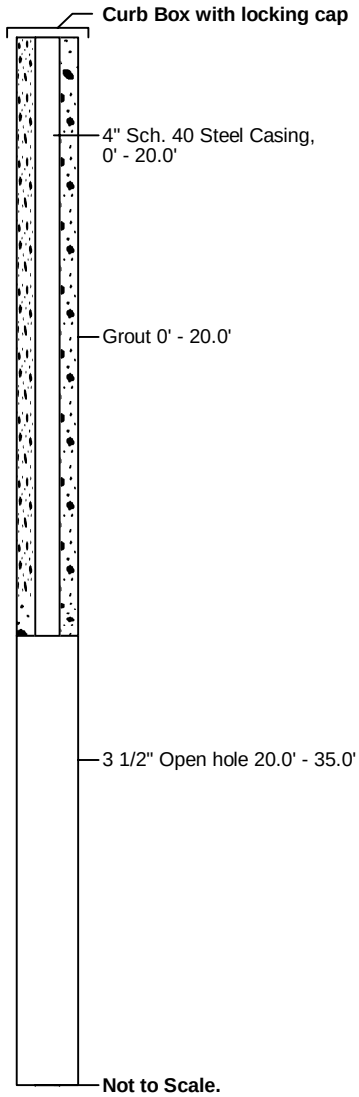
SUBSURFACE LOG

Lapp Insulator Site
130 Gilbert Street
LeRoy, New York

NYSDEC Site No. 819017

Boring No: : SR-6
Project No.: : 214001A-D
Date Started: : 10/08/14
Date Completed: : 10/15/14

Depth (ft)	Sample No.	Blow Count	N-Value	Recovery (ft)	DESCRIPTION
0					6 1/4" Hollow Stem Augers to 15.0'
5					**No soil or rock samples taken**
10					
15					AUGER REFUSAL AT 15.0' Top of Rock at 15.0' 5 5/8" Down Hole Hammer 15.0' - 20.0'
20					3 1/2" Down Hole Hammer 20.0' - 35.0'
25					
30					
35					BORING TERMINATED AT 35.0'
40					



Sampling Method: ASTM D-1586, unless otherwise noted.
Notes: 6 1/4" Hollow Stem Augers / 5 5/8" & 3 1/2" Down Hole Hammer
File: 214001A-D/tech/B-4

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APPENDIX F

MONITORING WELL DEVELOPMENT LOGS

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: BRW-1

PROJECT NO.: 11176782.00006

STAFF: TL

DATE(S): 10/15/14, 10/16/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	29.69	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	16.48	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

10/15/14 Dry | 10/16/14 Dry | 10/17/14 Dry

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	20	22					
pH	7.31	7.07	7.05	7.08	7.08	7.08					
SPEC. COND. (mS/cm)	1.95	1.90	1.81	2.18	2.24	2.25					
APPEARANCE	Brown opaque	Brown cloudy	cloudy	clear							
TEMPERATURE (°C)	15.02	13.71	13.77	13.55	13.16	13.23					
Time	1303	1311	1340	934	1112	1116					
Turb	>800	>800	278	85.5	132	118					

COMMENTS:

DTW - 20.65 @ 913 (10/16/14)

20.31 @ 1100 (10/17/14)

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: BRW-2

PROJECT NO.: 11176787.00006

STAFF: TJ

DATE(S): 10/16/14 / 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	29.49	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	12.15 ~~[illegible]~~	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

10/16/14 Dry | 10/17/14 Dry | Dry

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	12	14	15					
pH	8.78	8.19	7.45	7.33	8.09	7.98					
SPEC. COND. (mS/cm)	1.22	1.15	1.04	1.01	1.52	1.44					
APPEARANCE	Brown opaque	—	—	—	—	—					
TEMPERATURE (°C)	14.56	14.17	14.79	14.85	12.73	12.98					
Time	1503	1510	1517	1524	934	1300					
Turb	>800	>800	>800	>800	>800	>800					

COMMENTS:

DTW - 24.98 @ 927 (10/17/18)

DTW - 26.13 @ 1300 (10/17/18)

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulator WELL NO.: SR-1

PROJECT NO.: 11176787.00006

STAFF: TI

DATE(S): 10/15/14, 10/16/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	45.45	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	44.35 @ 1500 10/15/14	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

Dry after 1 gal.

OR
V=0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init										
pH	11.74										
SPEC. COND. (mS/cm)	1.51										
APPEARANCE	Brown opaque										
TEMPERATURE (°C)	12.19										
Time	850										
DTW	>800										

COMMENTS:

DTW - 43.50 @ 1310 (10/16/14)
- 42.90 @ 850 (10/17/14)

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: SR-2

PROJECT NO.: 11176287.0006

STAFF: TI

DATE(S): 10/14/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	38.98	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	15.10	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR
$V=0.0408 \times (\text{CASING DIAMETER})^2$

Dry Dry Dry

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	20	25	30	35	40	45	50
pH	7.86	7.55	7.32	7.53	7.59	7.47	7.46	7.06	7.16	7.49	7.52
SPEC. COND. (mS/cm	1.16	1.14	1.12	1.08	1.05	1.05	1.02	1.03	1.02	1.00	1.03
APPEARANCE	Gray opaque	Gray cloudy					Clear				
TEMPERATURE (°C)	14.19	13.77	14.89	15.68	16.31	16.70	16.92	16.55	16.80	16.49	17.25
Time	843	847	852	858	1013	1023	1257	1305	1318	1530	1545
Turb.	7800	7800	>800	>800	342	335	278	211	242	157	261

COMMENTS:

DTW @ 958 - 26.42

1250 - 16.63

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: SB-3

PROJECT NO.: 11176787.0006

STAFF: TI

DATE(S): 10/14/14, 10/15/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	28.94	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	18.91	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	10.03	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	6.62	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR V=0.0408 x (CASING DIAMETER)²

10/14/14 Dry | 10/15/14 Dry, Dry | 10/16/14 Dry, Dry | 10/17/14

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	20	25	30	35			
pH	7.64	7.28	7.68	7.65	7.44	7.28	7.36	7.06			
SPEC. COND. (mS/cm)	0.724	0.751	0.754	0.748	0.749	0.783	0.800	0.803			
APPEARANCE	Gray Opaque	—	—	Gray Cloudy	—	—	—	Cloudy			
TEMPERATURE (°C)	16.13	16.68	16.66	16.90	14.63	14.17	15.11	12.30			
Time	1358	1410	1450	1521	1035 ~~1540~~	1448	1258	835			
Turb	>800	>800	>800	664	599	538	656	578			

COMMENTS:

DTW - 18.60 @ 1025 (10/15/14)
18.90 @ 1440 (10/15/14)
18.85 @ 1258 (10/16/14)
18.85 @ 825 (10/17/14)

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulator WELL NO.: SR-4

PROJECT NO.: 11176282.0006

STAFF: TL

DATE(S): 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.58	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	35.32 @ 95.8	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
pH											
SPEC. COND. (mS)											
APPEARANCE											
TEMPERATURE (°C)											

COMMENTS:

Dry

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulator WELL NO.: SR-5

PROJECT NO.: 11176287.0006

STAFF: T

DATE(S): 10/16/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	33.64	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	~~33.64~~ Dry (1100)	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
pH											
SPEC. COND. (mS)											
APPEARANCE											
TEMPERATURE (°C)											

COMMENTS:

DTW - 33.55 @ 1008 (10/17/14

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: SR-6

PROJECT NO.: 11176287.0006

STAFF: TI

DATE(S): 10/16/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.95	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	28.15	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V = 0.0408 \times (\text{CASING DIAMETER})^2$

10/16/14 Dry | 10/17/14 Dry | Dry

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	14							
pH	7.13	7.08	7.15	7.07							
SPEC. COND. (mS/cm)	2.14	2.12	2.18	2.11							
APPEARANCE	Grey Opaque	Grey Cloudy									
TEMPERATURE (°C)	13.31	13.58	13.03	13.23							
Time	946	1000	1139	1332							
Turb	>800	>800	>800	>800							

COMMENTS:

★ DTW - 26.52 @ 1123 (10/17/14)
30.41 @ 1332 (10/17/14)

★ 10/16/14 - ~1' of riser was cut off when setting the well pad

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: SR-101

PROJECT NO.: 11176787.00006

STAFF: TJ

DATE(S): 10/14/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	45.32	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	12.61	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	32.71	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	21.59	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	20	25	30	35	40	45	50
pH	7.77	7.27	7.19	7.07	6.98	6.96	6.97	6.90	6.89	6.93	6.94
SPEC. COND. (mS/cm	0.755	1.03	1.05	1.05	1.05	1.05	1.07	1.06	1.07	1.07	1.07
APPEARANCE	cloudy	cloudy	clear	clear							
TEMPERATURE (°C)	15.22	15.60	14.63	13.84	13.70	13.36	13.42	13.40	13.19	13.22	13.25
Time	1057	1104	1109	1113	1117	1121	1124	1128	1131	1135	1139
Turb	125	113	50.3	44.6	67.5	69.4	128	117	90.3	84.1	78.4

COMMENTS:

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulator WELL NO.: SR-104

PROJECT NO.: 11176782-0006

STAFF: TC

DATE(S): 10/13/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	28.47	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	13.97	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=		3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=		4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=		5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	20	25	30	35	40	45	50
pH	7.63	7.21	7.14	7.26	7.31	7.37	7.23	7.15	7.08	7.12	7.18
SPEC. COND. (mS/cm)	0.833	0.703	0.607	0.629	0.643	0.667	0.668	0.669	0.669	0.664	0.661
APPEARANCE	Brown opaque	Brown cloudy					Cloudy	clear	clear		
TEMPERATURE (°C)	14.51	13.36	13.85	14.10	14.47	14.66	13.61	13.67	13.72	13.43	13.15
Time	1305	1313	1322	1331	1340	1348	1403	1412	1420	1428	1436
Turb	>800	>800	271	220	242	253	147	75.4	46.5	41.2	39.7

COMMENTS:

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: SR-105

PROJECT NO.: 11176787.00006

STAFF: TJ

DATE(S): 10/15/14, 10/16/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	27.32	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	14.60	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	12.72	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	8.40	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x ___)	=		6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

10/15/14 Dry | 10/16/14 → Dry | Dry | Dry | 10/17/14

OR V=0.0408 x (CASING DIAMETER)²

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	18	23	25	30	33		
pH	6.43	6.50	6.73	6.98	7.10	6.74	6.91	6.87	6.96		
SPEC. COND. (mS/cm	3.49	3.37	2.72	2.78	2.64	2.40	2.33	2.47	2.25		
APPEARANCE	DK Gray Opaque	Gray Cloudy	—	—	—	—	—	Cloudy	—		
TEMPERATURE (°C)	15.24	14.31	14.53	14.43	15.71	15.36	14.94	13.47	13.84		
Time	1216	1223	1228	1027	1038	1556	1602	1032	1040		
Turb	>800	563	433	>800	435	608	440	222	429		

COMMENTS:

DTW - 14.74 @ 1016 (10/16/14)
16.58 @ 1540 (10/16/14)
14.85 @ 1021 (10/17/14)

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulators WELL NO.: SR-106

PROJECT NO.: 11126782.00006

STAFF: TJ

DATE(S): 10/16/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	35.00	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	23.90	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	11.10	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.666	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	7.33	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	=	36.6	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)										
	Init	5	10	15	20	25	30	35	40		
pH	7.20	7.17	7.26	7.14	6.99	7.06	7.08	7.01	6.99		
SPEC. COND. (mS/cm)	1.72	1.74	1.76	1.77	1.77	1.78	1.78	1.79	1.79		
APPEARANCE	Black opaque	Clear-Blackish Tint	clear	clear							
TEMPERATURE (°C)	15.06	13.80	13.29	12.98	13.15	12.53	12.37	12.19	12.18		
Time	1338	1348	1352	1359	1404	1409	1414	1419	1423		
Turb	>800	111	33.2	19.8	22.2	19.0	15.7	16.3	14.7		

COMMENTS:

WELL DEVELOPMENT LOG

URS Corporation

PROJECT TITLE: LAPP Insulator WELL NO.: SR-108

PROJECT NO.: 11176.782.0006

STAFF: TI

DATE(S): 10/13/14, 10/15/14, 10/17/14

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=	36.22 ~~46.22~~	1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=	14.85	2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	21.37	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.66	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	14.10	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 5)	=	70.52	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=	Dry	8"	2.60

OR

V=0.0408 x (CASING DIAMETER)²

10/13/14 Dry 10/15/14 10/17/14 Dry

PARAMETERS	ACCUMULATED VOLUME PURGED (GALLONS)											
	Init	5	10	15	20	25	30	35	40	45	50	
pH	8.19	8.15	8.08	8.06	7.15	7.38						
SPEC. COND. (mS)/cm	1.20	1.20	1.19	1.19	1.84	1.73						
APPEARANCE	Brown opaque	—	Brown cloudy	—	—	—						
TEMPERATURE (°C)	12.81	12.11	11.86	11.79	13.78	12.46						
Time	1114	1123	1133	1147	1502	813						
Turb	~~>800~~	>800	314	273	>800	675						

COMMENTS:

DTW 35.45 @ 1425 (10/13/14)
33.25 @ 0800 (10/14/14)
30.68 @ 1015 (10/15/14)
30.25 @ 1450 (10/15/14)
30.89 @ 808 (10/17/14)

APPENDIX G
FIELD ACTIVITIES PLAN

AECOM Environment

Prepared for:
Superfund Standby Program
NYSDEC
Albany, NY

Prepared by:
AECOM
Latham, NY
May 2020

Field Activities Plan (FAP)

SITE MANAGEMENT
LAPP INSULATOR
LEROY, NEW YORK, 14482

Prepared for:

New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Prepared by:

AECOM USA, Inc.
40 British American Boulevard
Latham, New York 12110

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1.0 Introduction

This Field Activities Plan (FAP) is designed to provide typical procedures for the field activities performed as part of site management at the Lapp Insulator site . Adherence to these procedures will ensure the quality and defensibility of the field data collected. In addition to the field procedures outlined in this document, all personnel performing field activities must do so in compliance with: (1) the Quality Assurance/ Quality Control (QA/QC) measures outlined in the Quality Assurance Project Plan (QAPP); (2) the appropriate Health and Safety guidelines found in the Health and Safety Plan (HASP); (3) the work outlined in the Site Management Plan; and (4) the time schedule outlined in the Site Management Plan.

1.1 Work Objectives

The objectives of the field work will be established in the Site Management Plan.

Field activities are planned and conducted in general accordance with NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010), and New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006).

The FAP is intended to be a companion document to the Site Management Plan prepared for the Lapp Insulator site.

1.2 Site Description and Background Information

Available site information is presented in the Site Management Plan. Information to be presented in the Site Management Plan includes, to the extent available and relevant, the following:

- Site Description
- Site Location
- Site History
- Previous Investigations, Remedial Actions, and Reports
- Record of Decision
- Current Site Conditions
- Local and Regional Geology and Hydrogeology
- Any other relevant information

2.0 General and Preparatory Field Activities

The scope of work is established in the Site Management Plan.

The Site Management Plan may include a variety of field activities intended to obtain site-specific data pertaining to the extent of contamination and the extent to which releases or potential releases from the site pose a threat to human health and the environment. Typical project objectives include:

- Evaluate areal and vertical extent of contamination, including transport mechanisms;
- Assess the source(s) of contamination and determine if this source(s) has impacted off-site properties; and
- Collect additional data to support the design and implementation of remedial actions.

To accomplish these objectives, the field subtasks described in this FAP may be utilized. Additional methodology information will be provided in the QAPP. Unless otherwise noted, it is assumed that all field work will be completed at Level D personal protection in accordance with the HASP. Field activities will be monitored by a qualified AECOM representative(s).

2.1 Mobilization

Following authorization to proceed with the field work from NYSDEC, will necessary materials and equipment will be mobilized to the site. If the project involves intrusive work (e.g., monitoring well installation), a call will be placed to DigSafely New York and will be the responsibility of the subcontractor performing the intrusive work.

For small work assignments and those of short duration, it may be possible to mobilize and store the necessary materials in a vehicle (e.g., cargo van). If appropriate to the project, a drum storage area will be established for the temporary storage of investigation derived waste, including decontamination fluids and purge water from groundwater sampling.

A project kick-off meeting will be held prior to initiating field work to orient field team members and subcontractors with the site and to familiarize all site workers with site background, potential dangers, health and safety requirements and emergency contingencies and other field procedures.

2.2 Health and Safety

It is anticipated that the work to be completed will be performed in Level D personal protection. Should health and safety monitoring during field activities indicate a threat to field personnel or warrant an upgrade in protection, work will stop, and site conditions will be re-evaluated by field personnel.

The site-specific HASP will be submitted concurrently with the Site Management Plan, site-specific FAP, and site-specific QAPP.

2.3 Community Air Monitoring

Community air monitoring will not be required for non-intrusive fieldwork. Community air monitoring will be performed as outlined in the NYSDOH Generic Community Air Monitoring Plan (CAMP), unless it is determined by NYSDEC that a site-specific air monitoring plan is required, or that some of the provisions of the CAMP are not appropriate for a specific work assignment. The approach to implementing the Generic CAMP is provided in Section 9.0 of this FAP.

3.0 Groundwater Investigation Tasks

Groundwater monitoring is part of this site management. Field activities which may be implemented as part of a groundwater monitoring include (but are not limited to) the following:

- Existing Well Condition Survey
- Groundwater Elevation Survey
- Groundwater Sampling from Monitoring Wells

Analytical parameters for groundwater samples, quality control samples, sample bottle, volume, preservation, and holding times are summarized in Tables 1 and 2, respectively. Groundwater monitoring well sample locations are shown on Figure 1.

3.1 Monitoring Well Inspection and Maintenance

An assessment of the condition and subsequent maintenance of existing monitoring wells may be necessary. As monitoring wells have been installed over an extended period, the available data varies and in some cases is contradictory. It is possible that some of the wells can no longer be found. In addition, the condition of the wells (and suitability for sampling) may not be known. Therefore, prior to initiating any sampling at the site, an initial well condition survey will be conducted. The following procedure should be employed whenever the monitoring wells are opened for gauging and sampling:

1. Use the Monitoring Well Inspection Form (Appendix A) to record the conditions of the various components of the monitoring well and protective casing including lock/hasp, hinge/lid, J-plug, gasket seal, and security bolts.
2. Coat security bolts with never seize to prevent seizure in the cast iron flush mount curb boxes.
3. In wells, record depth to water, and depth to bottom.
4. Record any maintenance performed on the well and stencil as needed.
5. All sections of the inspection form should be completed, and photographs may be taken before and after inspection and maintenance.

3.1.1 Road Box Replacement Procedures

Often during an inspection, it is determined that a monitoring well's road box is damaged and needs to be replaced. The following procedure should be employed whenever a road box is replaced:

1. Cut the pavement with a jackhammer and hand-excavate the surrounding soil to a depth of approximately 1 ft. below ground surface (bgs). If the surrounding surface is covered with asphalt instead of concrete, then hand cut the asphalt.

2. Remove the damaged road box and install the new road box.

3. Backfill around the newly installed road box with the excavated soil, leaving enough room for a concrete pad/asphalt patch.

4. Construct a 2 ft. by 2 ft. square concrete pad/asphalt patch surrounding the new road box.

5. If using concrete in freezing temperatures, an anti-freeze agent will be added to the cement mixture and the concrete pad will be covered with a sheet of plastic to prevent the pad from freezing and cracking.

6. An orange cone will be placed near the monitoring well to prevent vehicles from driving over the newly repaired road box.

7. If spoils are drummed, the drums will be addressed in accordance with the protocols outlined in Section 5.2.

3.2 Groundwater Elevation Survey

In order to better understand the hydrogeologic conditions, one round of synoptic water level readings shall be collected by field personnel prior to each groundwater sampling event . A groundwater elevation survey will be taken as an initial task (e.g., concurrent with the existing well condition survey).

Water levels in monitoring wells scheduled to be sampled during the field work will be measured using an electronic water level indicator. Water level measurement procedures are presented below.

Procedure:

1. Clean the water level probe and the lower portion of cable following standard decontamination procedures (Section 8.1) and test water level meter to ensure that the batteries are charged.

2. Lower the probe slowly into the monitoring well until the audible alarm indicates water.

3. Read the depth to the nearest hundredth of a foot from the graduated cable using the V-notch on the riser pipe as a reference point.

4. Repeat the measurement for confirmation and record the water level.

5. Remove the probe from the well slowly, drying the cable and probe with a clean "Chem Wipe" or paper towel.

6. Replace the well cap and lock protective cap in place.

7. Decontaminate the water level meter (Section 8.0) if additional measurements are to be taken.

Reference: ASTM D4750-87(2001).

3.3 Groundwater Sampling from Monitoring Wells

Groundwater sampling will be performed to evaluate the extent of groundwater contamination. The locations, wells, and analytical parameters are specified in the Site Management Plan.

3.3.1 Standard Monitoring Well Purging Procedure

Unless specified otherwise in the Site Management Plan and approved by NYSDEC, groundwater sampling procedures are described below.

Procedure:

1. The well cover will be unlocked and carefully removed to avoid having any foreign material enter the well. The interior of the riser pipe will be monitored for organic vapors using PID. If a reading of greater than 5 ppm is recorded, the well will be vented until levels are below 5 ppm before purging begins.

2. Using an electronic water level detector, the water level below top of casing will be measured. Knowing the total depth of the well, it will be possible to determine the volume of water in the well. The end of the probe will be soap-and-water-washed and deionized-water-rinsed between wells.

3. Calibrate field instruments (e.g., pH, specific conductance, turbidity).

4. Purge the required water volume (i.e., until stabilization of pH, temperature, specific conductivity, and turbidity). New dedicated equipment will be used for each well.

5. Purge well until the water quality parameters have stabilized. The stabilization criteria are: specific conductivity - 3% full scale range; pH - 0.10 pH unit; temperature - 0.2°C, and turbidity <50 NTU.

6. Purging of three well volumes is not necessary if the indicator parameters are stable. However, at least one (1) well volume must be purged before sampling can begin. During purging, it is permissible to by-pass the flow cell until the groundwater has cleared.

7. Indicator parameters of pH, conductivity, dissolved oxygen, oxygen/reduction potential, turbidity, and temperature must be measured continuously using the flow cell.

8. Well purging data are to be recorded in the field notebook and on the Well Purge Log (Appendix A).

9. Dispose of sampling equipment as per Section 8.2.

3.3.2 Low-Flow Sampling Technique

Unless specified otherwise in the Site Management Plan and approved by NYSDEC, groundwater sampling will be done in accordance with *Groundwater Sampling Guidelines for Superfund and RCRA Project Managers* (USEPA OSWER 542-S-02-001). The default groundwater sampling method will

be in accordance with EPA's low stress (often referred to as low flow) sampling technique (EPA, 1998).

Monitoring well purging will be completed using the low-flow purging technique as follows:

1. The well cover will be unlocked and carefully removed to avoid having any foreign material enter the well. The interior of the riser pipe may be monitored for organic vapors using PID. If a reading of greater than 5 ppm is recorded, the well will be vented until levels are below 5 ppm before purging begins.

2. Using an electronic interface probe/water level detector, the water level below top of casing will be measured. The depth of the well will be measured to determine the volume of water in the well. The end of the probe will be decontaminated between wells.

3. Calibrate field instruments (e.g., pH, specific conductance, turbidity).

4. Purge the required water volume (i.e., until stabilization of pH, temperature, specific conductivity, and turbidity) using a low-flow pump (e.g., Solinst or Geopump) and dedicated HDPE tubing. New dedicated tubing will be used for each well.

5. Purge the well until the water quality parameters have stabilized. The stabilization criteria are: specific conductivity - 3% full-scale range; pH - 0.10 pH unit; dissolved oxygen – 10%, Turbidity – 10% and oxidation/reduction (redox) potential - +/- 10 units.

6. Purging of three well volumes is not necessary if the indicator parameters are stable. However, at least one (1) well volume must be purged before sampling can begin. During purging, it is permissible to by-pass the flow cell until the groundwater has cleared.

7. Indicator parameters of pH, conductivity, dissolved oxygen, oxidation/reduction (redox) potential, turbidity, and temperature must be measured continuously using the flow cell.

8. Well purging data are to be recorded in the field notebook and on the Low Flow Purge Log (Appendix A).

3.3.3 Sample Collection Procedures

Procedure:

1. After well purging is completed, a sample will be collected into the appropriate containers.

2. Direct water flow toward the inside wall of the sample container to minimize volatilization. Fill volatile sample containers so no headspace (air bubbles) is present. If containers are pre-preserved, do not overfill sample containers. Note if effervescence is observed.

3. All sample bottles will be labeled in the field using a waterproof permanent marker (Section 10.4).

4. Samples will be collected into sample bottles (containing required preservatives) and placed on ice in coolers for processing (preservation and packing) prior to shipment to the analytical laboratory. A chain-of-custody record will be initiated. The analytical laboratory will certify that the sample bottles are analyte-free prior to shipping.

5. Remove pump and disconnect valves and tubing, as necessary. If a submersible pump was used, it must be decontaminated prior to and between each use. Clean pump by flushing 10 gallons of potable water through the pump. Rinse with deionized water after flushing the pump.

6. Well sampling data are to be recorded in the field notebook and on the Well Purging Log (Appendix A).

3.4 Monitoring Well Decommissioning

Monitoring well decommissioning will be performed in accordance with NYSDEC Policy CP-43, using the following steps:

1. Each well will be tremie grouted from the bottom of the well to within five feet of the ground surface to ensure a continuous grout column. Grout slurry composition should be the following:

    a. 1.5 to 3.0 percent by weight - Bentonite (Quick Gel)

    b. 40 to 60 percent by weight - Cement (Portland Type I)

    c. 40 to 60 percent by weight - Water

2. The well casing will be removed at a depth of five feet below grade (if possible) and the outer protective casing "stick-up" and/or flush-mount curb box will be removed only after the well has been properly filled with grout.

3. A metal marker (PK Survey Spike) will be embedded in the top of the grout to indicate the location of the former monitoring well.

4. The uppermost five feet of the borehole will be filled with approved/clean backfill or topsoil.

5. The surface of the borehole will be restored to the condition of the area surrounding the borehole (crushed stone, asphalt, etc.). If the surrounding surface is a concrete sidewalk flag, that flag will be replaced in accordance with applicable regulations/standards.

6. The solid waste should be handled is accordance with Section 8.2 of this plan.

7. Document well construction details in the field notebook and transfer the data onto the Well Decommissioning Record form (Appendix A).

Reference: ASTM D5299/D5299M-18

Reference: NYSDEC CP-43: *Groundwater Monitoring Well Decommissioning Policy*, November 3, 2009. .

4.0 Soil Vapor Intrusion Studies

Subslab Depressurization (SSD) systems are in place and operational in several buildings at the Lapp Insulator site. Indoor air monitoring is not required per the Site Management Plan. In the event the NYSDEC or NYSDOH requests an SVI study, the following procedures will be followed.

Sub-slab soil vapor samples are collected from immediately beneath the slabs of the selected buildings. The indoor air samples will be collected from the basement and/or first floor of the selected buildings. The outdoor air samples are collected to characterize site-specific background (ambient) outdoor air conditions (i.e., from upwind of the structures at a breathing zone height).

Details of the typical field activities associated with SVI studies are presented in this section of the FAP.

4.1 SVI Study Objectives

The objective of the Soil Vapor Intrusion study is to evaluate whether vapor intrusion of compounds related to the site or suspected source is occurring in the structures within the Study Area and whether vapor hazards as a result of the soil or groundwater contamination may exist for receptors associated the existing structures in the Study Area. The SVI study results may be used to identify the structures within the study area that require further investigation or mitigation/remediation.

The following tasks will typically be performed:

- Task 1 – Building Survey and Product Inventory in accordance with NYSDOH Guidelines
- Task 2 – Sample Collection and Analysis
- Task 3 – Data Evaluation and Report Preparation

4.2 SVI Study Field Sampling Plan

This section outlines the procedures that will be used in the collection of sub-slab soil vapor samples, indoor air samples and outdoor air samples.

4.2.1 Building Survey and Product Inventory

As required by the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (SVI Guidance; NYSDOH, 2006), a building survey will be performed to identify and minimize conditions that may interfere with the proposed testing prior to collecting samples at each structure. The building survey will evaluate the type of building structure, floor layout, air-flow patterns (e.g., using smoke tubes), and the physical condition of the buildings being studied. Information obtained during the building survey, including information on sources of potential indoor air contamination, will

be identified on the NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form (NYSDOH, 2006; Appendix A). As shown in NYSDOH Appendix A, specific information to be evaluated and noted during the building survey includes the following:

1. Occupant name(s) and address;
2. Owner or landlord information;
3. Building characteristics (e.g., commercial/industrial, number of units/tenants, number of floors, building age, etc.);
4. Construction characteristics, including foundation cracks and utility penetrations, ceiling construction and firewall separations, or other openings that may serve as preferential pathways for vapor intrusion;
5. Heating, ventilation, and air conditioning systems, including the type of heating system(s), type of fuel used, presence of a boiler/furnace, presence of aboveground or underground storage tanks, type(s) of air conditioning, and the presence of air distribution ducts;
6. Occupancy and the general use of each floor;
7. Factors that may influence indoor air quality, including separate heating units, petroleum-powered machines stored in the building, exhaust fans in the break area, kitchen or bathrooms, new flooring, fresh paints, etc.; and,
8. Type of water supply and sewage disposal.

A product inventory will also be conducted throughout each floor and the basement of each structure to identify chemicals and products that may bias sampling results. Product names and chemical ingredients listed on container labels will be recorded. If the ingredients are not listed on the label, the product's exact and full name, and manufacturer information, will be recorded. Chemicals or products that are noted as being stored in a questionable manner (e.g., in an open container), that emit odor, or yield positive field screening results, will need to be controlled during the indoor air quality sampling to reduce potential interferences. Control options will be discussed with the building occupant and will include removal of the container (preferred option) or tightly sealing the containers.

The presence and description of odors and portable vapor monitoring equipment readings (e.g., PID readings) will be noted. Photographs will also be taken as appropriate during the building survey. Floor plans will be sketched to indicate sub-slab soil vapor and indoor air sampling locations, possible indoor air pollution sources, and PID meter readings. A part per billion (ppb) range PID meter will be utilized.

The building superintendent/facility manager will also be questioned to provide information regarding the location of any potential utilities in the locations that are to be sampled.

Typically, the Site Management Plan will indicate the general approach and locations of sample locations for the SVI; however, the exact location of the sub-slab soil vapor, indoor air, and outdoor air samples will be determined during the implementation of the study.

4.2.2 Sub-Slab Soil Vapor Sampling

Sub-slab soil gas samples will be collected from the buildings or other locations as directed by the NYSDEC or NYSDOH.

In accordance with NYSDOH SVI Guidance (October 2006), a temporary sample point will be advanced to collect sub-slab soil gas sample at pre-selected locations. If possible, the heating/cooling system at each of the structures will be operated continuously to maintain a normal temperature (i.e., 65º to 75º F) for at least 24 hours prior to and during the scheduled sampling time. The samples will be collected from a depth of approximately 2 to 6 inches below the floor slab.

The following steps will be taken to collect samples:

1. Select and prepare the sub-slab sample collection point by observing the condition of the building floor slab for apparent penetrations such as concrete floor cracks, floor drains, or sump holes. The floor conditions will be noted, and a potential location of a subsurface probe will be selected. The location will ideally be central to the building, and away from the foundation walls, apparent penetrations and buried pipes. Review all locations with the property owner or manager prior to drilling any hole! Photograph and document all sample locations.

2. In locations where bare concrete is available, drill a 5/8-inch diameter hole about one-inch (1") into the concrete using an electric hammer drill. Extend the hole through the remaining thickness of the slab using a ½ -inch drill bit. Lengthen the hole about three inches (3") beyond the sub-slab using the drill bit.

3. Remove the concrete dust within the 5/8-inch drilled hole and around the hole using wire brushes and a brush and dust pan, then dabbing the surface with Sculpey brand clay (see below).

4. Insert a 5/8-inch outside diameter (OD) by ¼-inch inside diameter (ID) rubber stopper onto and three-inches beyond the end of a 1/4-inch OD by 1/8-inch ID Teflon tube. Insert the Teflon tube into the 5/8-inch hole so the stopper is seated into the top of the ½-inch drilled hole.

5. Seal the annular space between the 5/8-inch hole and the Teflon tubing with white Sculpey Brand modeling clay (or equivalent). Bring the clay above the floor's surface and around the tubing in a volcano-like shape.

6. Purge the sampling tube by connecting the Teflon tubing to the inlet of an air-sampling pump (GilAir 300 or 500) with 3/8-inch OD silicone tubing and connecting a 1-liter (L) Tedlar bag to the outlet of the pump with silicone tubing. Purge approximately one liter (1L) of gas from the subsurface probe into the Tedlar bag, using the air-sampling pump. Analyze the 1L Tedlar bag containing the sub-slab purged air with a gas detector that records the concentrations of CH4, CO2 and O2. Record the purge times (start and stop) and the gas concentrations on a Summa Canister Sampling Field Data Sheet (Appendix A). Purging flow rates must not exceed 0.2 L/min.

7. Assign sample identification to the Summa® canister identification tag and record on chain of custody (COC), and the Summa Canister Sampling Field Data Sheet. Also record the Summa® canister's serial number on the Summa Canister Sampling Field Data Sheet.

8. Remove brass plug from canister fitting.

9. Attach a pre-calibrated/certified 24-hour flow controller, and particulate filter to the Summa® canister. Record the regulator serial number on the Summa Canister Sampling Field Data Sheet.

10. Attach the sample tube to the Summa® canister using a ¼-inch Swagelok® nut with appropriate ferrules, via the flow controller/particulate filter assembly.

11. Open canister valve to initiate sample collection and record sample start time, date and initial vacuum on the canister identification tag and on the Summa Canister Sampling Field Data Sheet. If the canister does not show sufficient vacuum (generally less than 25" Hg), do not use. Take a digital photograph of canister setup and surrounding area. Include in the photograph a dry erase board or similar display which presents sample ID and date.

12. After 24 hours, record sample end time and canister pressure on the Summa Canister Sampling Field Data Sheet, and close valve.

13. Disconnect the Teflon tubing and remove flow controller/particulate filter assembly from canister. Seal canister with brass plug.

14. Seal the hole in the basement slab with hydraulic cement patch.

15. Ship samples with COCs, overnight, to a NYSDOH approved laboratory, for analysis.

<u>Using Helium Tracer Gas to Test Floor Seals.</u>

1. Drill the concrete floor and attach and seal the Teflon sample tubing to the floor as described above.

2. Place a 2-quart (or similar size) bucket over the floor seal after threading the Teflon sample tube through a hole in the top of the bucket. Seal the tube to the bucket with clay.

3. The bucket should also have a hole in the top for the injection of helium gas. An additional hole should be present in the side, near the bottom, to measure the concentration of helium gas in the bucket.

4. Connect helium (99.999%) cylinder tubing to the top port of bucket enclosure and seal with clay or other sealing material. Insert a helium detector probe to the bottom port of the bucket.

5. Release enough helium to displace any ambient air in the bucket until the concentration of helium reaches a minimum of 90%. Maintain this minimum concentration by testing with a helium detector. The helium cylinder should be open during the purge time to cause a slight positive pressure within the enclosure.

6. Connect the sample tubing to a GilAir vacuum pump or equivalent using 3/8-inch O.D. silicone tubing. Connect a 1-liter Tedlar bag to the outlet of the pump using silicone tubing and collect a 1-

liter sample. Analyze the Tedlar bag for helium using a helium detector and record the results on the Summa Canister Sampling Field Data Sheet. Also analyze the Tedlar bag for the presence of organic vapors using a PID and record the result on the Summa Canister Sampling Field Data Sheet. A concentration of helium 10% or greater indicates a poor seal of the sample tubing to the basement floor. The tubing must be resealed to the floor and another helium test conducted.

7. Purging flow rates must not exceed 0.2 L/min.

8. After purging, remove the bucket enclosure and assign sample identification to the Summa® canister identification tag and record on the COC, and the Summa Canister Sampling Field Data Sheet. Also record the Summa® canister's serial number on the Summa Canister Sampling Field Data Sheet.

9. Connect the 1/4-inch Teflon OD sample tubing to the Summa® canister regulator inlet using a ¼-inch Swagelok® nut with appropriate ferrules. Open the canister valve to initiate sample collection and record the start time and date and beginning vacuum on the canister identification tag and on the Summa Canister Sampling Field Data Sheet. If the canister does not show sufficient vacuum (generally less than 25" Hg), do not use.

10. After 24 hours, record sample end time and final vacuum on the Summa Canister Sampling Field Data Sheet and close the valve.

11. Disconnect the Teflon tubing from the Summa® canister and remove the flow controller/particulate-filter assembly from canister. Seal canister with brass plug.

12. Remove the sample tubing, stopper and clay from the hole in the basement slab and seal with hydraulic cement patch.

13. Ship the samples, with COCs, to a selected lab, for analysis.

During the sampling, the initial and final vacuum readings of each canister will be noted in a Field Form. In addition, smoke tubes will be used during the sub-slab sampling to confirm pressure relationships and airflow patterns, especially between floor levels and sub-slab. Upon completion of the sample collection and screening steps, each penetration hole advanced through the slab will be patched with cement or will be repaired to restore pre-sampling conditions.

4.2.3 Indoor and Outdoor Air Sampling

Indoor air samples are proposed to be collected within the basements, if present, and the first floors of each of the structures. In addition, an outdoor ambient air sample will be collected concurrently with the indoor air samples to determine the extent to which outdoor sources may be influencing indoor air quality within the sampling area.

As specified in the SVI Guidance (NYSDOH, 2006), to reduce the potential for interference and dilution effects, the occupants of the buildings to be sampled will be requested to refrain from the activities listed below for the 24-hour period prior to and during the ambient air sampling collection:

- Opening any windows, fireplace dampers, openings or vents;

- Operating any ventilation fans unless special arrangements are made;
- Smoking in the building;
- Painting;
- Using an auxiliary heating equipment (e.g., kerosene heater);
- Operating or storing an automobile in the building;
- Allowing containers of gasoline or oil to remain within the building, except for fuel oil tanks;
- Cleaning, waxing or polishing furniture, floors or other woodwork with petroleum or oil-based products;
- Using air fresheners, scented candles or odor eliminators;
- Using cosmetics including hairspray, nail polish, nail polish removers, perfume/cologne, etc.;
- Lawn mowing, paving with asphalt, or snow blowing;
- Applying pesticides; and,
- Using building repair or maintenance products, such as caulk or roofing tar.

If sub-slab soil vapor sampling is being performed, indoor air and outdoor air samples will be collected concurrently.

Sampling procedures for the indoor samples and outdoor air sample are summarized below:

1. Place the basement and first floor Summa® canisters at breathing height in a high traffic location. The breathing height is defined as three to six feet above the floor. Place the outdoor air sample at least 2 to three feet above the ground.

2. Record the canister's serial number on the Summa Canister Sampling Field Data Sheet.

3. Assign sample identification to the canister identification tag (see Section 10.3.1 below) and record on the COC and the Summa Canister Sampling Field Data Sheet.

4. Remove brass plug from canister fitting.

5. Attach a pre-calibrated/certified 24-hour flow controller and particulate filter to the Summa® canister, open valve completely to initiate sampling, and record the sample start time and date, and beginning vacuum reading on the canister identification tag and the Summa Canister Sampling Field Data Sheet. Also record the regulator serial number on the Summa Canister Sampling Field Data Sheet. If the canister does not show sufficient vacuum (generally less than 25" Hg), do not use.

6. Take a digital photograph of canister setup and surrounding area. Include a dry erase board or similar display which presents sample ID and date.

7. After 24 hours, record end time and pressure on the Summa Canister Sampling Field Data Sheet, and close valve.

8. Disconnect flow controller/particulate filter assembly from canister.

9. Seal canister with brass plug.

10. Ship canister standard overnight, with COC, to a NYSDOH approved laboratory, for analysis.

4.2.4 Site Restoration

If necessary, upon completion of soil vapor or sub-slab soil vapor sampling, an AECOM subcontractor will repair the carpet/floor tile to restore the work area to its previous conditions. The nature and extent of site restoration that will be required upon completion of the VI sampling will be determined on a case-by-case basis.

4.2.5 Soil Vapor Sample Analytical Requirements

AECOM will use a NYSDOH Wadsworth Environmental Laboratory Accreditation Program (ELAP) laboratory certified for the air and emissions category. The Summa® canisters will be certified clean (batch certification) by the laboratory. Air samples are typically analyzed for VOCs by USEPA Method TO-15.

For indoor air samples and outdoor air samples, the required detection limit for trichloroethene (TCE), 1,1-dichloroethene, cis-1,2-dichloroethene, carbon tetrachloride, and vinyl chloride (the “Matrix A” and “Matrix C” compounds) is 0.20 micrograms per cubic meter ($\mu g/m^3$). For the remaining compounds, the reporting limit will be 1.0 $\mu g/m^3$ (sub-slab soil vapor, indoor air and outdoor air samples).

4.2.6 Decontamination Procedures

Only dedicated equipment (canisters, tubing, etc.) will be used during sampling. All non-dedicated equipment (i.e. flow meters, etc.) will be purged with air prior to sampling. As such, no field decontamination is necessary for air sampling. Summa canisters will be decontaminated by the analytical laboratory and certification of cleanliness will be included in the analytical data report.

5.0 Decontamination and Management of Investigation Derived Waste

5.1 Equipment Decontamination

To avoid cross contamination, sampling equipment (defined as any piece of equipment which may contact a sample) will be decontaminated according to the following procedures specified in this FAP; the procedures discussed here are general and may be superseded by project-specific requirements. Field equipment rinsate blanks are generated and analyzed to monitor the effective of field decontamination procedures.

Cross contamination is minimized by the use of vendor-decontaminated, dedicated, disposable equipment to the extent practical.

5.1.1 Small Equipment Decontamination

Small equipment decontamination for non-disposable equipment such as probes and cables, will be accomplished using the following procedures:

- Alconox (or equivalent) and potable water wash;
- Potable water rinse;
- Distilled/deionized water rinse;

Solvents will not be used in the field decontamination of such equipment. Decontamination will include scrubbing/washing with a laboratory grade detergent (e.g. Alconox) to remove visible contamination, followed by potable (tap) water and analyte-free water rinses. Tap water may be used from any treated municipal water system; the use of an untreated potable water supply is not an acceptable substitute.

Equipment should be allowed to dry prior to use.

Electric submersible pumps (such as a Grundfos Redi-Flow II) will be decontaminated using the above steps followed by running a large volume (several gallons) of potable water through the pump, followed by an analyte-free water rinse. Tubing will not be re-used (new tubing will be used for each well). Submersible pumps and supporting lines and cables will be placed in a plastic bucket filled with Liquinox and potable water and then run for several minutes (to decontaminate both exterior and interior parts). The process will be repeated with potable water. Submersible pumps will also be given a final analyte-free water rinse of both interior and exterior parts.

If bladder pumps are used, the pump will be disassembled and cleaned after each used. A new bladder will be used for each sample. Small parts, such as screens and gaskets will be replaced after

each use. Dedicated airline tubing and Teflon sample tubing will be used at each monitoring well. The pump will be cleaned using the following steps:

- Alconox (or equivalent) and potable water wash;
- Potable water rinse;
- Distilled/deionized water rinse;
- Solvent (reagent or pesticide grade) rinse if samples are collected for organic analysis;
- Dilute (10%) nitric acid rinse if samples are collected for metals analysis; and
- Distilled/deionized rinse, air dry.

5.1.2 Personnel Decontamination

Details of the personnel decontamination procedures will be provided in the HASP.

5.2 Management of Investigation Derived Waste

Investigation-derived waste (IDW) management will be in accordance with section 3.3(3e) of DER-10 (NYSDEC, 2010). The sampling methods and equipment will be selected to limit both the need for decontamination and the volume of IDW.

IDW generated during field activities include, but is not limited to, the following:

- Purge water; and
- PPE.

This IDW must be placed in 1A2 open head 55-gallon steel drums pending shipment off site for disposal.

Procedure:

Segregation

Drummed IDW is to be divided into the following categories:

- Purgewater from monitoring well development/sampling and DNAPL/LNAPL product; and,
- Solid waste other than drill cuttings and boring spoils (i.e., spent poly tubing, PPE, etc.).

Generator ID

Any IDW generated is assigned USEPA Generator ID Number TBD.

Hazardous/Non-Hazardous Classification

AECOM will collect characterization samples to classify the IDW as either hazardous or non-hazardous.

Shipment/Disposal

Drummed IDW must be staged at its point of origin until it is shipped off site on the same day it's generated or staged in a designated and secured area until it can be shipped off site at a later date.

All IDW must be shipped off site by a permitted contractor to a permitted facility and may be disposed of at a facility licensed to accept hazardous waste, if necessary.

Manifests

Waste manifests must accompany the IDW during shipment off site for disposal. For non-hazardous waste, a non-hazardous waste manifest must be completed. For hazardous waste, a Uniform Hazardous Waste Manifest (USEPA Form 8700-22) must be completed, along with a Land Disposal Restriction Notification Form 1. IDW manifests can be signed by AECOM personnel as agents for the generator (NYSDEC).

6.0 Community Air Monitoring Program

A Community Air Monitoring Plan (CAMP) is used to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities.

The protocols cited below are based on the NYSDOH Generic CAMP (May, 2010; Appendix 1A to DER-10 [NYSDEC, 2010]) which is typically utilized by NYSDEC as guidance for work conducted under these contracts.

6.1 Monitoring

Real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter and surrounding community of the work area may be necessary when intrusive activities are performed. Monitoring activities will consist of a combination of continuous and periodic monitoring, which will be performed dependent upon the type of activity being conducted at the site, as discussed below.

The specific types of monitoring necessary and appropriate for any particular fieldwork will be determined by NYSDEC and the contractor.

6.1.1 Continuous Air Monitoring

Continuous monitoring for VOCs and particulates may be required for ground intrusive activities associated with the site, including, but not limited to, the installation of soil borings and groundwater monitoring wells.

VOC monitoring will be conducted at the downwind perimeter of the immediate work area on a continuous basis. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. VOC monitoring will be performed using a MiniRAE 2000 or equivalent, which is appropriate to detect a wide range of contaminants typically encountered. The MiniRAE 2000 will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The MiniRAE 2000 is capable of calculating 15-minute running average concentrations, which will be compared to the action levels specified below.

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work area at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) such as a Thermo MIE pDR-4000 DataRam or equivalent. The Thermo MIE pDR-4000 DataRam is a real-time monitoring equipment capable of measuring particulate matter less than 10 microns (µm) in size [PM-10] and capable of integrating over a period of 15 minutes for comparison to the airborne particulate action level. The Thermo MIE pDR is equipped with an audible alarm to indicate exceedance of the action level. In addition to using the Thermo MIE pDR-4000 DataRam, fugitive dust migration will be visually assessed during work activities. If particulate concentrations at the upwind station are higher or equivalent to concentrations at or downwind of work areas, then continuous air monitoring may be discontinued, as approved by NYSDEC.

6.1.2 Periodic (As-Needed) Air Monitoring

Periodic or as-needed air monitoring for VOCs may be required during non-intrusive activities associated with the Site Management Plan. Non-intrusive activities may include the collection of groundwater samples from existing monitoring wells, and the collection of indoor air and soil vapor samples. Periodic air monitoring during sample collection will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location.

6.2 Action Levels and Response

This subsection identifies the action levels and corresponding responses for concentrations of VOCs and particulates detected during the field activities associated with a site.

6.2.1 Volatile Organic Compounds

If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will

be temporarily halted, and monitoring will continue. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.

If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be stopped, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 ft downwind of the work zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less (but in no case less than 20 ft), is below 5 ppm over background for the 15-minute average.

If the organic vapor level is above 25 ppm at the perimeter of the work area, field activities will be shut down.

All 15-minute readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. Instantaneous readings (if any) used for decision purposes will also be recorded.

6.2.2 Particulates

If the downwind PM-10 particulate level is 100 µg/m^3 greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, the downwind PM-10 particulate levels are greater than 150 µg/m^3 above the upwind level, work will be stopped, and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

Similar to the VOC readings, particulate readings will be recorded and be available for state (NYSDEC and NYSDOH) and county health personnel to review.

7.0 Field Records and Documentation

The objective of this subsection is to provide consistent procedures and formats by which field records will be kept and activities documented, and a methodology by which field records will be managed. Field records and documentation to be used during field activities include Field Log Books and Standard Forms. Standard Forms are provided in Appendix A.

7.1 Field Log Books

Field log books will be prepared and maintained throughout the course of the investigation**. O**nly bound, weatherproof field log books will be used by personnel working on NYSDEC projects. The log books will be turned in for copying/filing/tracking when complete.

Each log book will be labeled on the front cover in indelible ink with the applicable designation: "Site Name/Project Type, NYSDEC Work Assignment, Project Number."

Log book entries will be recorded in indelible, waterproof ink. If errors are made in any field log book, field record (form), Chain-of-Custody Record, or any other field record document, corrections will be made by crossing a single line through the error, entering the correct information, and initialing and dating the correction.

Standard Forms have been adopted in this FAP to facilitate the collection of consistent data (see Appendix A). This will preclude detailed documentation of, for example, lithologic descriptions in the field log book. A reference, however, to use of each specific form must be made in the log book.

The date will be placed at the top of every page in the left-hand corner of the right page. The time of entry recordings will be in columnar form down the left-hand side of the right page. If an entry is made in a non-dedicated log book, then the date, project name, and project number will be entered left to right, respectively, along the top of the right page. Entries should be dated, and time of entry recorded. At the beginning of each day, the first two entries will be "Personnel/Contractors On Site" and "Weather." At the end of each day's entry or particular event, if appropriate, the person entering the field notes should draw a diagonal line originating from the bottom left corner of the page to the conclusion of the entry and sign along the line indicating the conclusion of the entry or the day's activity.

Entries in field log books will be legible (printing is preferable) and will contain accurate and inclusive documentation of project activities (investigation, monitoring remediation, closure, maintenance, etc.). Information pertaining to health and safety aspects, personnel on site, visitor's names, association, and time of arrival/departure, etc., should also be recorded. Language should be objective, factual, and free of personal feelings or other terminology that

might prove inappropriate, since field records are the basis for later written reports. Once completed, these field log books become accountable documents and must be maintained as part of the project files.

Sample collection and handling activities, as well as visual observations, will be documented in the field log books. The sample collection equipment (where appropriate), field analytical equipment, and equipment used to make physical measurements will be identified in the field log books. Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment will also be recorded in the field log books, except where these are referenced as being recorded on approved field forms. Field analyses and measurements must be traceable to the specific piece of field equipment utilized and to the field investigator collecting the sample, making the measurement, or conducting analyses. Log books will be updated as field work progresses.

On a periodic basis (i.e., daily, weekly, etc.), or at the end of each field event, the pages of the field log book that were filled out during that time will be scanned into PDF format. The resulting PDF files will then be uploaded to the project folder located on the office server.

When an individual log book is full, the log book will be submitted to the project manager for final cataloging and filing. The log books will be stored in the Project File. Copies of specific sections will be made available to personnel upon request.

7.2 Standard Forms

All non-bound field records (e.g., drilling logs, well construction forms, sampling logs, etc.) will be completed the day the associated activity occurs. Field data collected using electronic data loggers or computer entry forms, will be downloaded as soon as practical onto CDs and/or uploaded to office servers. If possible, the person collecting the data will download electronic data on a daily basis. This person will be responsible for verifying that the data collected are adequately represented in electronic media and in the file. Examples of forms typically used are provided in Appendix A of this FAP.

On a periodic basis (i.e., daily, weekly, etc.), or at the end of each field event, the field forms that were completed during that time will be scanned into PDF format. The resulting PDF files will then be uploaded to the project folder located on the office server.

7.3 Sample Identification

During this project, a unique sample identifier will designate each sample collected. The following system may be used to assign unique sample identification numbers; however, modifications should be made as needed to clearly and appropriate identify samples for each site or project. Each sample will be identified by an alphanumeric character identifier, as described below.

The following codes will be used for identifying other sample types:

CODE	Sample Type
MW	Monitoring well
IA	Indoor air
OA (or AA)	Outdoor (or ambient) air
FB	Field (Rinsate) Blank
N + 50	Field Duplicate (e.g., field duplicate of MW-3S will be MW-53S)
TB	Trip Blank
MS/MSD	Matrix Spike/ Matrix Spike Duplicate

Field blanks and tip blanks will be labeled for the day of collection. For MS/MSD samples, the MS/MSD will be added to the sample ID and included on the COC as a note.

An example of the sample numbering system is provided below.

Sample Identifier	Description
MW-1S	Shallow well MW-1S
MW-101D	Deep monitoring well MW-101D
FBW210502	Field blank associated with water samples collected on 5/2/21
TB210503	Trip blank associated with samples shipped 5/3/21.

7.3.1 Vapor Intrusion Samples Procedure

Each indoor air sample will have the following information placed on the laboratory supplied sample label:

- Site name
- Sample identification – see below
- Date/time
- Sampler's initials
- Analysis required – (i.e. **TO-15)**

The serial number of the canister and regulator used during sampling will also be noted on the Summa® canister identification tag and on the COC.

The following terminology shall be used for the structure sample identification (using site 704015 as an example):

- Structure Air Samples
- 704015-SS-xx (for sub-slab locations)

- 704015-BA-xx (for basement indoor ambient air)
- 704015-FF-xx (for first floor indoor air)
- 704015-OA-xx (for outdoor ambient air)

Where xx is the NYSDEC assigned structure identification number. Note: If multiple sub-slab samples in a single residence, they are identified as SSA, SSB, SSC, etc.

Field duplicate samples will be assigned a unique identification alphanumeric code that specifies the date of collection, the letters FD (for field duplicate) and an ascending number that records the number of duplicate samples collected that day. For example, the first field duplicate collected on January 22, 2018 would be assigned the following sample number using the code shown below:

YYYYMMDD-FD-1 = 20180122-FD-1

Subsequent duplicates collected on the same day would be assigned FD-2, FD-3 etc. Field sampling crew will record the duplicate sample information on the Summa Canister Sampling Field Data Sheets and also in the field book. A unique sample identifier will designate each sample collected.

7.4 Sample Labeling

A non-removable label will be affixed to each sample container. Labels will be marked with permanent marker pens. The following information will be contained on each label:

Project name;

Sample identifier;

Company;

Sample date and time;

Sampler's initials;

Sample preservation; and

Analysis required.

7.5 Sample Shipping

Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody procedures. Chain-of-custody procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures should follow the chain-of-custody guidelines outlined in NEIC Policies and Procedures, prepared by the National Enforcement Investigations Center (NEIC) of the U.S. Environmental Protection Agency Office of Enforcement.

Procedure:

1. The chain-of-custody (COC) record (Appendix A) should be completely filled out, with all relevant information.
2. The original COC goes with the samples. It should be placed in a Ziploc bag and taped inside the sample cooler. The sampler should retain a copy of the COC.
3. Place inert cushioning material such as vermiculite or bubble-wrap in the bottom of the cooler.
4. Place the bottles in the cooler in such a way that they do not touch (use cardboard dividers or bubble-wrap).
5. Wrap VOA vials securely in bubble-wrap and tape. Place them in the center of the cooler.
6. With the exception of Summa® canisters, pack the cooler with ice in doubled Ziploc plastic bags.
7. Pack the cooler with cushioning material.
8. Tape the drain shut.
9. Wrap the cooler completely with strapping tape at two locations securing the lid. Do not cover any labels.
10. Place the lab address on top of cooler. For out-of-town laboratory, add the following: Put "This side up" labels on all four sides and "Fragile" labels on at least two sides. Affix numbered custody seals on front right and left of cooler. Cover seals with wide, clear tape.
11. Summa® canisters are shipped in the same boxes the laboratory used for shipping.
12. Ship samples via overnight carrier the same day that they are collected. Samples (except Summa® canisters) must be maintained at 4 degrees Celsius (C) ± 2ºC throughout the shipping duration.

8.0 References

ASTM D4750-87(2001). *Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)*.

ASTM D5299/D5299M-18. *Standard Guide for Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities*.

ASTM D7663-12(2018). *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapor Intrusion Evaluations*.

New York State Department of Environmental Conservation (NYSDEC), 2008. NYSDEC Modifications to EPA Region 9 TO-15 QA/QC Criteria. February 2008.

NYSDEC, 2009. CP-43 Groundwater Monitoring Well Decommissioning Policy. November 3, 2009.

NYSDEC, 2010. DER-10 Technical Guidance for Site Investigation and Remediation. May 3, 2010.

New York State Department of Health (NYSDOH), 2006. Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Final. October 2006.

USEPA, 1998. Region II Sampling SOP - Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling. March 16, 1998.

USEPA, 2002. Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers. OSWER. Douglas Yeskis and Bernard Zavala. EPA 542-S-02-001. May 2002.

Tables

Table 1
Lapp Insulator Site Field Activity Plan
Leroy, Genesee County, New York
Sample Bottle, Volume, Preservation, and Holding Time Summary

MATRIX/ANALYSIS	Sample Prep Method [1]	Analytical Method [(2)]	Sample Bottles (3)				Minimum	Preservation	Holding Time (4, 5)		Comment
			Mat'l	Size	Qty	Source	Vol Rqd	(4)	Extraction	Analysis	
Aqueous Samples											
Volatile Organics	SW 846 5030B	SW 846 8260C	G	40 mL	2 or 3	Lab	40 mL	HCl to pH ≤ 2	NA	14 days	7 days if not preserved.
1,4-Dioxane	SW 846 3510C/3520C/3535A	SW846 8270D SIM	G	1 L	2	Lab	1,000 mL	None	7 days	40 days	

(1) Laboratory may propose alternate extraction/preparation methods, subject to AECOM approval.
(2) More recent versions of SW-846 methods may be used subject to AECOM approval.
(3) Bottles typical. EnCore samplers for VOCs in soil will be provided by laboratory or AECOM on a case-by-case basis.
(4) All samples for chemical analysis should be held at 4 degrees C in addition to any chemical preservation required.
(5) Holding time calculated from day of collection, unless noted as being from time of extraction.
G = Glass
SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. USEPA SW-846. Complete through Update IV, March 2009.

`

Table 2
Lapp Insulator Site Field Activity Plan
Leroy, Genesee County, New York
Reporting Limits and QA/QC Sample Quantity Summary

MATRIX/ANALYSIS	Analytical Method	Laboratory	Reporting Limit - Typical (units as specified)	Field Sample Quantity [1]	Matrix Spike (MS)	MS Duplicate or Matrix Duplicate	Field Duplicate	Equipment Blank [2]	Trip Blank	Total Number of Samples
Aqueous Samples										
Volatile Organics	SW 846 8260C	TBD	0.5 - 1.0 µg/L (typical)	13	1	1	1	1	1	18
1,4-Dioxane	SW846 8270D SIM	TBD	0.21 µg/L	13	1	1	1	1	0	17

TBD = To be determined.

Notes

1 QC quantities shown are typical requirements for each group of 20 or fewer field samples.

2 Field equipment rinsate blank quantity will vary depending on sample collection rate and types of sampling equipment used; quantity may be greater or less than that shown. Equipment blanks are not required when using dedicated sampling equipment at each well location.

Figures


N
EAST BETHANY LEROY ROAD
SR-101
SR-001
SR-004
BRW-02
SR-104
SR-108
IR-104
SR-002
DR-105
SR-005
SR-105
SR-006
BRW-01
SR-106
SR-003
Legend
Monitoring Well
Injection Point
SOURCE: ESRI World Imagery
100 0 100 Feet
LAPP INSULATOR
GROUNDWATER
INJECTION AREAS AND
MONITORING WELL LOCATIONS
AECOM
FIGURE 1
J:\Projects\11176787\GIS\Maps\GW Injection Pts & MWs_REV.mxd 10/15/2020

Appendix A

Field Activity Forms

CHAIN OF CUSTODY RECORD

AECOM

PROJECT NO. | SITE NAME

SAMPLERS (PRINT/SIGNATURE)

LAB _____

COOLER _____ of _____

PAGE _____ of _____

DELIVERY SERVICE: _____ AIRBILL NO.: _____

LOCATION IDENTIFIER	DATE	TIME	COMP/ GRAB	SAMPLE ID	MATRIX	TOTAL NO. # OF CONTAINERS	TESTS / BOTTLE TYPE AND PRESERVATIVE	REMARKS	SAMPLE TYPE	BEGINNING DEPTH (IN FEET)	ENDING DEPTH (IN FEET)	FIELD LOT NO.# (IRPIMS ONLY)

MATRIX CODES

AA - AMBIENT AIR; SE - SEDIMENT; SH - HAZARDOUS SOLID WASTE; SL - SLUDGE; WP - DRINKING WATER; WW - WASTE WATER; WG - GROUND WATER; SO - SOIL; DC - DRILL CUTTINGS; WL - LEACHATE; GS - SOIL GAS; WC - DRILLING WATER; WO - OCEAN WATER; WS - SURFACE WATER; WQ - WATER FIELD QC; LH - HAZARDOUS LIQUID WASTE; LF - FLOATING/FREE PRODUCT ON GW TABLE

SAMPLE TYPE CODES

TB# - TRIP BLANK; SD# - MATRIX SPIKE DUPLICATE; RB# - RINSE BLANK; FR# - FIELD REPLICATE; N# - NORMAL ENVIRONMENTAL SAMPLE; MS# - MATRIX SPIKE

(# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME

SPECIAL INSTRUCTIONS

Distribution: Original accompanies shipment, copy to coordinator field files

AIR SAMPLE
CHAIN OF CUSTODY RECORD

AECOM CONTACT: _____

PROJECT NUMBER	SITE NAME
SAMPLERS (PRINT/SIGNATURE)	

DELIVERY SERVICE: _____ AIRBILL NO.: _____

LAB _____

SHIPPING CONTAINER _____ of _____

PAGE _____ of _____

LOCATION IDENTIFIER	SAMPLE DATE	SAMPLE TIME	SAMPLE ID	MATRIX CODE	CANISTER SIZE (LITERS)	SAMPLE INFORMATION: CANISTER ID	FLOW CONTROLLER ID	INITIAL PRESSURE/ VACUUM (" Hg)	FINAL PRESSURE/ VACUUM (" Hg)	PRESSURE/VACUUM UPON LAB RECEIPT (" Hg)	REQUIRED ANALYSIS			REMARKS	SAMPLE TYPE CODE

MATRIX CODES	AA - AMBIENT AIR	AI - INDOOR AIR	AQ - FIELD QC	AS - SUB-SLAB AIR	GS - SOIL GAS
SAMPLE TYPE CODES	N# - NORMAL ENVIRONMENTAL SAMPLE	FD# - FIELD DUPLICATE	MS# - MATRIX SPIKE	(# - SEQUENTIAL NUMBER (FROM 1 TO 9) TO ACCOMMODATE MULTIPLE SAMPLES IN A SINGLE DAY)	

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED FOR LAB BY (SIGNATURE)	DATE	TIME	

Distribution: Original accompanies shipment, copy to project file

WELL PURGING LOG

AECOM

PROJECT TITLE: _____ WELL NO.: _____

PROJECT NO.: _____

STAFF: _____

DATE(S): _____

			WELL ID.	VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTH (FT.)	=		1"	0.04
2. WATER LEVEL BELOW TOP OF CASING (FT.)	=		2"	0.17
3. NUMBER OF FEET STANDING WATER (#1 - #2)	=	0.00	3"	0.38
4. VOLUME OF WATER/FOOT OF CASING (GAL.)	=	0.17	4"	0.66
5. VOLUME OF WATER IN CASING (GAL.)(#3 x #4)	=	0.00	5"	1.04
6. VOLUME OF WATER TO REMOVE (GAL.)(#5 x 3)	=	0.00	6"	1.50
7. VOLUME OF WATER ACTUALLY REMOVED (GAL.)	=		8"	2.60

OR

$V=0.0408 \times (\text{CASING DIAMETER})^2$

	ACCUMULATED VOLUME PURGED (GALLONS)										
PARAMETERS											
pH											
SPEC. COND. (umhos)											
APPEARANCE											
TEMPERATURE (°C)											

COMMENTS:

LOW FLOW GROUNDWATER PURGING/SAMPLING LOG

Project: _____ Site: _____ Well I.D.: _____

Date: _____ Sampling Personnel: _____ Company: AECOM

Purging/ Sampling Device: _____ Tubing Type: _____ Pump/Tubing Inlet Location: Screen midpoint

Measuring Point: Below Top of Riser Initial Depth to Water: _____ Depth to Well Bottom: _____ Well Diameter: _____ Screen Length: _____

Casing Type: PVC Volume in 1 Well Casing (liters): _____ Estimated Purge Volume (liters): _____

Sample ID: _____ Sample Time: _____ QA/QC: _____

Sample Parameters: _____

PURGE PARAMETERS

TIME	pH	TEMP (^{0}C)	COND. (mS/cm)	DISS. O_2 (mg/l)	TURB. (NTU)	Eh (mV)	FLOW RATE (ml/min.)	DEPTH TO WATER (btor)
Tolerance:	**0.1**	**---**	**3%**	**10%**	**10%**	**+ or - 10**	**---**	

Information: WATER VOLUMES--0.75 inch diameter well = 87 ml/ft; 1 inch diameter well = 154 ml/ft; 2 inch diameter well = 617 ml/ft; 4 inch diameter well = 2470 ml/ft ($vol_{cyl} = \pi r^2 h$)

Remarks:

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: _____ Site Code: _____ Operable Unit: _____

Building Code: _____ Building Name: _____

Address: _____ Apt/Suite No: _____

City: _____ State: _____ Zip: _____ County: _____

Contact Information

Preparer's Name: _____ Phone No: _____

Preparer's Affiliation: _____ Company Code: _____

Purpose of Investigation: _____ Date of Inspection: _____

Contact Name: _____ Affiliation: _____

Phone No: _____ Alt. Phone No: _____ Email: _____

Number of Occupants (total): _____ Number of Children: _____

☐ Occupant Interviewed? ☐ Owner Occupied? ☐ Owner Interviewed?

Owner Name (if different): _____ Owner Phone: _____

Owner Mailing Address: _____

Building Details

Bldg Type (Res/Com/Ind/Mixed): _____ Bldg Size (S/M/L): _____

If Commercial or Industrial Facility, Select Operations:

If Residential Select Structure Type:

Number of Floors: _____ Approx. Year Construction: _____ ☐ Building Insulated? ☐ Attached Garage?

Describe Overall Building 'Tightness' and Airflows(e.g., results of smoke tests):

Foundation Description

Foundation Type: _____ Foundation Depth (bgs): _____ Unit: FEET

Foundation Floor Material: _____

Foundation Wall Material: _____

Foundation Floor Thickness: _____

Foundation Wall Thickness: _____ Unit: INCHES

☐ Floor penetrations? Describe Floor Penetrations: _____

☐ Wall penetrations? Describe Wall Penetrations: _____

Basement is: _____ Basement is: _____ ☐ Sumps/Drains? Water In Sump?: _____

Describe Foundation Condition (cracks, seepage, etc.) : _____

☐ Radon Mitigation System Installed? ☐ VOC Mitigation System Installed? ☐ Mitigation System On?

Heating / Cooling / Ventilation Systems

Heating System: _____ Heat Fuel Type: _____ ☐ Central A/C Present?

Vented Appliances

Water Heater Fuel Type: _____ Clothes Dryer Fuel Type: _____

Water Htr Vent Location: _____ Dryer Vent Location: _____

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

PRODUCT INVENTORY

Building Name: _____ Bldg Code: _____ Date: _____

Bldg Address: _____ Apt/Suite No: _____

Bldg City/State/Zip: _____

Make and Model of PID: _____ Date of Calibration: _____

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients	PID Reading	COC Y/N?
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: _____ Site Code: _____ Operable Unit: _____

Building Code: _____ Building Name: _____

Address: _____ Apt/Suite No: _____

City: _____ State: _____ Zip: _____ County: _____

Factors Affecting Indoor Air Quailty

Frequency Basement/Lowest Level is Occupied?: _____ Floor Material: _____

☐ Inhabited? ☐ HVAC System On? ☐ Bathroom Exhaust Fan? ☐ Kitchen Exhaust Fan?

Alternate Heat Source: _____ ☐ Is there smoking in the building?

☐ Air Fresheners? Description/Location of Air Freshener: _____

☐ Cleaning Products Used Recently?: Description of Cleaning Products: _____

☐ Cosmetic Products Used Recently?: Description of Cosmetic Products: _____

☐ New Carpet or Furniture? Location of New Carpet/Furniture: _____

☐ Recent Dry Cleaning? Location of Recently Dry Cleaned Fabrics: _____

☐ Recent Painting/Staining? Location of New Painting: _____

☐ Solvent or Chemical Odors? Describe Odors (if any): _____

☐ Do Any Occupants Use Solvents At Work? If So, List Solvents Used: _____

☐ Recent Pesticide/Rodenticide? Description of Last Use: _____

Describe Any Household Activities (chemical use,/storage, unvented appliances, hobbies, etc.) That May Affect Indoor Air Quality:

☐ Any Prior Testing For Radon? If So, When?: _____

☐ Any Prior Testing For VOCs? If So, When?: _____

Sampling Conditions

Weather Conditions: _____ Outdoor Temperature: _____ °F

Current Building Use: _____ Barometric Pressure: _____ in(hg)

Product Inventory Complete? _____ ☐ Building Questionnaire Completed?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Building Code: _____ Address: _____

Sampling Information

Sampler Name(s): _____ Sampler Company Code: _____

Sample Collection Date: _____ Date Samples Sent To Lab: _____

Sample Chain of Custody Number: _____ Outdoor Air Sample Location ID: _____

SUMMA Canister Information

Sample ID:					
Location Code:					
Location Type:					
Canister ID:					
Regulator ID:					
Matrix:					
Sampling Method:					

Sampling Area Info

Slab Thickness (inches):					
Sub-Slab Material:					
Sub-Slab Moisture:					
Seal Type:					
Seal Adequate?:	☐	☐	☐	☐	☐

Sample Times and Vacuum Readings

Sample Start Date/Time:					
Vacuum Gauge Start:					
Sample End Date/Time:					
Vacuum Gauge End:					
Sample Duration (hrs):					
Vacuum Gauge Unit:					

Sample QA/QC Readings

Vapor Port Purge:	☐	☐	☐	☐	☐
Purge PID Reading:					
Purge PID Unit:					
Tracer Test Pass:	☐	☐	☐	☐	☐

Sample start and end times should be entered using the following format: MM/DD/YYYY HH:MM

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

LOWEST BUILDING LEVEL LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the lowest building level .
The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image

Design Sketch

Design Sketch Guidelines and Recommended Symbology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sket
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or **F**	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	**xxxxxxx**	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	**######**	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

FIRST FLOOR BUILDING LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the first floor of the building.
The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image

Design Sketch

Design Sketch Guidelines and Recommended Symbology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sket
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or **F**	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	**xxxxxxx**	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	**######**	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

OUTDOOR PLOT LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the outdoor plot of the building as well as the surrounding area. The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image

Design Sketch

Design Sketch Guidelines and Recommended Symbology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sket
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or **F**	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	**xxxxxxx**	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	**######**	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.

Summa Canister Data Sheet

Site:

Samplers:

Date:

Sample #					
Location					
Summa Canister ID					
Flow Controller ID					
Additional Tubing Added	NO/ YES - How much	NO/ YES - How much	NO/ YES - How much	NO/ YES - How much	NO/ YES - How much
Purge Time (Start)					
Purge Time (Stop)					
Total Purge Time (min)					
Purge Volume					
Initial Tracer Gas Results					
CH4 (ppm)					
O2 (%)					
H2S (ppm)					
CO2 (ppm)					
Pressure Gauge - before sampling					
Sample Time (Start)					
Sample Time (Stop)					
Total Sample Time (min)					
Pressure Gauge - after sampling					
Sample Volume					
Canister Pressure Went To Ambient Pressure?	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO
Final Tracer Gas Results					
Weather 24 hours before and during sampling					

General Comments:

AECOM

DATE:

DAY	S	M	T	W	TH	F	S

DAILY CONSTRUCTION REPORT

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70	70-85	85 and up
WIND	Still	Moder	High	Report No.	
HUMIDITY	Dry	Moder	Humid		

PROJECT:

CONTRACTOR:

AECOM JOB No.:

AECOM PROJECT MANAGER:

AVERAGE FIELD FORCE

Name of Contractor	Non-manual	Manual	Remarks

VISITORS

Time	Representing	Representing	Remarks

EQUIPMENT AT THE SITE:

CONSTRUCTION ACTIVITIES:

See attached photos

Sheet: 1 of

☐X - designates info on backside of page

By: _____ Title: _____

Reviewed by: _____ Title: _____

DAILY CONSTRUCTION REPORT (cont'd)

REPORT No.:_________________________________

PROJECT:
CONTRACTOR:
AECOM JOB No.: **DATE:**

CONSTRUCTION ACTIVITIES (cont'd):

Sheet: of

By: Title:
Reviewed by: Title:

APPENDIX H

INSPECTION FORMS

LAPP INSULATOR SITE
NYSDEC SITE NO. 081917
SITE-WIDE INSPECTION FORM
(PAGE 1 of 2)

GENERAL INFORMATION

Date:		**Inspector:**	
Weather:		**Signature:**	
Temperature:		**Company:**	
Season (circle one): Winter Spring Summer Fall			

SITE INSPECTION LOG SHEET

Evidence of Disturbance(s) (Y/N):		**Description of Disturbance(s):***	
Evidence of Demolition (Y/N):		**Description of Demolition:***	
Evidence of Building Construction (Y/N):		**Description of Building Construction:***	
Evidence of site use change (Y/N):		**Description of New/Additional Site Use:***	
Comments:			

* Attach map showing locations and any other information as required.

LAPP INSULATOR SITE
NYSDEC SITE NO. 081917
SITE-WIDE INSPECTION FORM
(PAGE 2 of 2)

WELL INSPECTION LOG SHEET (provide for each well inspected)

Well ID:		**Time:**	

Area	**Item Inspected**	**Description of Condition (attach additional sheet if needed)**	**Additional Maintenance Needed?**	**Inspector's Initials**
Exterior	Casing and collar		Yes / No	
	Well label		Yes / No	
	Lock and Cover		Yes / No	
Interior	Well cap		Yes / No	
	Well riser		Yes / No	
	Annular space		Yes / No	
Comments:				

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

Date: _____

Checklist Completed By: _____

Project Number: _____

Property Location: _____

System Installation Date: _____

The purpose of this form is to document the operation and maintenance of the sub-slab depressurization system to provide assurance that the system is functioning as designed or identify and execute any actions required to achieve the mitigation of subsurface vapor intrusion of volatile organic compounds to indoor air

1. MITIGATION SYSTEM INSPECTION

Occupant Interview

Any concerns identified by the building occupants?	YES	NO	

Comments / Action Items

_____

_____

_____

Occupant's Initials: _____

External Piping

Vent pipes securely fastened to building	YES	NO	
Are there any visible openings or breaks in the pipe system	YES	NO	
Is the rain cap present and intact at discharge point	YES	NO	N/A
Inspection of the exhaust point verified that no air intakes have been located nearby	YES	NO	
The sealing/caulking around wall penetrations is intact	YES	NO	

Comments / Action Items

_____

_____

_____

Mitigation Fan

Fan is mounted securely to building (no excessive vibrations during operation)	YES	NO	
Fan cover is installed	YES	NO	
No visible damage to fan or cover	YES	NO	

Comments / Action Items

_____

_____

_____

_____

_____

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

Internal Piping

Vertical and horizontal pipe runs are secured, including at all penetration points	YES	NO	
The sealing/caulking is intact around the extraction point or points through the basement floor, crawlspace floor, and/or crawlspace/basement wall interface.	YES	NO	
Vibration dampener installed and intact (pertains to fan mount)	YES	NO	N/A
Mitigation system operation placard present and visible/legible	YES	NO	
Contains description of major components, valid contact number and instructions for occupant inquiries and/or system failure	YES	NO	
Mitigation system maintenance tag present and filled out	YES	NO	
Date of last inspection shown on tag:______________________			
U-tube manometer present and intact at each extraction point	YES	NO	

Comments / Action Items

____

____

____

Electrical

Electrical connections secured	YES	NO
Junction boxes are closed	YES	NO
Conduit is supported	YES	NO
Circuit breakers controlling the mitigation fan and alarm circuits operate and are labeled "Mitigation System"	YES	NO
Power switch tagged with intact tamper proof seal	YES	NO
Audible alarm present	YES	NO
Audible alarm switch in "on" position (light on alarm is green)	YES	NO

Comments / Action Items

____

____

____

2. OPERATIONAL CHECKS

Fan is operating

Noise and Vibration within normal range	YES	NO
Alarm sounds when fan is turned off	YES	NO
U-Tube manometer indicating negative sub slab pressure	YES	NO

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

U-Tube Manometer Reading: Location:_______________ Vacuum _________ in H_2O

Smoke test performed on internal penetrations and pipe joints

Smoke test indicated no leaks	YES	NO	N/A
Smoke test confirms air flow into sump	YES	NO	N/A
Back draft test confirms proper air flow at combustion appliances	YES	NO	N/A
Smoke test indicated no leaks	YES	NO	N/A

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

3. MAINTENANCE

Fan last replaced on (date): _____

Fan due to be replaced; _____

Additional Maintenance Action Items Performed

_____

_____

_____

_____

4. ADDITIONAL ACTION ITEMS/ COMMENTS/COMPLETION DATES

_____

_____

_____

_____

_____

_____

_____

5. CERTIFICATION

I certify that the information on this form is true, accurate and complete (all blanks filled in) to the best of my knowledge and ability, and that I have the appropriate training and experience to perform this monitoring/inspection:

Name: _____ Affiliation: _____

Signature: _____ Date (dd/mm/yy): _____/_____am/pm

APPENDIX I

QUALITY ASSURANCE PROJECT PLAN

APPENDIX I

QUALITY ASSURANCE PROJECT PLAN

for the

LAPP INSULATOR SITE

NYSDEC SITE NO. 0819017

VILLAGE OF LEROY, GENESEE COUNTY, NEW YORK

TABLE OF CONTENTS

QUALITY ASSURANCE PROJECT PLAN

ACRONYMS AND ABBREVIATIONS

ASP	Analytical Services Protocol
°C	degree centigrade
CLP	Contract Laboratory Program
COC	chain of custody
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
FD	field duplicate
FSP	Field Sampling Plan
IDL	instrument detection limit
LCS	laboratory control sample (equivalent to MSB)
LCSD	laboratory control sample duplicate
MD	matrix duplicate
MDL	method detection limit
mg/L	milligrams per liter
MS	matrix spike
MSB	matrix spike blank (equivalent to LCS)
MSD	matrix spike duplicate
NEIC	National Enforcement Investigations Center
NIST	National Institute of Standards and Technology
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PQO	Project Quality Objective
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RPD	relative percent difference
SMP	Site Management Plan
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compounds
VTSR	validated time of sample receipt chain-of-custody

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) provides an overview of quality assurance/quality control (QA/QC) procedures that are required for work at the Lapp Insulator Site under the direction of the New York State Department of Environmental Conservation (NYSDEC).

2.0 PROJECT/SITE DESCRIPTION

The scope of the project and a description of the site are provided in the Site Management Plan (SMP).

3.0 PROJECT RESPONSIBILITIES

The Owner or Owner's representative is responsible for verifying that the analytical laboratories adhere to the QA/QC requirements specified in this QAPP. All laboratories to be used for the work assignment shall hold applicable New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certifications for the analyses to be performed. Copies of the applicable ELAP certifications for each laboratory to be used during the work assignment shall be made available upon request. Each laboratory maintains its own QA/QC program and employs the required staff to implement this program. The QA Officer for each laboratory is responsible for verifying that all sample analyses are performed in accordance the analytical methods, laboratory QA/QC procedures, and this QAPP.

All work of a substantive nature or identified as a deliverable will undergo an independent technical review (ITR) by experienced and qualified personnel. A written record of the review and resolution of the review findings will be maintained in the project files.

The ITR is used as a management tool to assess:

- Compliance with referenced standards;
- The potential for erroneous assumptions, data, calculations, methods, or conclusions;
- Compliance with the standard of professional practice;
- The basis of and compliance with input and design requirements, design criteria, and design calculations;
- That the appropriate detail/or and calculation checks (i.e., QC) and internal project team reviews have been performed;
- The soundness of the technical approach and results; and
- That the work was completed in compliance with the requirements of the Work Assignment.

4.0 PROJECT QUALITY OBJECTIVES

4.1 Background

Project quality objectives (PQOs), such as those described in the *Uniform Federal Policy for Quality Assurance Project Plans* (USEPA, 2005), define the type, quantity, and quality of data that are needed to answer specific environmental questions and support proper environmental decisions. More specifically, the PQOs:

- Define the environmental problem;
- Identify target analytes/contaminants of concern and concentration levels;
- Establish the analytical techniques to be used (field-screening, on-site, and/or off-site);
- Establish the appropriate sampling techniques to be used;
- Establish project sampling/analytical measurement performance criteria (where applicable) for precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity; and
- Determine the number of samples needed for each analytical group/matrix/concentration level.

PQOs are provided in the SMP.

4.2 Project Quality Objectives For Chemical Data Measurement

The data quality indicators of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS) will be measured (when applicable) from data collected from chemical analyses of samples collected during the work assignment.

4.2.1 Precision

Precision examines the distribution of the reported values about their mean. The distribution of reported values refers to how different the individual reported values are from the average reported value. Precision may be affected by the natural variation of the matrix or contamination within that matrix, as well as by errors made in the field and/or laboratory handling

procedures. Precision is evaluated using analyses of matrix spike/matrix spike duplicate/matrix duplicate (MS/MSD/MD) and field duplicate (FD) samples. These provide a measure not only of sampling precision, but also of analytical precision based on the reproducibility of the analytical results. Relative percent difference (RPD) is used to evaluate precision. RPD criteria for all analyses being performed as part of the work assignment are provided in the analytical procedures identified in this QAPP, where applicable.

4.2.2 Accuracy

Accuracy measures the analytical bias of a measurement system. Sources of measurement error may include the sampling process, field contamination, sample preservation and handling, sample matrix, and sample preparation and analysis techniques. Sampling accuracy may be assessed by evaluating the results of equipment rinsate blanks and trip blanks. These data help to assess the potential contamination contribution from various outside sources.

The laboratory objective for accuracy is to equal or exceed the accuracy demonstrated for the applied analytical methods on samples of the same matrix. Accuracy can be estimated based on the recovery of spiked analytes in the MS/MSD and laboratory control samples (LCS) or matrix spike blanks (MSB). MS/MSD analyses, which will give an indication of matrix effects that may be affecting target analyte identification and quantitation, are also a good gauge of method efficiency. Accuracy criteria for all analyses being performed as part of the work assignment are provided in the analytical methods identified in this QAPP, where applicable.

4.2.3 Representativeness

Representativeness expresses the degree to which the sample data accurately and precisely represent the characteristics of a population of samples, parameter variations at a sampling point, or environmental conditions. Representativeness is a qualitative parameter that is most concerned with the proper design of the sampling program or subsampling of a given sample. Objectives for representativeness are defined for sampling and analysis tasks and are a function of the investigation objectives. The sampling procedures, as described in the project SMP, have been selected with the goal of obtaining representative samples for the media of concern.

4.2.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. An objective for this program is to produce data with the greatest possible degree of comparability. This goal is achieved through using standard techniques to collect and analyze representative samples, and reporting analytical results in appropriate units. Complete field documentation using standardized data collection forms will support the assessment of comparability. Comparability is limited by the other parameters (e.g., precision, accuracy, representativeness, completeness, and sensitivity) because only when precision and accuracy are known can data sets be compared with confidence. For data sets to be comparable, it is imperative that the analytical methods and procedures be explicitly followed.

4.2.5 Completeness

Completeness is defined as a measure of the amount of valid data obtainable from a measurement system compared to the amount that were expected to be obtained under normal conditions. To meet project needs, it is important that appropriate QC procedures be maintained to verify that valid data are obtained. The completeness goal for data collected as part of the work assignment is 90%, unless otherwise specified. If this goal is not met, then NYSDEC will determine what, if any, further actions need to be taken.

4.2.6 Sensitivity

Sensitivity, as it pertains to analytical methods/instrumentation, is defined as the lowest concentration that can be distinguished from background noise. Sensitivity is measured by method detection limit (MDL) determinations, which are performed by laboratories for each analytical instrument, analyte and matrix following procedures specified in 40 CFR Part 136, Appendix B. The MDL is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. Instrument detection limits (IDLs) are similar to MDLs although the analytical procedures used for IDL determinations do not include the preparation/extraction procedures that are used for MDL determinations and environmental sample analyses. Therefore, IDLs provide a measure of sensitivity under ideal conditions, and do not take into account effects of sample matrix and/or other factors that may affect sensitivity. MDLs (and/or IDLs) for the parameters to be analyzed will be provided by the laboratory.

5.0 SAMPLING LOCATIONS AND PROCEDURES

Proposed sampling locations and sampling procedures are provided in the SMP.

6.0 SAMPLE CUSTODY AND HOLDING TIMES

Proper documentation of sample collection and the methods used to control these documents are referred to as chain-of-custody (COC) procedures. Chain-of-custody procedures are essential for presenting sample analytical results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures used in this work assignment will follow the COC guidelines of National Enforcement Investigations Center (NEIC) Policies and Procedures, prepared by the NEIC of the USEPA Office of Enforcement.

6.1 Custody Definitions

- Chain-of-Custody Officer - The employee responsible for oversight of all COC activities is the Site Manager (or his/her designee).
- Under Custody - A sample is "Under Custody" if:
  - It is in one's possession, or
  - It is in one's view, after being in one's possession, or
  - It was in one's possession and one placed it under lock, or
  - It is in a designated secure area.

6.2 Responsibilities

The Site Manager will be responsible for monitoring all COC activities and for collecting legally admissible COC documentation for the permanent project file, and will perform to following tasks:

- Review sample labels or tags, closure tapes, and COC records.
- Train all field sampling personnel in the methodologies for carrying out COC activities and the proper use of all COC and record documents.
- Monitor the implementation of COC procedures.
- Submit copies of the completed COC records to the Project Chemist.

6.3 Chain-of-Custody

Chain-of-custody is initiated in the laboratory when the empty sample containers are shipped for use in the field. When the empty containers are received from the laboratory, they will be checked for any breach of custody including, but not limited to, incomplete COC records, broken COC seals, or any evidence of tampering. Filled sample containers will be returned to the laboratory using appropriate COC procedures. Upon receipt of the samples, the laboratory sample custodian will check for any breach of custody. The Laboratory Project Manager shall notify the responsible parties immediately if there are any problems with the COC documentation.

6.4 Sample Containers and Holding Times

Sample container and preservation requirements and analytical holding times for the analytical methods being used for the work assignment are provided in the SMP. All holding times begin with the validated time of sample receipt (VTSR) at the laboratory.

7.0 ANALYTICAL PROCEDURES

The specific analytical methods to be used for the analysis of samples collected, and the quality control criteria to be followed by each laboratory when performing the analyses, are identified in the SMP.

8.0 CALIBRATION PROCEDURES AND FREQUENCY

In order to obtain a high level of precision and accuracy during sample processing and analysis procedures, laboratory and field instruments must be calibrated properly. Several analytical support areas must be considered so the integrity of standards and reagents is upheld prior to instrument calibration. The following sections describe the analytical support areas and laboratory instrument calibration procedures.

8.1 Analytical Support Areas

Prior to generating quality data, several analytical support areas must be considered:

Standard/Reagent Preparation - Primary reference standards and secondary standard solutions shall be obtained from sources traceable to National Institute of Standards and Technology, or other reliable commercial sources to ensure the highest purity possible. The preparation and maintenance of standards and reagents will be accomplished as per the methods referenced on Table 3-1 for the SMP. All standards and standard solutions are to be formally documented (i.e., in a bound logbook) and should identify the supplier, lot number, purity/concentration, receipt/preparation date, preparer's name, method of preparation, expiration date, and any other pertinent information. All standard solutions shall be validated prior to use. Care shall be exercised in the proper storage and handling of standard solutions (e.g., separating volatile standards from nonvolatile standards). The laboratory shall continually monitor the quality of the standards and reagents through well-documented procedures.

Balances - The analytical balances shall be calibrated and maintained in accordance with manufacture specifications. Calibration is conducted with two American Society of Testing Materials Class 1 weights that bracket the expected balance use range. The laboratory shall check the accuracy of the balances daily and properly document results in permanently bound logbooks.

Refrigerators/Freezers - The temperature of the refrigerators and freezers within the laboratory shall be monitored and recorded daily. This will verify that the quality of the standards and reagents is not compromised and the integrity of the analytical samples is upheld. Appropriate acceptance ranges (4°C ± 2°C for refrigerators) shall be clearly posted on each unit in service.

Water Supply System – Laboratories performing water/solid/waste sample analyses must maintain a sufficient supply of analyte-free water for all project needs. The grade of the water must be of the highest quality in order to eliminate false-positives from the analytical results. Ultraviolet cartridges or carbon absorption treatments are recommended for organic analyses, and ion-exchange treatment is recommended for inorganic tests. Appropriate documentation of the quality of the water supply system(s) will be performed on a regular basis by the laboratory.

Air Supply System – Laboratories performing air/soil vapor sample analyses must maintain a sufficient supply of analyte-free air for all project needs. The grade of air must be of the highest quality in order to eliminate false-positives from the analytical results. Appropriate documentation of the quality of the air supply system(s) will be performed on a regular basis by the laboratory.

Sample Containers - All sample containers supplied by the laboratories shall meet the requirements of the analytical methods being used and/or the requirements specified in the NYSDEC Analytical Services Protocol (most current), whichever is more stringent. Pre-cleaned sample containers may be purchased by the laboratory and provided for sample collection as long as the containers meet the requirements of each analytical method and/or the NYSDEC Analytical Services Protocol (most current), whichever is more stringent. Documentation of sample cleaning procedures and/or certifications provided by vendors shall be maintained by the laboratories.

Air Sampling Canisters - All Summa (or equivalent) canisters supplied by the laboratories for this work assignment (if applicable) must be cleaned following the requirements of the analytical methods. The canisters shall be individually or batch certified analyte-free to a level below the laboratory quantitation limit for each analyte. Documentation showing the certification of the canisters shall be submitted in each laboratory report package.

8.2 Laboratory Instruments

Calibration of laboratory instruments is required to verify that the analytical system is operating properly and at the sensitivity necessary to meet the project-required quantitation limits for each analytical method. Each instrument for organic analysis shall be calibrated with standards appropriate to the type of instrument and linear range established within the analytical

method(s). Calibration of laboratory instruments will be performed according to the analytical methods required for the work assignment.

Calibration of an instrument must be performed prior to the analysis of any samples (initial calibration) and then at periodic intervals (continuing calibration) during the sample analysis to verify that the instrument is still properly calibrated. If the contract laboratory cannot meet the method-required calibration requirements, corrective action shall be taken as discussed in Section 11.0. All corrective action procedures taken by the contract laboratory are to be documented, summarized within the report case narrative, and submitted with the analytical results.

8.3 Field Instruments

Various types of portable instruments may be used in the field during this work assignment, which may include one or more of the following: multi-purpose meters capable of measuring pH, conductivity, dissolved oxygen, oxidation/reduction (redox) potential, and/or temperature; photoionization detectors used to monitor organic vapors; and multi-gas meters and analyte-specific devices (e.g. Drager tubes/chips) for health and safety purposes. Other instruments may also be used as needed. The instruments expected to be used in the field during the work assignment are identified in the SMP. All calibration and maintenance of field instrumentation shall be performed according the manufacturer's requirements, and shall be documented by the Site Manager.

9.0 INTERNAL QUALITY CONTROL CHECKS

Internal QC checks are used to determine if analytical operations at the laboratory are in control, as well as determining the effect that sample matrix may have on data being generated. Two types of internal checks are performed - batch QC and matrix-specific QC procedures. The type and frequency of specific QC samples performed by the laboratory will be determined by the analytical methods and any other requirements identified in the SMP. Acceptable criteria and/or target ranges for these QC samples are also identified in the SMP.

QC results that vary from acceptable ranges shall result in the implementation of appropriate corrective measures, potential application of qualifiers to the analytical data, and/or an assessment of the impact these corrective measures have on the established data quality objectives. Quality control samples, including any project-specific QC samples, will be analyzed as discussed below.

9.1 Batch QC

Method Blanks - A method blank is defined as laboratory demonstrated analyte-free water that is carried through the entire analytical procedure. The method blank is used to determine the level of laboratory background contamination. Method blanks are analyzed at a frequency of one per analytical batch or as required by the analytical methods. Concentrations of all analytes in the method blanks should be below the quantitation limits identified in the method. The Laboratory Project Manager shall contact the responsible parties to determine the appropriate course of action if analyte concentrations in any blank are greater than the quantitation limit.

Laboratory Control Samples (LCS) – An LCS, or matrix spike blank (MSB), is an aliquot of laboratory demonstrated analyte-free water spiked (fortified) with all, or a representative group, of the analytes being analyzed. The LCS (or MSB) recoveries and RPD are a measure of precision and accuracy that are used to verify that the analysis being performed is in control. LCS (or MSB) analyses shall be performed as required by the methods identified in the SMP. Acceptance criteria for LCS (or MSB) analyses are specified in the analytical methods.

9.2 Matrix-Specific QC

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples – MS/MSD samples consist of an aliquot of a sample that is spiked (fortified) with known concentrations of specific compounds as stipulated by the methodology. The MS/MSD samples are subjected to the entire analytical procedure in order to assess both accuracy and precision of the method for the matrix by measuring the percent recovery (%R) for each analyte and the RPD between the concentrations of each analyte in the two spiked samples. The samples are used to assess matrix interference effects on the method, as well as to evaluate instrument performance. MS/MSDs samples will be collected and analyzed at the frequency of 5% of the total number of samples collected, or one per sampling event, whichever is less. Acceptance criteria for MS/MSD analyses are specified in the analytical method.

Matrix Duplicates (MD) - The matrix duplicate (MD) is a second aliquot of a sample that is prepared and analyzed in a manner identical to that used for the parent sample. Collection of matrix duplicate samples provides for the evaluation of precision both in the field and at the laboratory by comparing the analytical results of two samples taken from the same location. A matrix duplicate may be performed instead of the matrix spike duplicate. Every effort will be made to obtain replicate samples; however, due to interferences, lack of homogeneity, and the nature of soil samples, the analytical results are not always reproducible.

9.3 Additional QC

Additional QC samples that may be collected as part of the work assignment are described in this section. The specific number and type of QC samples to be collected are identified below.

Equipment/Rinsate Blanks – An equipment or rinsate blank is used to indicate potential contamination from sample instruments used to collect and transfer samples, and also serves as a measure of potential contamination from ambient sources during sample collection. When collecting water samples, the equipment blank is a sample of laboratory demonstrated analyte-free water passed over and/or through cleaned sampling equipment. The water must originate from one common source within the laboratory and must be the same water used by the laboratory when performing the analyses (i.e., for method blanks). Equipment blanks should be collected, transported, and analyzed in the same manner as the samples acquired that day.

Equipment blanks typically are not required when using dedicated and/or disposable sampling equipment.

Field Blanks – A field blank is used to indicate potential contamination from sample collection containers and/or from ambient sources during sample collection. The field blank is collected by pouring laboratory demonstrated analyte-free water directly into clean sample collection containers. The water must originate from one common source within the laboratory and must be the same water used by the laboratory when performing the analyses (i.e., for method blanks). Field blanks should be collected, transported, and analyzed in the same manner as the samples acquired that day. Field blanks typically are collected only when ambient conditions may present a risk of contamination to field samples.

Trip Blanks - Trip blanks are only required when collecting aqueous samples for volatile organics or dissolved gas analyses. They are not required for non-aqueous matrices or for analysis of any other parameters. They consist of a set of sample bottles filled at the laboratory with laboratory demonstrated analyte-free water. Trip blanks accompany the empty sample containers that are shipped from the laboratory into the field, and then back to the laboratory along with the collected samples for analysis. These bottles are never opened in the field. Trip blanks must return to the laboratory with the same set of containers they accompanied to the field. Since volatiles and dissolved gasses will not be collected for this work assignment, trip blanks are not required.

Field Duplicates – A field duplicate (FD) sample pair consists of two independent samples that are collected at approximately the same time and place, using the same collection methods. Both are containerized, handled, and analyzed in an identical manner. Field duplicates are useful in documenting the precision of the sampling process, and also provide a measure of analysis precision. Field duplicates are typically labeled so that the laboratory cannot determine or identify the location from which the field duplicate was collected. Field duplicates will be collected at a rate of 5%, or at least one per sampling event.

10.0 CALCULATION OF DATA QUALITY INDICATORS

10.1 Precision

Precision is evaluated using results from field or matrix duplicate, MS/MSD, and/or LCS/LCSD (MSB/MSBD) analyses. The RPD between the concentrations detected in the above-listed sample pairs is calculated using the following formula:

$$RPD = \left| \frac{(X_1 - X_2)}{[(X_1 + X_2)/2]} \right| x\,100\%$$

where:

X_1 = *Measured value of sample, MS, or LCS (MSB)*

X_2 = *Measured value of field (or matrix) duplicate, MSD, or LCSD (MSBD)*

RPD criteria are provided by the laboratory per the analytical methods.

10.2 Accuracy

Accuracy is defined as the degree of difference between the measured or calculated value and the true value. Analytical accuracy is expressed as the percent recovery (%R) of a compound or analyte that has been added to the environmental sample or laboratory demonstrated analyte-free matrix at known concentrations before analysis. Accuracy will be determined from MS, MSD, LCS (MSB) samples as well as from surrogate compounds that are added to samples prior to extraction and analysis (typically used for organic fractions only). Accuracy is calculated using the following formula:

$$\%R = \frac{(X_s - X_u)}{K} x\,100\%$$

where:

X_s - *Measured value of the spike sample*

X_u - *Measured value of the unspiked sample*

K - *Known amount of spike in the sample*

Accuracy criteria are provided by the laboratory per the analytical methods.

10.3 Completeness

Completeness is calculated on a per matrix basis for the project and is calculated as follows:

$$\%\ Completeness = \frac{(N - X_n)}{N}\ x\ 100\%$$

where:

N - *Number of valid measurements expected to be obtained*

X_n - *Number of invalid measurements*

11.0 CORRECTIVE ACTIONS

The Site Manager will discuss with and receive approval from the NYSDEC or other responsible parties prior to taking any corrective actions in the field that may need to be implemented in order to meet project objectives. The Site Manager will document any corrective actions taken in the Field Log Book.

Laboratory corrective actions shall be implemented to resolve problems and restore proper functioning to the analytical system when errors, deficiencies, or out-of-control situations exist at the laboratory. Full documentation of the corrective action procedure needed to resolve the problem shall be filed in the project records, and the information summarized in the case narrative. A discussion of the corrective actions to be taken is presented in the following sections.

11.1 Incoming Samples

The laboratory shall document problems noted during sample receipt. The Laboratory Project Manager will contact the responsible parties as soon as possible if any problems are encountered. All corrective actions shall be documented thoroughly.

11.2 Sample Holding Times

If any sample extractions and/or analyses exceed method holding time requirements, the Laboratory Project Manager will contact the responsible parties immediately for problem resolution. All corrective actions shall be documented thoroughly.

11.3 Instrument Calibration

Sample analysis shall not be allowed until all laboratory instrumentation is properly calibrated in accordance with method requirements. If any initial/continuing calibration standards fail to meet the required criteria, recalibration must be performed and, if necessary, all samples going back to the previous acceptable continuing calibration standard must be reanalyzed.

11.4 Quantitation Limits

The laboratory must make every attempt to meet all quantitation limits required to meet TOGS 1.1.1 Class GA groundwater standards or guidance values. It should be noted that these limits are based on undiluted samples analyses. Sample-specific quantitation limits may be affected by any dilution that is needed because of elevated analyte concentrations, and/or matrix interferences. If difficulties arise in achieving the required quantitation limits due to a particular sample matrix, the Laboratory Project Manager will contact the responsible parties for problem resolution. When any sample requires a secondary dilution due to high levels of target analytes, the laboratory shall report results from both the initial analyses and secondary dilution analyses. Dilution should only be used to bring target analytes within the linear range of calibration. If samples are analyzed at a dilution with no target analytes detected, the Laboratory Project Manager shall contact the responsible parties so that appropriate corrective actions can be initiated.

11.5 Method QC

All QC samples, including blanks, matrix spikes, matrix spike duplicates, matrix duplicates, surrogate recoveries, laboratory control samples, and other method-specified QC samples, shall meet the acceptance criteria specified in the analytical method. Failure to these criteria will result in the possible qualification of all affected data. When the criteria are not met, the affected sample(s) should be reanalyzed within the required holding times to verify the presence or absence of matrix effects. It should be noted that reanalysis is not always required. The Laboratory Project Manager shall contact the responsible parties to discuss possible corrective actions should unusually difficult sample matrices be encountered. The laboratory shall follow the requirements of the analytical methods and any instructions provided by the responsible parties when determining if samples require reanalysis. If matrix effect is confirmed, the corresponding data shall be flagged accordingly using the flagging symbols and criteria as defined by the data validation guidelines identified in Section 12.2, or as otherwise identified for the work assignment.

11.6 Calculation Errors

All analytical results must be reviewed systematically for accuracy prior to submittal. If upon data review, calculation and/or reporting errors exist, the laboratory will be requested to

reissue the analytical data report with the corrective actions appropriately documented in the case narrative.

12.0 DATA REDUCTION, VALIDATION, AND USABILITY

NYSDEC ASP Category B deliverable requirements (or equivalent) will be required for documentation and reporting of all data. Where applicable, the standard NYSDEC Data Package Summary Forms should be completed by the analytical laboratories and included in the deliverable data packages.

12.1 Data Reduction

Laboratory analytical data are first generated in raw form at the instrument. These data may be either graphic or printed tabular form. Specific data generation procedures and calculations are found in each of the referenced methods. Analytical results must be reported consistently. Results for aqueous samples will be reported in concentration units of micrograms per liter (µg/L) or milligrams per liter (mg/L).

Identification of all analytes must be accomplished with an authentic standard of the analyte traceable to NIST or other reliable commercial sources. Data reduction will be performed by individuals experienced with a particular analysis and knowledgeable of requirements.

12.2 Data Validation

Data validation is a systematic procedure of reviewing a body of data against a set of established criteria to provide a specified level of assurance of validity prior to its intended use.

Data validation will be performed by the responsible party and/or an environmental chemist under his/her supervision. All analytical samples collected will receive a limited data review. This review will include a review of holding times, completeness of all required deliverables, review of QC results (blanks, instrument tunings, calibration standards, calibration verifications, surrogates recoveries, spike recoveries, replicate analyses, and laboratory controls) to determine if the data are within the protocol-required limits and specifications, a determination that all samples were analyzed using established and agreed upon analytical protocols, an evaluation of the raw data to confirm the results provided in the data summary sheets, and a review of laboratory data qualifiers. The methods identified in the SMP, as well as the general guidelines presented in one or more of the following USEPA Region II documents, will be used to aid the chemist during the data review. The specific USEPA Region II validation guidelines to

be followed will vary based on the required analytical parameters for each work assignment, and will be documented in the Data Usability Summary Report (Section 12.3).

- Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry, SW-846 Method 8260B & 8260C, HW-24, Revision 4, October 2014 (or most current update);
- Validating Semivolatile Organic Compounds by SW-846 Method 8270C, HW-22, Revision 4, August 2008 (or most current update);
- Validating PCB Compounds by SW-846 Method 8082, HW-45, Revision 1.0, October 2006 (or most current update);
- Validating PCDDs and PCDFs by HRGC/HRMS, SW-846 Method 8290, HW-19, Revision 1, October 2006 (or most current update);
- ICP-AES Data Validation, HW-2a, Revision 15, December 2012 (or most current update);
- ICP-MS Data Validation, HW-2b, Revision 15, December 2012 (or most current update); and
- Mercury and Cyanide Data Validation, HW-2c, Revision 15, December 2012 (or most current update).

12.3 Data Usability

A Data Usability Summary Report (DUSR) (NYSDEC *DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B - Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, May 2010) will be submitted to NYSDEC, and will describe the samples and the analytical parameters. Data deficiencies, analytical protocol deviations, and quality control problems will be identified and their effect on the data will be discussed. The DUSR will also include recommendations on resampling/reanalysis.

13.0 PREVENTIVE MAINTENANCE

The laboratory is responsible for maintaining its analytical equipment. Preventive maintenance is provided on a regular basis to minimize down-time and the potential interruption of analytical work. Instruments are maintained in accordance with the manufacturer's recommendations. If instruments require maintenance, only trained laboratory personnel or manufacturer-authorized service specialists are permitted to do the work. Maintenance activities will be documented and kept in permanent logs. These logs will be available for inspection by auditing personnel.

Maintenance of field instrumentation will be performed as needed according to the manufacturer’s requirements.

14.0 PERFORMANCE AND SYSTEMS AUDITS

Audits are evaluations of laboratory QA/QC procedures, and are performed before or shortly after systems are operational, and on an ongoing basis thereafter. Problems detected during these audits shall be reviewed by the Laboratory QA Manager and other laboratory management personnel, and corrective action shall be instituted as necessary.

14.1 Performance Audits

Performance audits are conducted by introducing control samples into the data measurement, reduction, and reporting processes. These control samples may include performance evaluation samples, or field samples spiked with known amounts of analytes. In addition to conducting internal reviews and performance audits as part of its established quality assurance program, the laboratory is required to take part in regularly-scheduled performance audits/evaluations from state and federal agencies. They are typically conducted as part of the certification process and to evaluate laboratory performance and analytical measurement systems. Acceptable performance on evaluation samples and audits is required for certification and accreditation. The laboratory shall use the information provided from these audits to monitor and assess the quality of its performance, and to take appropriate corrective actions as needed.

14.2 Systems Audits

Systems audits are thorough, on-site qualitative audits of facilities, equipment/instrumentation, personnel, training procedures, record keeping, data review/management, and reporting aspects of a system. They provide a qualitative measure of the data produced by one section of, or the entire, measurement process. The audits are performed against a set of requirements, which may include laboratory standard operating procedures, a quality assurance project plan or work plan, a standard method, and/or a project statement of work. The primary objective of the systems audits is to verify that all procedures are being performed according to the requirements specified above. Systems audits are performed internally by the Laboratory QA Manager, and also by external parties such as state and federal regulatory agencies and private-sector clients. Typically, state and federal agencies perform systems audits in conjunction with performance audits/evaluations during the laboratory certification process. As part of its QA program, the Laboratory QA Manager shall also conduct

periodic checks and audits of the analytical, data reduction, and reporting systems. The purpose of these is to verify that the systems are operating properly, and that personnel are adhering to established procedures and documenting the required information. These checks and audits assist in determining or detecting where problems are occurring.

REFERENCES

New York State Department of Environmental Conservation (NYSDEC), 2005. *Analytical Services Protocol;* July (or most current).

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

United States Environmental Protection Agency (USEPA), National Enforcement Investigations Center (NEIC) Office of Enforcement, *NEIC Policies and Procedures*; Washington, D.C.

USEPA, 2005. *Uniform Federal Policy for Quality Assurance Project Plans; Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs, Final, Version 1;* March.

USEPA, 2006. *Evaluation of Metals Data for the CLP Program, SOP HW-2, Revision 13;* September (or most current).

USEPA, 2006. *Validating PCB Compounds by SW-846 Method 8082, HW-45, Revision 1.0;* October (or most current).

USEPA, 2006. *Validating PCDDs and PCDFs by HRGC/HRMS, SW-846 Method 8290, HW-19, Revision 1,* October (or most current);

USEPA. 2008. *Validating Semivolatile Organic Compounds by SW-846 Method 8270C, HW-22, Revision 4;* August (or most current).

APPENDIX J

SSD SYSTEM O&M PLAN

Lapp Insulator Site

GENESEE COUNTY, NEW YORK

Subslab Depressurization System Operation and Maintenance Manual

NYSDEC Site Number: 08-19-017

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation

12th Floor, 625 Broadway
Albany, NY 12233-7017

Prepared by:

AECOM USA, Inc.
257 West Genesee Street, Suite 400
Buffalo, NY 14202
(716) 856-5636

Table of Contents

1.0 INTRODUCTION

This Subslab Depressurization System (SSD) Operation and Maintenance (O&M) Plan presents the guidelines and procedures for operating, maintaining and repairing the SSD systems installed at the Lapp Insulator Site.

2.0 SUBSLAB DEPRESSURIZATION SYSTEM DESCRIPTIONS

Three multi-extraction point SSD systems and five radon fan style SSD systems have been installed at the Lapp Insulator Site. One multi-extraction point system is installed in Building B-35, and two are installed in the PCore Building. Four of the radon fan style systems are installed in Building B-31: two adjacent to the office at the northeast corner of Building B-31; and two in the workshop area at the western end of Building B-31. The fifth radon fan style system is installed in the laboratory at the northeastern corner of the PCore Building. The purpose of the SSD systems is to limit the potential for migration of VOCs; primarily TCE, PCE, 1,1,1-TCA, 1,1-DCE, carbon tetrachloride, methylene chloride and cis-1,2-DCE from soil gas into indoor air within buildings that are regularly occupied. The SSD systems were installed by URS Corporation - New York (URS) under NYSDEC Standby Contract D007622. The four SSD systems in Building B-31 began operation in July 2018; the remaining systems began operation in June 2019. O'Connell Electric, a subcontractor to URS, installed the electrical wiring for the systems. Figures 1 through 3 show the locations of the SSD system extraction points and vapor discharge points. Figure 4 shows details of the vapor extraction points. Photographs of the SSD systems are included in Attachment A.

At each extraction point, a 5-inch diameter hole was drilled into the concrete floor, and then subsurface fill was excavated to approximately 1 foot below the bottom of the floor to create a sump. The 4 inch PVC piping was then installed vertically into the pit, and sealed using grout and/or caulk. The piping was constructed to run vertically away from the suction points to the radon fans or SSD system blowers, and then continues up to a location overhead where it could safely be run horizontally to an exterior wall. The piping exits the building through an exterior wall penetration that is sealed with polyurethane caulk. The piping then discharges above the roofline; the top of the pipe is fitted with a rain cap to limit

water infiltration. Each suction point includes a u-tube manometer that is used to monitor the vacuum, and a butterfly valve to help with balancing the system vacuum.

The multi-extraction point systems consist of a regenerative blower that draws from several extraction points through one main conveyance pipe. The individual extraction points are each fed to the main conveyance pipe via 4 inch PVC piping. The radon fan style systems are comprised of 4 inch PVC piping that feeds a radon fan, and then discharges above the roof line.

3.0 ROUTINE MONITORING AND MAINTENANCE

Routine monitoring and maintenance visits are scheduled quarterly. Additional visits may be required in the event of an alarm, or based on the rate at which water is collected by the systems. During each visit, inspections will be conducted to verify and document that the system is in good working order. The inspections will include a visual inspection of each system's interior and exterior components. This will consist of observing the u-tube manometer measurements, where applicable, and inspecting monitoring ports at extraction points to ensure that airflow is negative (i.e. from below the floor slab out to the SSD systems). Additional airflow data and/or subslab pressure field extension testing data may be collected at the request of NYSDEC. Also during each visit, water levels in the moisture separators and auxiliary water storage tanks will be measured, and the tanks will be drained if necessary to keep the systems running. In addition, drains located in the low points within the system piping will be opened so that entrained water can be released from the system piping.

In the event that air flow in an extraction point is less than anticipated, a smoke tube will be used to check for the presence of leaks in the system. The tube will be passed near the equipment, with special attention paid to locations where there is a high potential for leaks (i.e. seals, couplings, wall or floor penetrations). If smoke is observed being sucked into or blown away from any component of the system, the possible leak will be noted and applicable repairs will be made.

Items identified during routing monitoring and maintenance visits pertaining to system design and/or performance will be addressed during the inspection visit if possible, or a follow-up visit will be scheduled. Any needed repairs or system modifications will be documented and the as-built diagram (Figure 1) will be updated as necessary. The inspection form included in Attachment B will be used during the visit.

4.0 NON-ROUTINE ACTIVITIES

The owner/occupant/facility management will be provided with instructions and contact information in the event repairs may be required on the system, and for requesting maintenance activities. These instructions include the following:

- Problem with system operation, including excessive noise, vibration, unexpected shut-down, etc.;
- Major renovations to the building structure; or
- Damage to any of the SSD systems.

Upon being contacted by an owner/occupant/facility management about a suspected problem with one of the systems, a site visit will be scheduled. During on-site visits, the inspector will investigate reported problems, identify potential causes, and implement the necessary repairs. To the extent practical, repairs will be made during the investigation visit. However, if repairs cannot be executed at that time, a follow-up visit will be scheduled for a later date that is convenient to the owner/occupant/facility management. Upon completion of the action, the investigation/repair activities will be documented and the as-built diagrams (Figures 1, 2, 3 and 4) will be updated as needed.

The table below shows the contact names and information for the owner/occupant/facility management to use if system maintenance is required or one of the systems stops running.

• **Name**	• **Contact Information**
• Chuck Dusel – AECOM Project Manager	• Office: 716-923-1211
• Dan McDaid – AECOM Project Engineer	• Office: 716-923-1166 • Cell: 716-903-6500

•

5.0 EMERGENCY MAINTENANCE

The SSD systems are constructed with alarms that generate a signal to indicate a system malfunction. The SSD systems include alarm systems that monitor system temperature, vacuum, and high high levels in the moisture separator tank. These alarm systems are programmed to send a text message to

the party(ies) responsible in the event of a system failure. In addition, these systems are equipped with a green light that signals normal operation, and a red light that is activated in the event of an alarm condition.

The radon fan systems are equipped with visual alarms (failure alarms) that include a flashing light to signal that the system has lost vacuum.

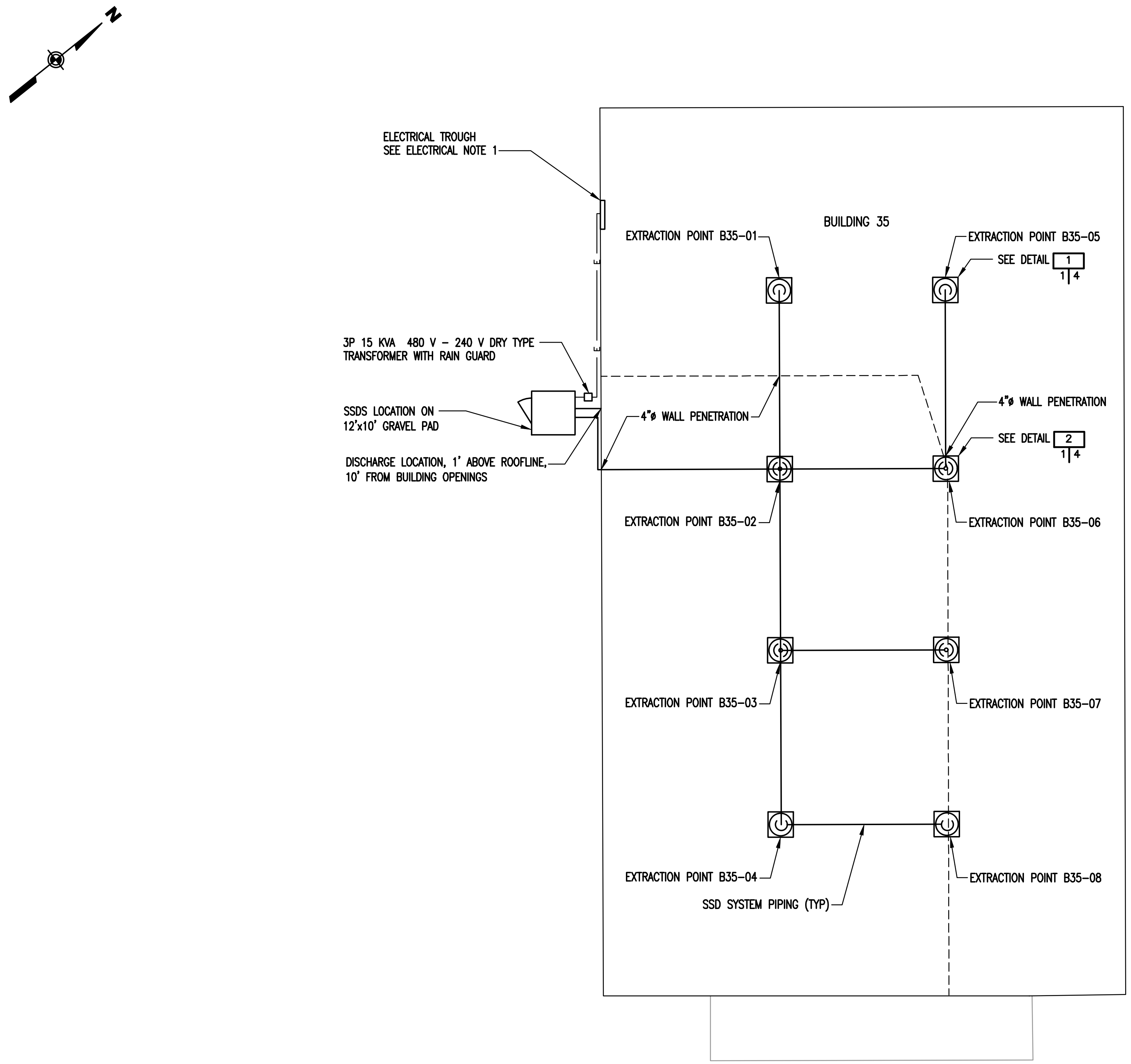
In the event of a high-water alarm:

1. Turn the system power switch to the "off" position on the system control panel
2. Drain the moisture separator tank and/or auxiliary water storage tank using the outlet at the bottom of the tank. Water can be drained onto the ground. A hose, section or tubing or piping can be used to convey the water from the outlet to the ground. Once the tanks are empty, ensure that the outlet valve(s) to the tank(s) is (are) closed.
3. Press the "reset" button on the system control panel
4. Turn the system power switch to the "on" position.

For any maintenance required for the SSD system blowers, including high-temperature alarms, refer to the Service and Parts Manual included as Attachment C.

6.0 SYSTEM SHUT-DOWN/DECOMMISSIONING PLAN

The SSD systems are intended to operate indefinitely. If at any point the NYSDEC or NYSDOH recommends that a SSD system be shut down and/or decommissioned, then AECOM will prepare a plan for SSD system shut down/removal, which will be submitted to NYSDEC for approval.



PLAN

0' 8' 16' 24' 32'

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

GENERAL NOTES:

1. THREE (3) SKID-MOUNTED SUB-SLAB DEPRESSURIZATION SYSTEMS WERE INSTALLED. ONE IS LOCATED AT BUILDING 35 AND TWO ARE LOCATED AT PCORE BUILDING (DWG. 2).
2. EACH SUB-SLAB DEPRESSURIZATION SYSTEM IS HOUSED IN AN INSULATED 8'x8'x8' STORAGE SHED.
3. THE BUILDING B-35 SSD SHED IS INSTALLED ON A 10'x12' GRADED LAYER OF COMPACTED GRAVEL. THE PCORE BUILDING SSD SHEDS ARE INSTALLED ON EXISTING ASPHALT PAVEMENT.
4. ALL EXTRACTION POINT PIPING IS SECURED TO BUILDING COLUMNS. THE LOCATION OF THE EXTRACTION POINTS ON COLUMNS ARE SHOWN IN A SIMPLIFIED MANNER ON THE DRAWINGS. EXTRACTION POINTS IN HIGH-TRAFFIC AREAS ARE PROTECTED WITH OMEGA 30-INCH HEAVY DUTY CORNER GUARDS.
5. ALL HORIZONTAL PIPING IS INSTALLED LEVEL OR PITCHED TOWARDS THE EXTRACTION POINT OR SSD SYSTEM TO PREVENT THE ACCUMULATION OF ENTRAINED WATER IN LOW AREAS IN THE PIPING. A RELIEF DRAIN WAS INSTALLED WHERE THERE IS THE POTENTIAL FOR WATER ACCUMULATION.
6. AN EXTRACTION HOLE WAS INSTALLED AT EACH EXTRACTION POINT. THIS HOLE WAS CREATED BY CORE CUTTING A 5-INCH DIAMETER ROUND HOLE THROUGH THE FLOOR SLAB, THEN REMOVING SUB-SLAB SOIL TO A DEPTH OF APPROXIMATELY 12 INCHES. THE EXCAVATED SOILS WERE TRANSPORTED OUT OF THE BUILDING AND PLACED INTO A DRUM FOR WASTE CHARACTERIZATION AND DISPOSAL.
7. THE EXISTING EXTRACTION POINT THAT WAS USED FOR THE PILOT TEST IS A COMPONENT OF THE SSD SYSTEM AT THE PCORE BUILDING.
8. A SEPARATE SSD SYSTEM, UTILIZING A RADON FAN, WAS INSTALLED IN THE "LABORATORY AREA" IN THE LOWER LEVEL OF THE NORTHEAST PORTION OF THE PCORE BUILDING.

ELECTRICAL NOTES:

1. AT BUILDING B-35, O'CONNELL ELECTRIC CONNECTED 3P 240 V BREAKER PANEL AT SSD SYSTEM SHED TO 480V ELECTRICAL TROUGH VIA A 20A 3P ENCLOSED CIRCUIT BREAKER AND A 3P 15KVA 480V-240V DRY TYPE TRANSFORMER.
2. AT THE PCORE BUILDING, O'CONNELL ELECTRIC CONNECTED 3P 240 V BREAKER PANEL AT EACH SSD SYSTEM SHED TO 480V POWER PANEL PP-11 VIA A 3P 15KVA 480V-240V DRY TYPE TRANSFORMER.
3. AT THE PCORE LABORATORY, O'CONNELL ELECTRIC INSTALLED A 120V, 20A WEATHERPROOF DUPLEX RECEPTACLE ON BUILDING EXTERIOR FOR CONNECTION TO NEW RADON FAN. RECEPTACLE POWERED FROM EXISTING 120/208V PANEL LOCATED IN LABORATORY AREA.
4. ALL ELECTRICAL EQUIPMENT INSIDE THE SSD SHEDS RATED FOR CLASS I DIVISION I LOCATION. CONDUIT SEALS INSTALLED AT LOCATIONS INSIDE THE SSD SHED.
5. AT EACH OF THE SSDS LOCATIONS, URS INSTALLED: ONE 5HP EXPLOSION PROOF REGENERATIVE BLOWER; ONE MOTOR STARTER; ONE 3P 240V BREAKER PANEL WITH ONE 3P 240V BREAKER AND THREE 1P 120V BREAKERS; ONE 30A 3P DISCONNECT SWITCH; ONE 3P 240V CONTROL PANEL; ONE EXHAUST FAN; ONE LOCAL ALARM; ONE LIGHT FIXTURE; ONE DUPLEX RECEPTACLE; AND ALL ASSOCIATED WIRING AND CONDUIT WITHIN THE SSD SHED.

AS-BUILT

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CP
DRAWN BY: RL
CHECKED BY: CD
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

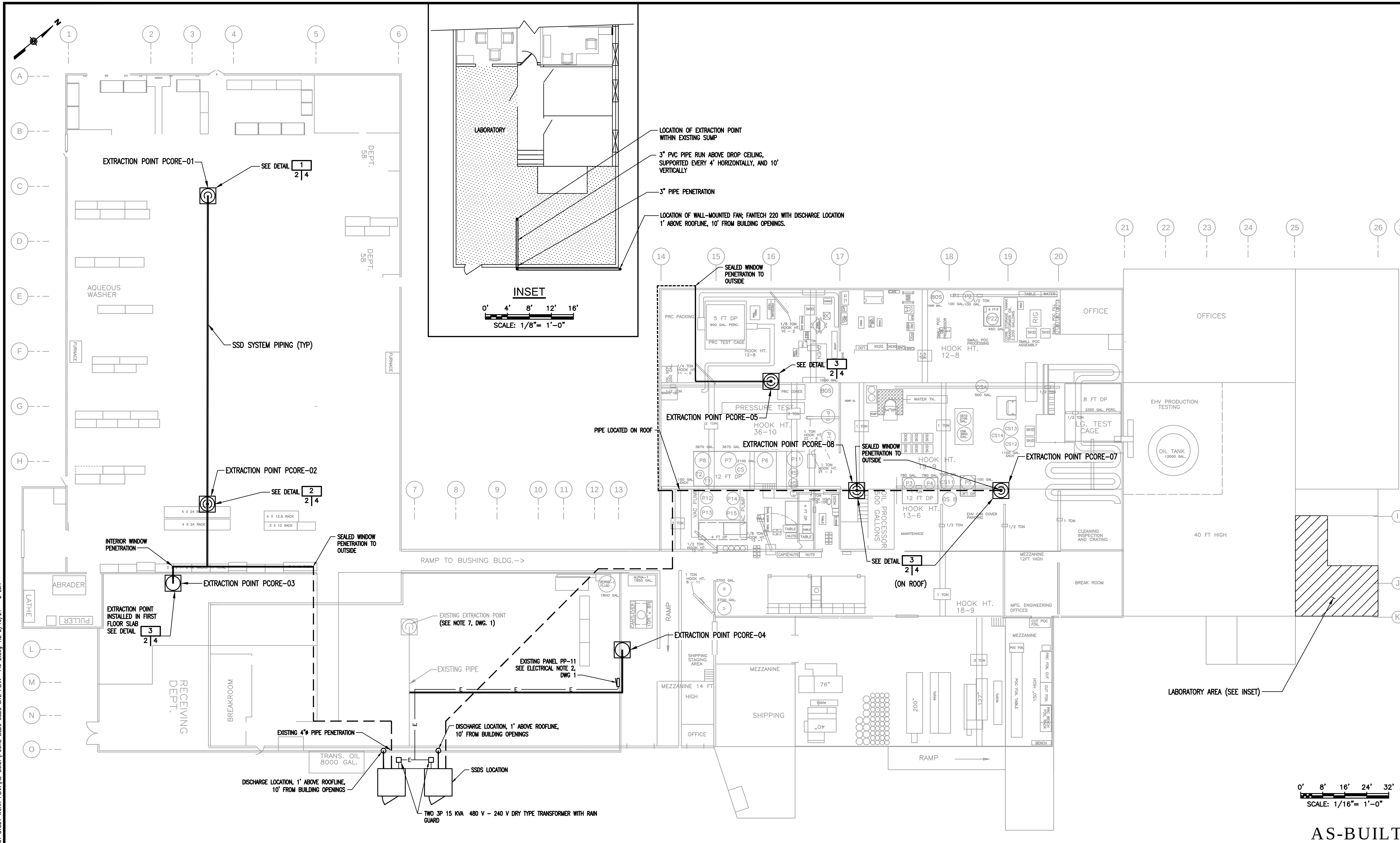
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SUB-SLAB DEPRESSURIZATION SYSTEM
NYSDEC SITE 819017

BUILDING 35
SSDS SITE PLAN

Scale: AS SHOWN | Date: MARCH 2019 | 1

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\BUILDING 35 SSDS SITE PLAN -FIG 1.dwg 1:2 2/16/21 - 1 EJH



AS-BUILT

WARNING
IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON OTHER THAN WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CP
DRAWN BY: RL
CHECKED BY: CD
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

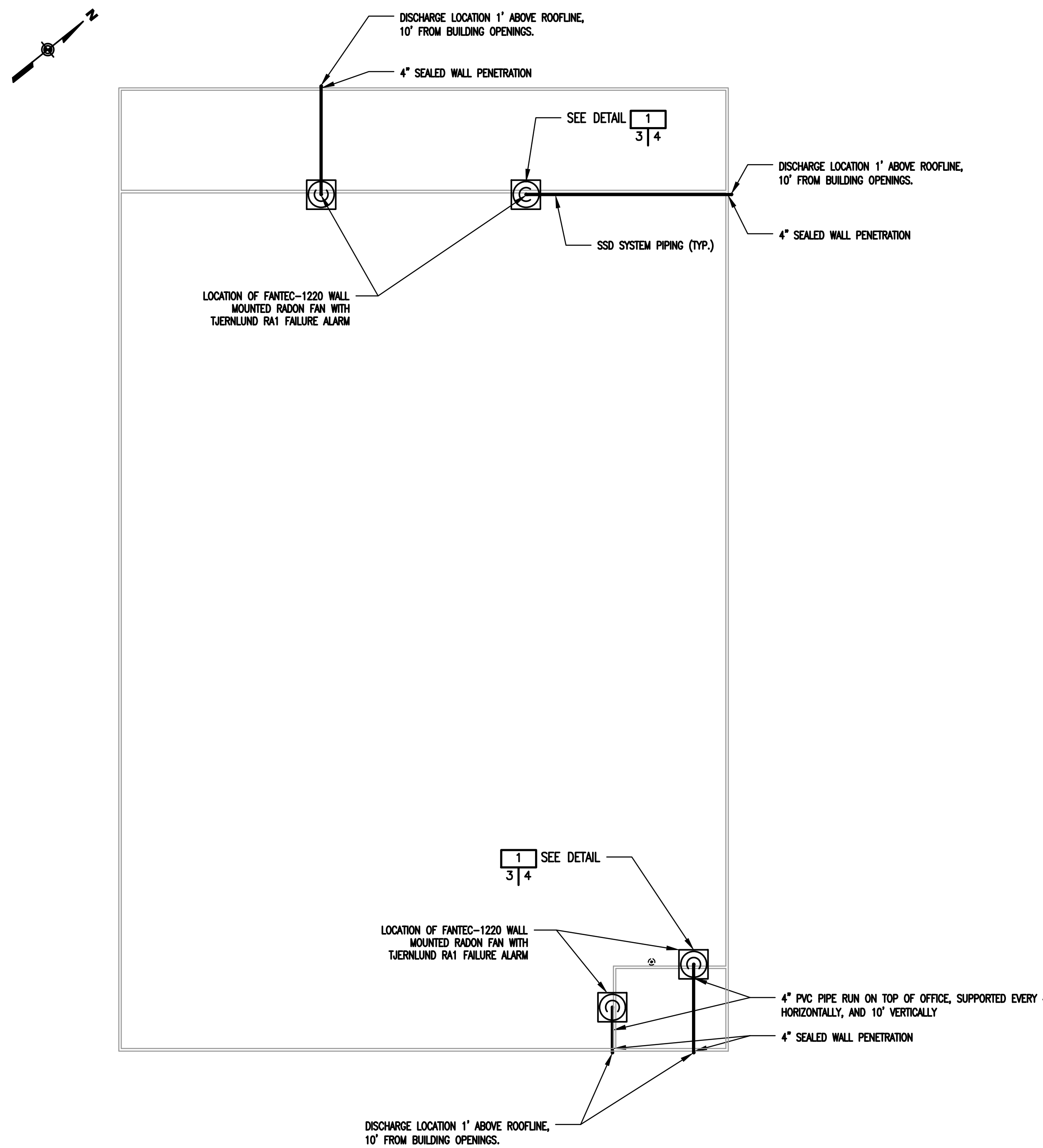
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SUB-SLAB DEPRESSURIZATION SYSTEM
NYSDEC SITE 819017

PCORE BUILDING
SSDS SITE PLAN

Scale: AS SHOWN | Date: MARCH 2019 | 2

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\PCORE BLDG SSDS SITE PLAN -FIG 2.dwg 1:2 2/16/21 - 2 EJH



0' 8' 16' 24' 32'
SCALE: 1/16"= 1'-0"

AS-BUILT

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\BUILDING 31 SSDS SITE PLAN -FIG 3.dwg 1:2 2/16/21 - 2 EJH

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: DNM
DRAWN BY: EJH
CHECKED BY: CP
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URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

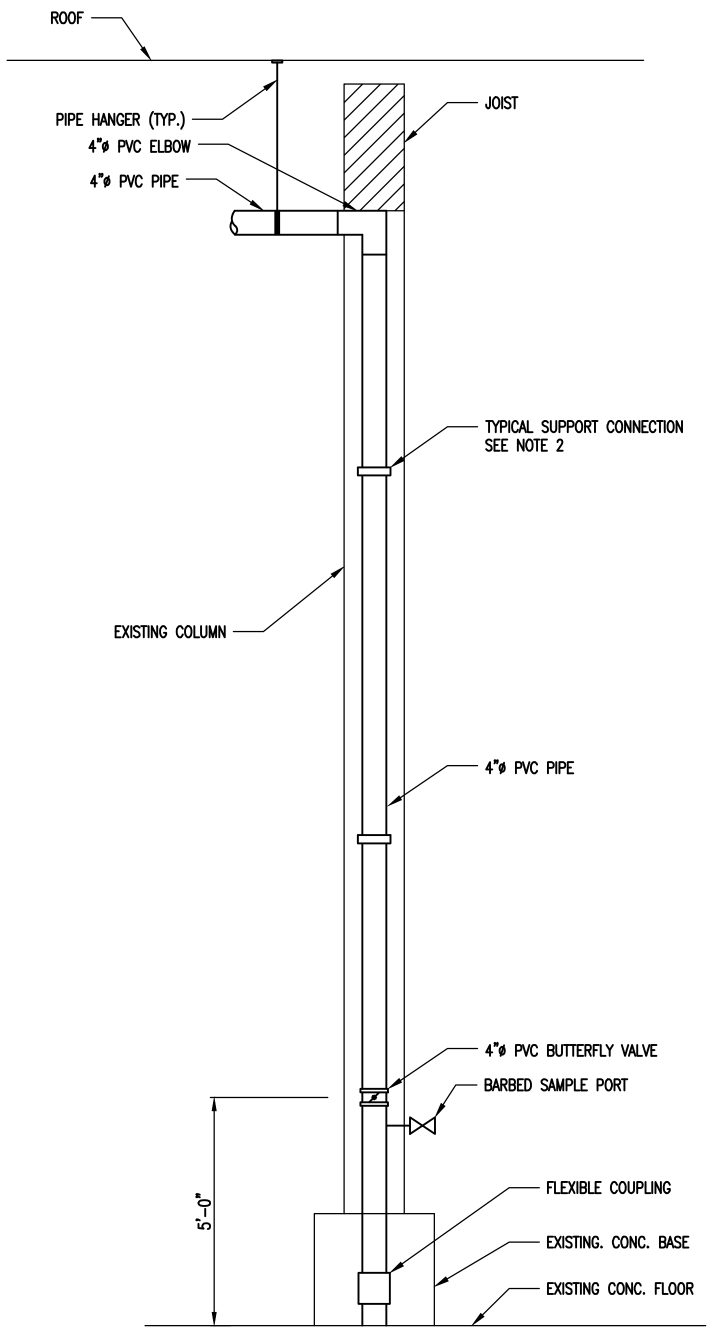
JOB NO. 11176787

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SOIL VAPOR MITIGATION PILOT TEST AND BUILDING B-31 WORK PLAN
NYSDEC SITE 819017

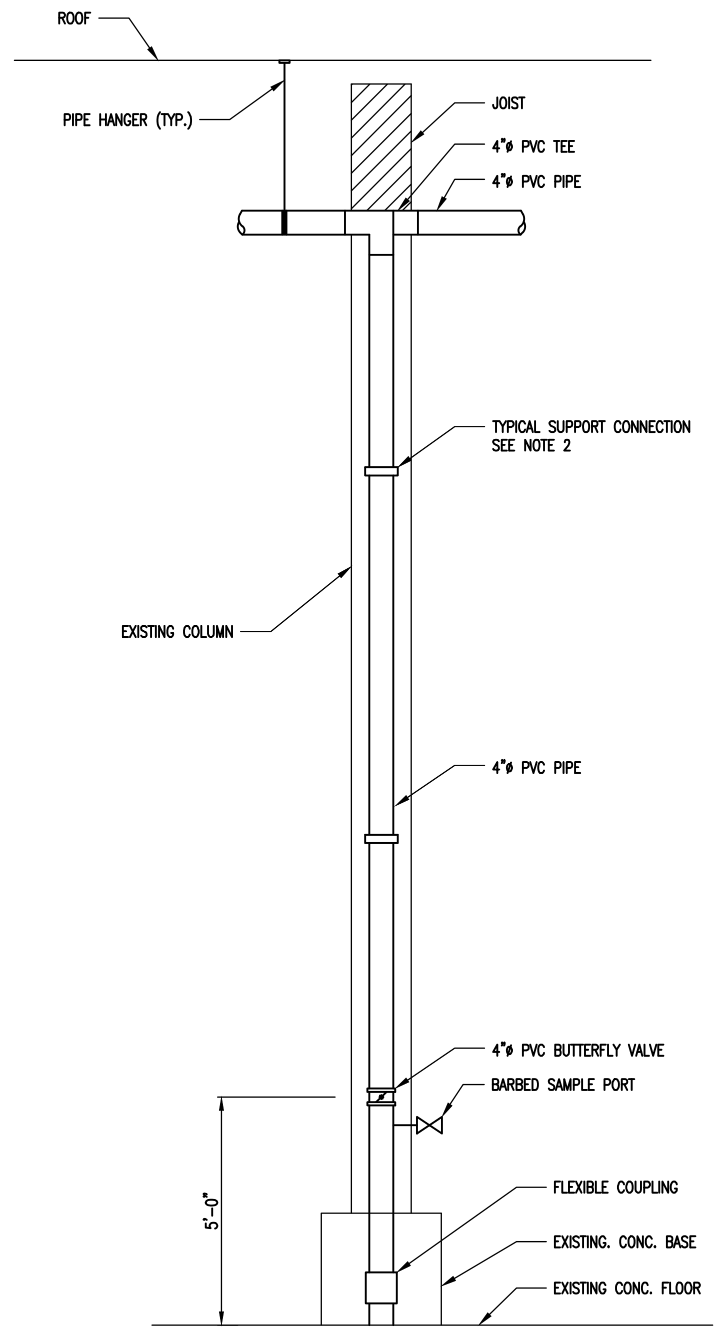
BUILDING 31
SSDS SITE PLAN

Scale: AS SHOWN | Date: MAY 2018 | 3



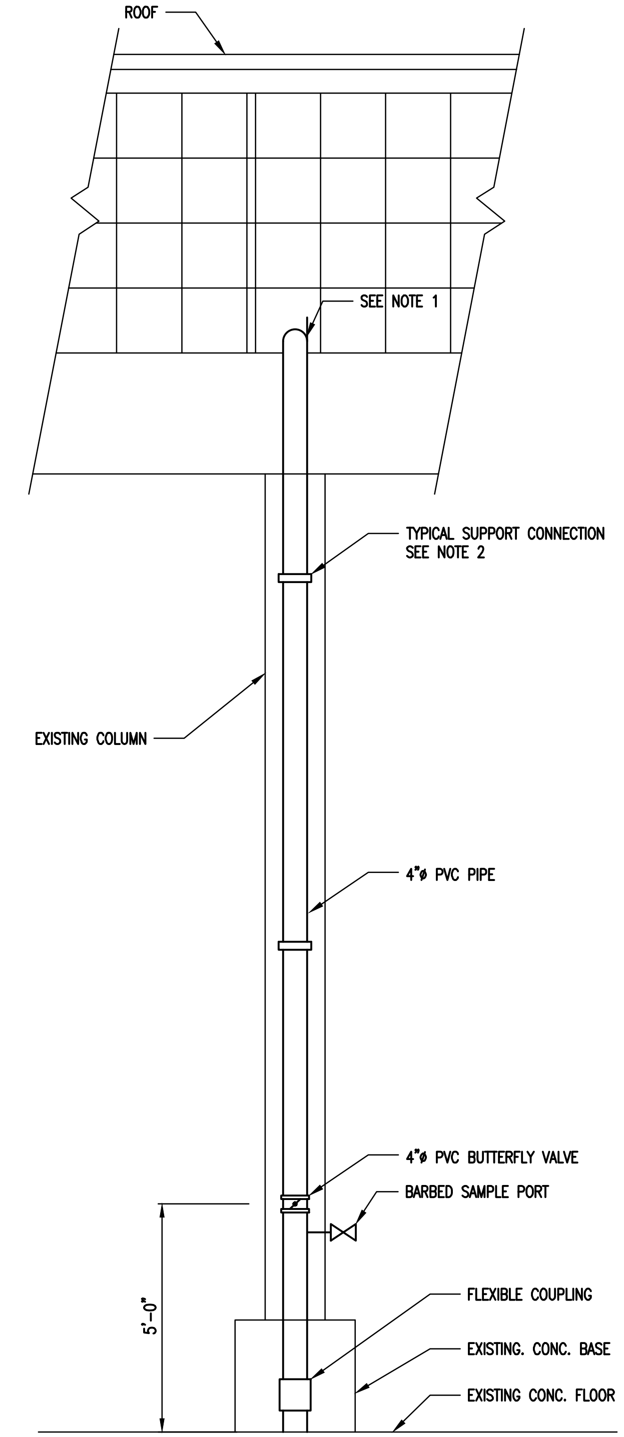
TYPICAL EXTRACTION POINT INSTALLATION DETAIL (TYPE 1) 1 / 1|4

NOT TO SCALE



TYPICAL EXTRACTION POINT INSTALLATION DETAIL (TYPE 2) 2 / 1|4

NOT TO SCALE



TYPICAL EXTRACTION POINT INSTALLATION DETAIL (TYPE 3) 3 / 2|4

NOT TO SCALE

NOTES:

1. EXISTING GLASS PANEL REMOVED AND BE REPLACED WITH SEALED PIPE PENETRATION AS APPROVED BY THE OWNER.
2. ALL 4"ø PVC PIPE SUPPORTED EVERY 4' HORIZONTALLY AND 10' VERTICALLY.
3. BUTTERFLY VALVES AND SAMPLE PORTS INSTALLED APPROXIMATELY 5 FEET ABOVE FLOOR.

AS-BUILT

C:\Projects\11176787\CADD\PILOT STUDY WORK PLAN\AS-BUILT\TYP EXTRACTION POINT INSTALLATION DETAILS - FIG 4.dwg 1:2 2/16/21 - 2 EJH

NO.	MADE BY	APPROVED BY	DATE	DESCRIPTION

REVISIONS

DESIGNED BY: CP
DRAWN BY: RL
CHECKED BY: CD
PROJ. ENGR. DNM

URS Corporation
New York
257 West Genesee Street, Suite 400
Buffalo, New York 14202-2657
(716)856-5636 - (716)856-2545 fax

JOB NO. 11176787

STATE OF NEW YORK · DONALD A. McCALL · 074177 · LICENSED PROFESSIONAL ENGINEER

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LAPP INSULATOR
SUB-SLAB DEPRESSURIZATION SYSTEMS DESIGN
NYSDEC SITE 819017

TYPICAL EXTRACTION POINT INSTALLATION DETAILS

Scale: AS SHOWN | Date: MARCH 2019 | 4

ATTACHMENT A

SSD System Photographs

Photo 1 – SSD system transfer pump and knockout tank.


Hastings
Equity Manufacturing
Made in U.S.A.
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Since 1886

Photo 2 – SSD system components with water storage tank in foreground.

Photo 3 – SSD system extraction point with butterfly valve and pipe guard in Building B35.

Photo 4 – SSD extraction point in the PCore Building.

Photo 5 – Typical sampling port at an SSD system extraction point.

Photo 6 – SSD system piping on the roof of the PCore Building.

Photo 7 – A manometer tube on the PCore Laboratory extraction point piping.

Photo 8 – SSD system piping in the PCore Building.

Photo 9 – A sump containing the extraction point for the PCore Laboratory SSD system.

Photo 10 – SSD system piping connecting from the PCore Building to the SSD system sheds.

Photo 11 – Building B35 SSD system shed.

Photo 12 – Radon-style SSD system fan in Building B31.

Photo 13 – Tee in PCore building SSD system for draining water from the piping.

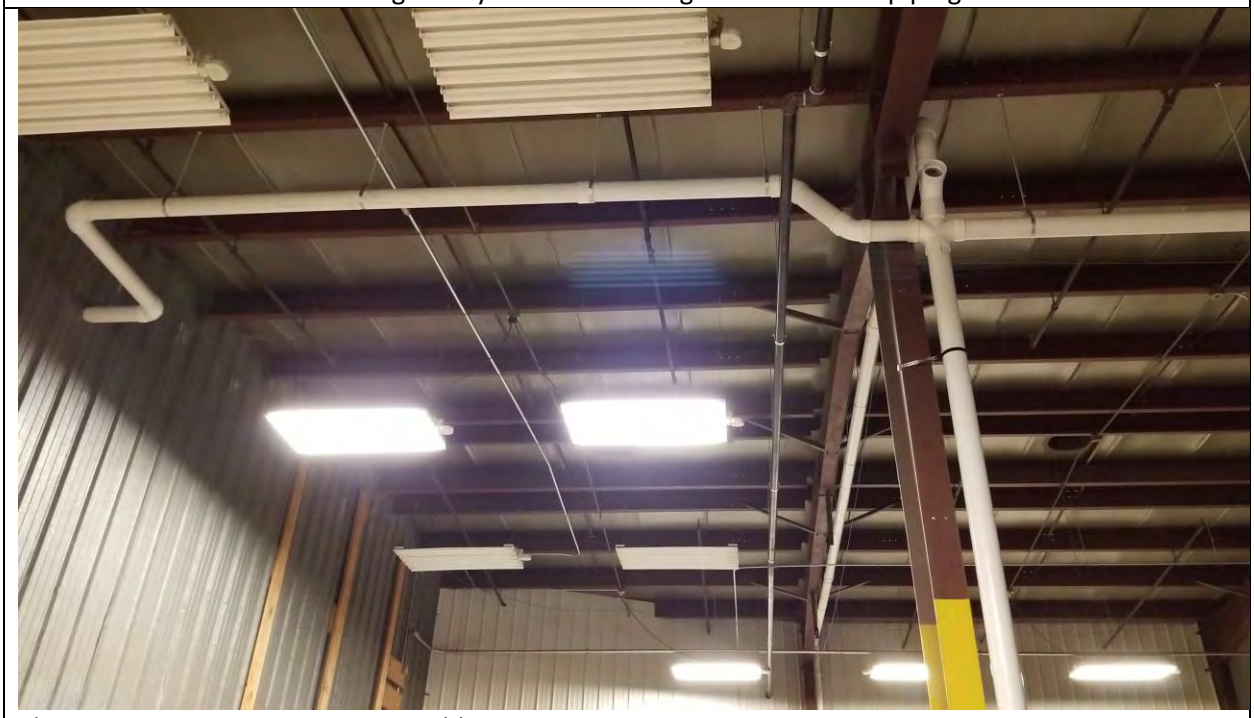


Photo 14 – SSD system piping in Building B35.

Photo 15 – PCore Building SSD system transformer.

ATTACHMENT B

O&M Checklist

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

Date: _____

Checklist Completed By: _____

Project Number: _____

Property Location: _____

System Installation Date: _____

The purpose of this form is to document the operation and maintenance of the sub-slab depressurization system to provide assurance that the system is functioning as designed or identify and execute any actions required to achieve the mitigation of subsurface vapor intrusion of volatile organic compounds to indoor air

1. MITIGATION SYSTEM INSPECTION

Occupant Interview

Any concerns identified by the building occupants?	YES	NO	

Comments / Action Items

_____

_____

_____

Occupant's Initials: _____

External Piping

Vent pipes securely fastened to building	YES	NO	
Are there any visible openings or breaks in the pipe system	YES	NO	
Is the rain cap present and intact at discharge point	YES	NO	N/A
Inspection of the exhaust point verified that no air intakes have been located nearby	YES	NO	
The sealing/caulking around wall penetrations is intact	YES	NO	

Comments / Action Items

_____

_____

_____

Mitigation Fan

Fan is mounted securely to building (no excessive vibrations during operation)	YES	NO	
Fan cover is installed	YES	NO	
No visible damage to fan or cover	YES	NO	

Comments / Action Items

_____

_____

_____

_____

_____

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

Internal Piping

Vertical and horizontal pipe runs are secured, including at all penetration points YES NO

The sealing/caulking is intact around the extraction point or points through the basement floor, crawlspace floor, and/or crawlspace/basement wall interface. YES NO

Vibration dampener installed and intact (pertains to fan mount) YES NO N/A

Mitigation system operation placard present and visible/legible YES NO

Contains description of major components, valid contact number and instructions for occupant inquiries and/or system failure YES NO

Mitigation system maintenance tag present and filled out YES NO

Date of last inspection shown on tag:_________________________

U-tube manometer present and intact at each extraction point YES NO

Comments / Action Items

____

____

____

Electrical

Electrical connections secured YES NO

Junction boxes are closed YES NO

Conduit is supported YES NO

Circuit breakers controlling the mitigation fan and alarm circuits operate and are labeled "Mitigation System" YES NO

Power switch tagged with intact tamper proof seal YES NO

Audible alarm present YES NO

Audible alarm switch in "on" position (light on alarm is green) YES NO

Comments / Action Items

____

____

____

2. OPERATIONAL CHECKS

Fan is operating

Noise and Vibration within normal range YES NO

Alarm sounds when fan is turned off YES NO

U-Tube manometer indicating negative sub slab pressure YES NO

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

U-Tube Manometer Reading: Location:________________ Vacuum _________ in H_20

Smoke test performed on internal penetrations and pipe joints

Smoke test indicated no leaks YES NO N/A

Smoke test confirms air flow into sump YES NO N/A

Back draft test confirms proper air flow at combustion appliances YES NO N/A

Smoke test indicated no leaks YES NO N/A

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

3. MAINTENANCE

Fan last replaced on (date): _____

Fan due to be replaced; _____

Additional Maintenance Action Items Performed

_____

_____

_____

_____

4. ADDITIONAL ACTION ITEMS/ COMMENTS/COMPLETION DATES

_____

_____

_____

_____

_____

_____

_____

5. CERTIFICATION

I certify that the information on this form is true, accurate and complete (all blanks filled in) to the best of my knowledge and ability, and that I have the appropriate training and experience to perform this monitoring/inspection:

Name: _____ Affiliation: _____

Signature: _____ Date (dd/mm/yy): _____/_____am/pm

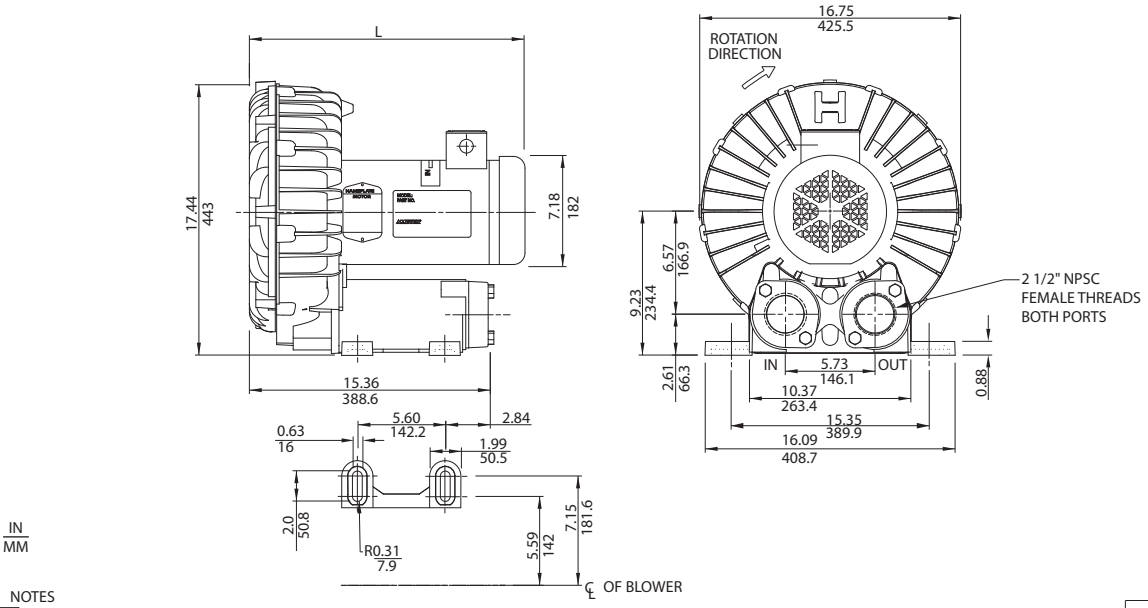
ATTACHMENT C

Radon Fan and SSD System Blower Service and Parts Manuals

EN 757 & CP 757

ROTRON®

3.0 / 5.0 HP Sealed Regenerative w/Explosion-Proof Motor



NOTES
1. TERMINAL BOX CONNECTOR HOLE .75 NPT.
2. DRAWING NOT TO SCALE, CONTACT FACTORY FOR SCALE CAD DRAWING.
3. CONTACT FACTORY FOR BLOWER MODEL LENGTHS NOT SHOWN.

MODEL	L (IN/MM)
EN757M72XL	19.72/500.9
EN757F72XL	21.00/533.4

		Part/Model Number				
		EN757M72XL	EN757M86XL	EN757F72XL	CP757FW72XLR	CP757FU72XLR
Specification	Units	081176	081177	081174	081180	081181
Motor Enclosure - Shaft	-	XP-CS	XP-CS	XP-CS	CHEM XP-SS	CHEM XP-SS
Mtl. Horsepower	-	3.0	3.0	5.0	5.0	3.0
Voltage	AC	208-230/460	575	208-230/460	208-230/460	208-230/460
Phase - Frequency	-	Three-60 Hz	Three-60 Hz	Three - 60 Hz	Three-60 Hz	Three - 60 Hz
Insulation Class	-	B	B	B	B	B
NEMA Rated Motor Amps	Amps (A)	7.2/3.6	3.0	14/7	14/7	7.2/3.6
Service Factor	-	1.0	1.0	1.0	1.0	1.0
Maximum Blower Amps	Amps (A)	10/5	4.0	15/7.5	15/7.5	10/5
Locked Rotor Amps	Amps (A)	54/47	22	152/76	152/76	54/27
Starter Size	-	0/0	0	1/1	1/1	0/0
Shipping Weight	Lbs	158	158	158	158	158
	Kg	71.7	71.7	71.7	71.7	71.7

Voltage - ROTRON motors are designed to handle a broad range of world voltages and power supply variations. Our dual voltage 3 phase motors are factory tested and certified to operate on both: **208-230/415-460 VAC-3 ph-60 Hz** and **190-208/380-415 VAC-3 ph-50 Hz**. Our dual voltage 1 phase motors are factory tested and certified to operate on both: **104-115/208-230 VAC-1 ph-60 Hz** and **100-110/200-220 VAC-1 ph-50 Hz**. All voltages above can handle a ±10% voltage fluctuation. Special wound motors can be ordered for voltages outside our certified range.

Operating Temperatures - Maximum operating temperature: Motor winding temperature (winding rise plus ambient) should not exceed 140°C for Class F rated motors or 120°C for Class B rated motors. Blower outlet air temperature should not exceed 140°C (air temperature rise plus inlet temperature). Performance curve maximum pressure and suction points are based on a 40°C inlet and ambient temperature. Consult factory for inlet or ambient temperatures above 40°C.

Maximum Blower Amps - Corresponds to the performance point at which the motor or blower temperature rise with a 40°C inlet and/or ambient temperature reaches the maximum operating temperature.

XP Motor Class - Group - See Explosive Atmosphere Classification Chart in Section I

AMETEK DYNAMIC FLUID SOLUTIONS
75 North Street, Saugerties, NY 12477
USA: +1 215-256-6601 - Europe: +49 7703 930909 - Asia: +86 21 5763 1258
Customer Service Fax: +1 215.256.1338
www.ametekdfs.com

AMETEK®
PRECISION MOTION CONTROL
DYNAMIC FLUID SOLUTIONS

EN 757 & CP 757

ROTRON®

3.0 / 5.0 HP Sealed Regenerative w/Explosion-Proof Motor

FEATURES

- Manufactured in the USA - ISO 9001 and NAFTA compliant
- Maximum flow: 310 SCFM
- Maximum pressure: 80 IWG
- Maximum vacuum: 75 IWG
- Standard motor: 5.0 HP, explosion-proof
- Cast aluminum blower housing, impeller , cover & manifold; cast iron flanges (threaded); teflon® lip seal
- UL & CSA approved motor with permanently sealed ball bearings for explosive gas atmospheres Class I Group D minimum
- Sealed blower assembly
- Quiet operation within OSHA standards

MOTOR OPTIONS

- International voltage & frequency (Hz)
- Chemical duty, high efficiency, inverter duty or industry-specific designs
- Various horsepowers for application-specific needs

BLOWER OPTIONS

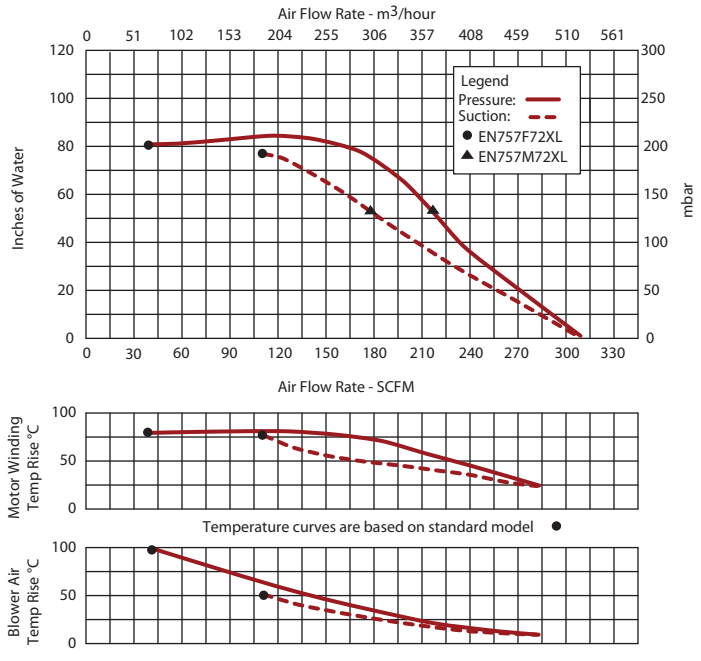
- Corrosion resistant surface treatments & sealing options
- Remote drive (motorless) models
- Slip-on or face flanges for application-specific needs

ACCESSORIES

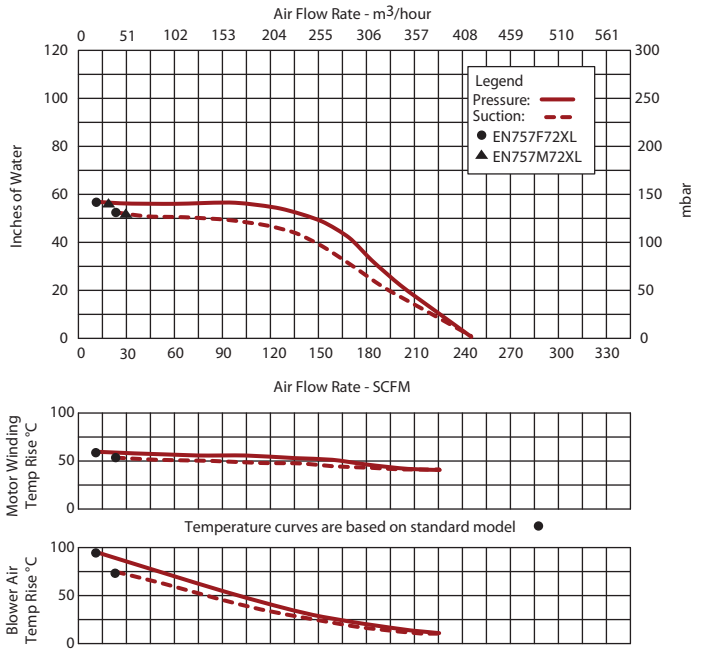
- Flowmeters reading in SCFM
- Filters & moisture separators
- Pressure gauges, vacuum gauges, & relief valves
- Switches - air flow, pressure, vacuum, or temperature
- External mufflers for additional silencing
- Air knives (used on blow-off applications)
- Variable frequency drive package

Blower Performance at Standard Conditions

60 Hz



50 Hz



AMETEK DYNAMIC FLUID SOLUTIONS
75 North Street, Saugerties, NY 12477
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AMETEK®
PRECISION MOTION CONTROL
DYNAMIC FLUID SOLUTIONS

SERVICE AND PARTS MANUAL FOR BLOWER MODEL

EN707 – EN808 THREE PHASE

Technical & Industrial Products
627 Lake Street, Kent, Ohio 44240 U.S.A.
Telephone: 330-673-3452 Fax: 330-677-3306
e-mail: rotronindustrial@ametek.com
internet: www.ametektip.com

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WARRANTY, INSTALLATION, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

TECHNICAL AND INDUSTRIAL PRODUCTS
627 Lake Street, Kent, Ohio 44240 USA
Telephone: 330-673-3452 Fax: 330-677-3306
e-mail: rotronindustrial@ametek.com web site: www.ametektip.com

1. AMETEK Rotron DR, EN and HiE regenerative direct drive blowers are guaranteed for one full year from the date of installation (limited to 18 months from the date of shipment) to the original purchaser only. Should the blower fail we will evaluate the failure If failure is determined to be workmanship or material defect related, we will at our option repair or replace the blower.

2. AMETEK Rotron Minispiral, Revaflow, Multiflow, Nautilair, remote drive blowers, moisture separators, packaged units, CP blowers, Nasty Gas™ models and special built (EO) products are guaranteed for one full year from date of shipment for workmanship and material defect to the original purchaser only. Should the blower fail, If failure is determined to be workmanship or material defect related, we will at our option repair or replace the blower.

3. **Parts Policy** - AMETEK Rotron spare parts and accessories are guaranteed for three months from date of shipment for workmanship and material defect to the original purchaser only. If failure is determined to be workmanship or material defect related we will at our option repair or replace the part.

Corrective Action - A written report will be provided indicating reason(s) for failure, with suggestions for corrective action. Subsequent customer failures due to abuse, misuse, misapplication or repeat offense will not be covered. AMETEK Rotron will then notify you of your options. Any failed unit that is tampered with by attempting repair or diagnosis will void the warranty, unless authorized by the factory.

Terms and Conditions - Our warranty covers repairs or replacement of regenerative blowers only, and will not cover labor for installation, outbound and inbound shipping costs, accessories or other items not considered integral blower parts. Charges may be incurred on products returned for reasons other than failures covered by their appropriate warranty. Out-of-warranty product and in warranty product returned for failures determined to be caused by abuse, misuse, or repeat offense will be subject to an evaluation charge. Maximum liability will in no case exceed the value of the product purchased. Damage resulting from mishandling during shipment is not covered by this warranty. It is the responsibility of the purchaser to file claims with the carrier. Other terms and conditions of sale are stated on the back of the order acknowledgement.

Installation Instructions for SL, DR, EN, CP, and HiE Series Blowers

1. **Bolt It Down** - Any blower must be secured against movement prior to starting or testing to prevent injury or damage. The blower does not vibrate much more than a standard electric motor.

2. **Filtration** - All blowers should be filtered prior to starting. Care must be taken so that no foreign material enters the blower. If foreign material does enter the blower, it could cause internal damage or may exit at extremely high velocity.

   Should excessive amounts of material pass through the blower, it is suggested that the cover(s) and impeller(s) be removed periodically and cleaned to avoid impeller imbalance. Impeller

imbalance greatly speeds bearing wear, thus reducing blower life. Disassembling the blower will void warranty, so contact the factory for cleaning authorization.

3. **Support the Piping** - The blower flanges and nozzles are designed as connection points only and are not designed to be support members.

   Caution: Plastic piping should not be used on blowers larger than 1 HP that are operating near their maximum pressure or suction point. Blower housing and nearby piping temperatures can exceed 200ºF. Access by personnel to the blower or nearby piping should be limited, guarded, or marked, to prevent danger of burns.

4. **Wiring** - Blowers must be wired and protected/fused in accordance with local and national electrical codes. All blowers must be grounded to prevent electrical shock. Slo-Blo or time delay fuses should be used to bypass the first second of start-up amperage.

5. **Pressure/Suction Maximums** - The maximum pressure and/or suction listed on the model label should not be exceeded. This can be monitored by means of a pressure or suction gage (available from Rotron), installed in the piping at the blower outlet or inlet. Also, if problems do arise, the Rotron Field representative will need to know the operating pressure/suction to properly diagnose the problem.

6. **Excess Air** - Bleed excess air off. DO NOT throttle to reduce flow. When bleeding off excess air, the blower draws less power and runs cooler.

   Note: Remote Drive (Motorless) Blowers - Properly designed and installed guards should be used on all belts, pulleys, couplings, etc. Observe maximum remote drive speed allowable. Due to the range of uses, drive guards are the responsibility of the customer or user. Belts should be tensioned using belt gauge.

Maintenance Procedure

When properly piped, filtered, and applied, little or no routine maintenance is required. Keep the filter clean. Also, all standard models in the DR, EN, CP, and HiE series have sealed bearings that require no maintenance. Bearing should be changed after 15,000 to 20,000 hours, on average. Replacement bearing information is specified on the chart below.

Bearing Part Number	Size	Seal Material	Grease	Heat Stabilized
510217 510218 510219	205 206 207	Polyacrylic	Nye Rheotemp 500 30% +/- 5% Fill	Yes – 325 F
510449 516440 516648	203 202 307	Buna N	Exxon Polyrex Grease	NO
516840 516841 516842 516843 516844 516845 516846 516847	206 207 208 210 309 310 311 313	Buna N	Exxon Polyrex Grease	NO

Troubleshooting

		POSSIBLE CAUSE	OUT OF WARRANTY REMEDY ***
IMPELLER DOES NOT TURN	Humming Sound	1. * One phase of power line not connected 2. * One phase of stator winding open 3. Bearings defective 4. Impeller jammed by foreign material 5. Impeller jammed against housing or cover 6. ** Capacitor open	1. Connect 2. Rewind or buy new motor 3. Change bearings 4. Clean and add filter 5. Adjust 6. Change capacitor
	No Sound	1. * Two phases of power line not connected 2. * Two phases of stator winding open	1. Connect 2. Rewind or buy new motor
IMPELLER TURNS	Blown Fuse	1. Insufficient fuse capacity 2. Short circuit	1. Use time delay fuse of proper rating 2. Repair
	Motor Overheated Or Protector Trips	1. High or low voltage 2. * Operating in single phase condition 3. Bearings defective 4. Impeller rubbing against housing or cover 5. Impeller or air passage clogged by foreign material 6. Unit operating beyond performance range 7. Capacitor shorted 8. * One phase of stator winding short circuited	1. Check input voltage 2. Check connections 3. Check bearings 4. Adjust 5. Clean and add filter 6. Reduce system pressure/vacuum 7. Change capacitor 8. Rewind or buy new motor
	Abnormal Sound	1. Impeller rubbing against housing or cover 2. Impeller or air passages clogged by foreign material 3. Bearings defective	1. Adjust 2. Clean and add filter 3. Change bearings
	Performance Below Standard	1. Leak in piping 2. Piping and air passages clogged 3. Impeller rotation reversed 4. Leak in blower 5. Low voltage	1. Tighten 2. Clean 3. Check wiring 4. Tighten cover, flange 5. Check input voltage

*** 3 phase units**

**** 1 phase units**

***** Disassembly and repair of new blowers or motors will void the Rotron warranty. Factory should be contacted prior to any attempt to field repair an in-warranty unit.**

Blower Disassembly:

WARNING: Attempting to repair or diagnose a blower may void Rotron's warranty. It may also be difficult to successfully disassemble and reassemble the unit.

1) Disconnect the power leads. **CAUTION:** Be sure the power is disconnected before doing any work whatsoever on the unit.

2) Remove or separate piping and/or mufflers and filters from the unit.

3) Remove the cover bolts and then the cover. **NOTE:** Some units are equipped with seals. It is mandatory that these seals be replaced once the unit has been opened.

4) Remove the impeller bolt and washers and then remove the impeller. **NOTE:** Never pry on the edges of the impeller. Use a puller as necessary.

5) Carefully note the number and location of the shims. Remove and set them aside. NOTE: If the disassembly was for inspection and cleaning the unit may now be reassembled by reversing the above steps. If motor servicing or replacement and/or impeller replacement is required the same shims may not be used. It will be necessary to re-shim the impeller according to the procedure explained under assembly.

6) Remove the housing bolts and remove the motor assembly (arbor/.housing on remote drive models).

7) Arbor disassembly (Applicable on remote drive models only):
   a) Slide the bearing retraining sleeve off the shaft at the blower end.
   b) Remove the four (4) screws and the bearing retaining plate from the blower end.
   c) Lift the shaft assembly far enough out of the arbor to allow removal of the blower end snap ring.
   d) Remove the shaft assembly from the arbor.
   e) If necessary, remove the shaft dust seal from the pulley end of the arbor.

Muffler Material Replacement:

1) Remove the manifold cover bolts and them manifold cover.

2) The muffler material can now be removed and replaced if necessary. On blowers with fiberglass acoustical wrap the tubular retaining screens with the fiberglass matting before sliding the muffler pads over the screens.

3) Reassemble by reversing the procedure.

NOTE: On DR068 models with tubular mufflers it is necessary to remove the cover and impeller accessing the muffler material from the housing cavity.

Blower Reassembly:

1) Place the assembled motor (assembled arbor assembly for remote drive models) against the rear of the housing and fasten with the bolts and washer.

2) To ensure the impeller is centered within the housing cavity re-shim the impeller according to the procedure outlined below.

3) If blower had a seal replace the seal with a new one.

4) Place the impeller onto the shaft making sure the shaft key is in place and fasten with the bolt, washer and spacer as applicable. Torque the impeller bolt per the table below. Once fastened carefully rotate the impeller to be sure it turns freely.

5) Replace the cover and fasten with bolts.

6) Reconnect the power leads to the motor per the motor nameplate.

Bolt Size	**Torque** **Pound-Force-Foot**
1/4-20	**6.25 +/- 0.25**
5/16-18	**11.5 +/- 0.25**
3/8-16	**20.0 +/- 0.5**
½-13	**49.0 +/- 1**
5/8 –11	**90.0 +/- 2**

Impeller Shimming Procedure:

WARNING: This unit may be difficult to shim. Extreme care may be exercised.

Tools Needed: Machinist's Parallel Bar
Vernier Caliper with depth measuring capability
Feeler gauges or depth gauge

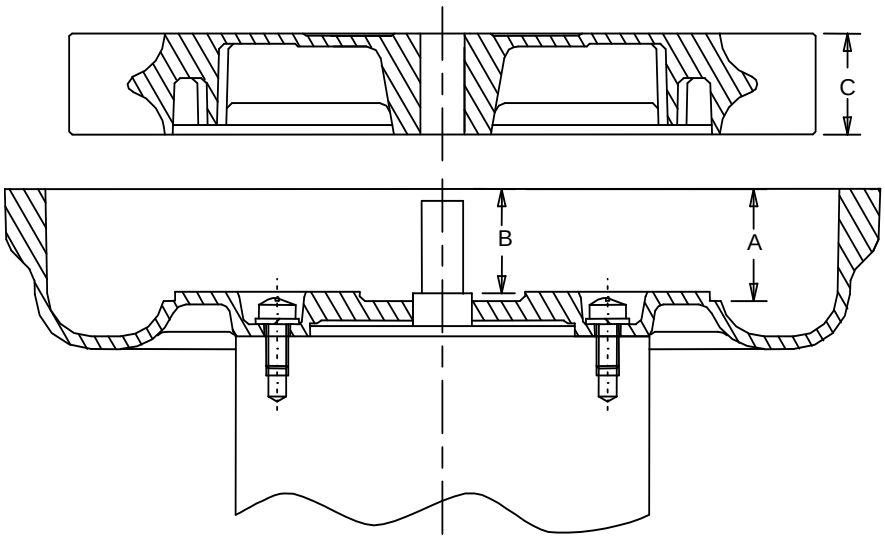
Measure the Following:

Distance from the flange face to the housing (A)
Distance from the flange face to the motor shaft shoulder (B)
Impeller Thickness (C)

Measurements (A) and (B) are made by laying the parallel bar across the housing flange face and measuring to the proper points. Each measurement should be made at three points, and the average of the readings should be used.

Shim Thickness = B – (A+C)/2

After the impeller installation (step #4 above) the impeller/cover clearance can be checked with feeler gauges, laying the parallel bar across the housing flange face. This clearance should nominally be (A-C)/2.



ROTRON TECHNICAL MOTOR DIVISION
REGENERATIVE BLOWER GROUP

75 North Street
Saugerties, New York 12477
Phone: (845) 246-3401
Fax: (845) 246-3802

EXPLOSION-PROOF BLOWERS

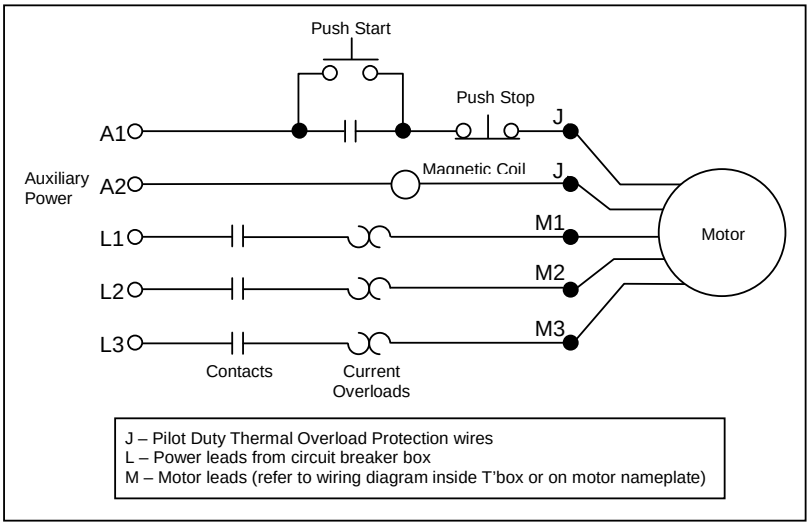
IMPORTANT: Read before wiring this Explosion-proof Blower

This AMETEK Rotron Explosion-proof Regenerative Blower may be equipped with Pilot Duty Thermal Overload (PDTO) or Automatic Thermal Overload (ATO) protection. When properly wired to a motor starter, this protection limits the motor winding temperature rise per the National Electric Code (NEC) article 500. Failure to properly wire this blower is an NEC violation and could cause an explosion. AMETEK Rotron assumes no responsibilities for damages incurred by negligent use of this product, and will not warranty a blower on which the PDTO is not properly connected. Some blowers 1 HP and under do not require PDTO and have built in ATO. Consult the factory if verification of wiring connections is required.

In all cases, follow the motor controller manufacturer's instructions. The following schematic is for conceptual understanding only, and may not apply to all motor/controller combinations.

The manufacturer's wiring diagram found on the motor takes precedent over reference diagrams supplied by AMETEK Rotron Technical Motor Division.

Schematic



The schematic is shown for a three phase motor. For a single phase motor disregard L3 and M3. Pushing the START button completes the auxiliary control circuit, allowing current to flow through the magnetic coil. The contacts are magnetically closed, starting the motor and latching the auxiliary circuit. The motor will continue to run until the STOP push button is depressed, the motor reaches the overload temperature, or the current sensing overloads trip out.

If you have any questions, contact AMETEK Rotron at 914-246-3401 for the location of your area representative.

POLICY REGARDING INSTALLATION OF AMETEK ROTRON REGENERATIVE BLOWERS IN HAZARDOUS LOCATIONS

AMETEK Rotron will not knowingly specify, design or build any regenerative blower for installation in a hazardous, explosive location without the proper NEMA motor enclosure. AMETEK Rotron does not recognize sealed blowers as a substitute for explosion-proof motors. Sealed units with standard TEFC motors should never be utilized where local, state, and/or federal codes specify the use of explosion-proof equipment.

AMETEK Rotron has a complete line of regenerative blowers with explosion-proof motors. Division 1 & 2, Class I, Group D; Class II, Groups F & G requirements are met with these standard explosion-proof blowers.

AMETEK Rotron will not knowingly specify, design or build any regenerative blower for installation in a hazardous, corrosive environment without the proper surface treatment and sealing options.

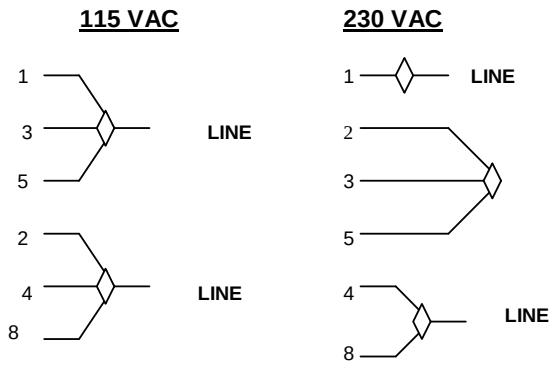
AMETEK Rotron has a complete line of Chemical Processing and Nasty Gas™ regenerative blowers with Chem-Tough™, stainless steel parts, and seals.

AMETEK Rotron offers general application guidance; however, suitability of the particular blower selection is ultimately the responsibility of the purchaser, not the manufacturer of the blower.

FS2 Rev. B 3/10/98

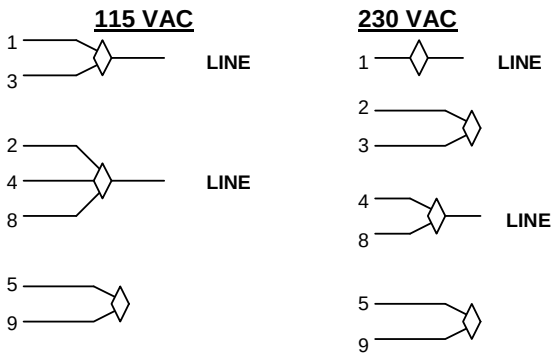
WIRING DIAGRAMS, XP MOTORS

H. 1Ø, 6 WIRE



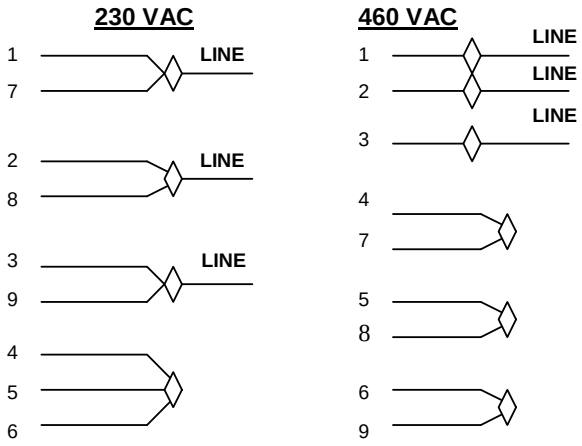
INTERCHANGE LEADWIRES 5 & 8 to REVERSE ROTATION

I. 1Ø, 7 WIRE



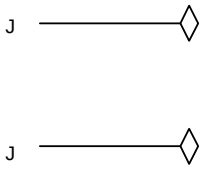
INTERCHANGE LEADWIRES 5 & 8 to REVERSE ROTATION

K. 3Ø, 9 WIRE



INTERCHANGE ANY TWO LEAD LINES TO REVERSE ROTATION

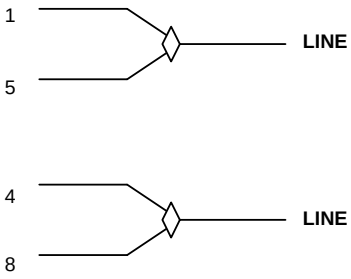
L. PILOT DUTY THERMAL OVERLOADS



HOOK J LEADS TO CONTROL CIRCUITRY

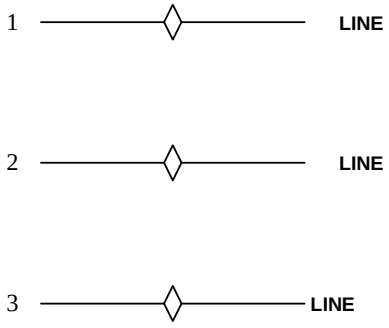
M. 1Ø 230 VAC

SINGLE VOLTAGE



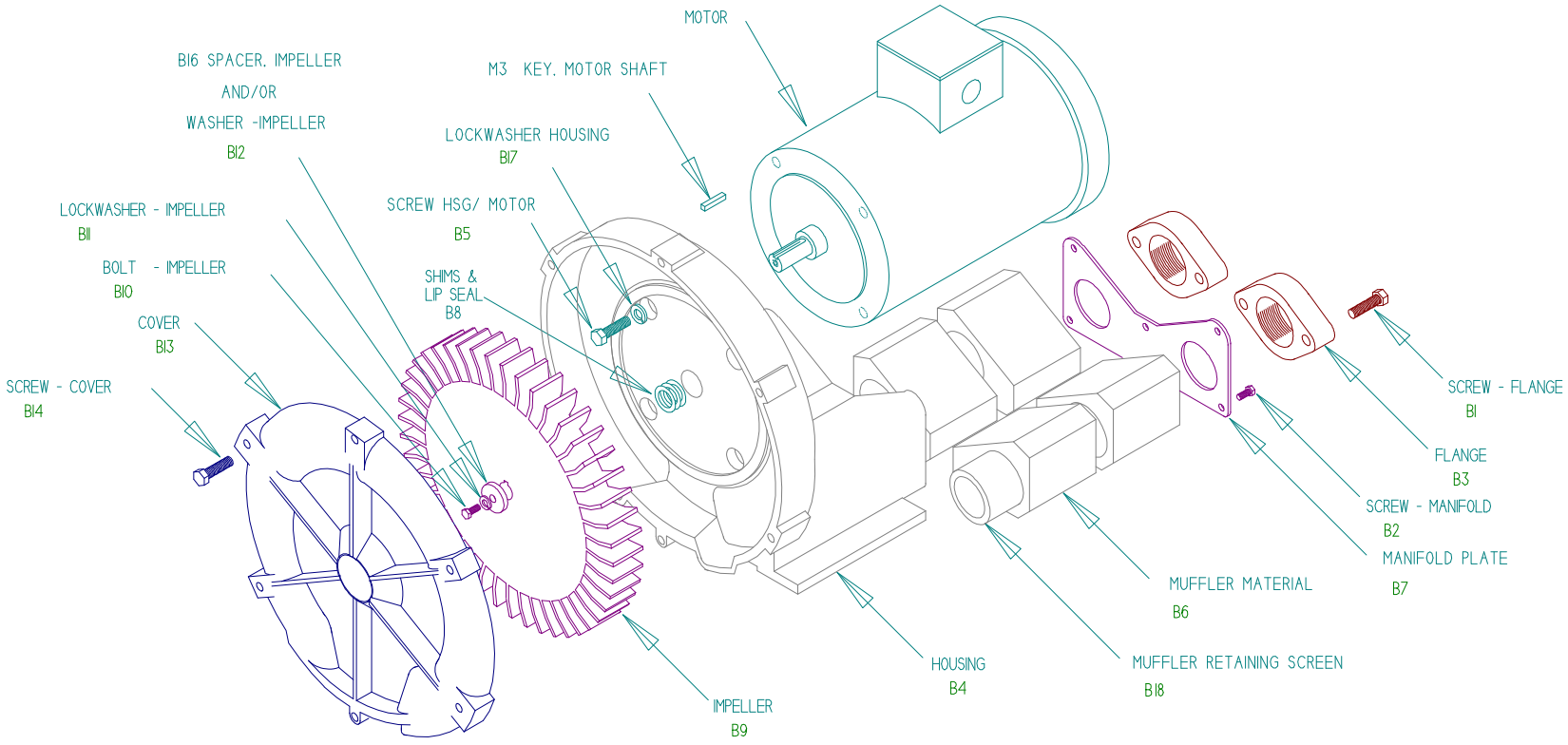
INTERCHANGE LEADWIRES 5 & 8 TO REVERSE ROTATION

N. 3Ø 575 VAC



INTERCHAGE ANY TWO LEAD LINES TO REVERSE ROTATION

ASSEMBLY DIAGRAM
EN707 – EN808 THREE PHASE



EN 707/808 3 Phase
Service and Parts Manual

Parts Breakdown

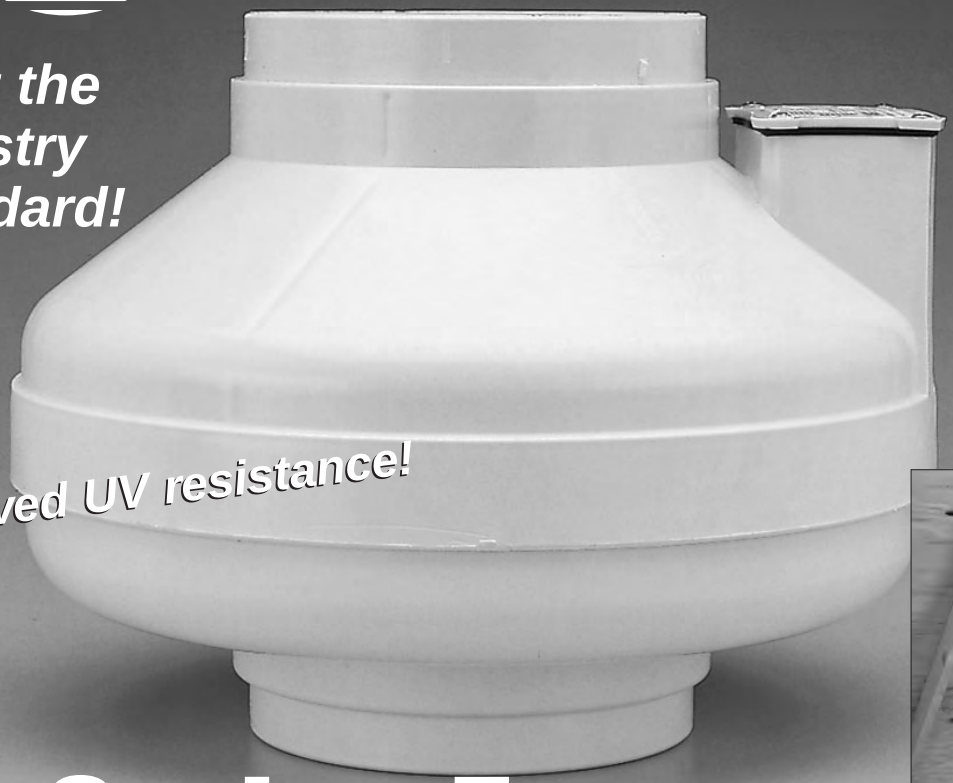
	Model:	**EN707**	**EN808**	**EN707F_MXL**	**EN757**	**EN757**	**EN808BA_MXL**	**EN808BA__MXL**
	Part No.:	***038181***	***038182***	**038710**	**081176**	**081174**	***038729***	**081229**
		038439	***038440***	**038711**	**081177**		***038731***	**081230**
		OBSOLETE	***OBSOLETE***				***OBSOLETE***	
Item No.	**Qty. Req'd**	**Description**						
M3	1	Key Motor Shaft	510212	511532	510212	510629	510212	511532	511532
B1	4	Screw, Flange	155095	155025	155067	155067	155067	155067	155067
B2		Screw, Manifold	(13 pcs) 120214	120214	Not Used	Not Used	Not Used	Not Used	Not Used
B3	2	Flange	511480	511614	511614	511614	511614	511614	511614
		Screen, Flange Guard	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
B4	1	Housing	516752	516758	516752	552021	552037	550081	516764
B5	4	Screw, Hsg /Motor	251792	140014	251792	251791	251792	140014	155034
B6	36	Muffler Material (Gray)	(40 pcs) 515493	515405	(7) 551720 (7 pcs) 552044		(7 pcs) 552044	551736	(7 pcs) 551736
	1	Muffler Material (White)	Not Used	Not Used	551721 (2 pcs) 552045		(2 pcs) 552045	(2) 551737	(2 pcs) 551737
B7		Manifold Plate	551264	523432	Not Used	Not Used	Not Used	Not Used	Not Used
B8	*	Shim .002"	272703	511547	272703	510356	272703	511547	511547
	*	Shim .005"	272704	511548	272704	510357	272704	511548	511548
	*	Shim .010"	272705	511549	272705	510358	272705	511549	511549
	*	Shim .020"	272706	511550	272706	510359	272706	511550	511550
	*	Shim .030"	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
B9	1	Impeller	515461	516452	515461	552035	552036	550071	552062
B10	1	Bolt, Impeller	251791	155068	251791	120215	120007	155068	120210
B11	1	Lockwasher, Impeller	251787	251788	251787	120203	251787	251788	251788
B12		Washer, Impeller	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	511529
B13	1	Cover	515462	516447	515462	552023	552023	516447	552061
B14	7	Screw, Cover	(7 pcs) 120215	140016	155236 (9 pcs) 155236		(9 pcs) 155236	(8 pcs) 140016	(8 pcs) 140016
B15		Eye Bolt	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
B16	1	Spacer, Impeller Bolt	478336	511529	478336	510355	478336	511529	515555
B17		Lockwasher, Housing	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
B18	1	Screen, Muffler Retaining, Right (**)	515492	515408	551723	552046	552046	551723	551723
	1	Screen, Muffler Retaining, Left (**)	515491	515407	551723	552046	552046	551723	551723
B19	6	Bolt, Muffler Hsg/Hsg	120251	155025	120251	120007	120007	155025	155025
B19A	4	Bolt, Muffler Hsg/Hsg	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
B20	1	Muffler Housing	515480	515370	550023	552017	552017	550017	550017
		Muffler Discrete	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
	2	Bolt, Motor/Muffler	Not Used	120325	Not Used	Not Used	Not Used	Not Used	Not Used
	2	Lockwasher, Motor/Muffler	Not Used	120203	Not Used	Not Used	Not Used	Not Used	Not Used
	2	Washer, Motor/Muffler	Not Used	155029	Not Used	Not Used	Not Used	Not Used	Not Used
B25		Nut, Rail	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
B26		Rail Mounting	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
	1	Lip Seal	516691	516693	516691	516587	516691	516693	516693

*As needed **Viewed looking at inlet/outlet ports

Model	Part No.	Motor	Wiring Diagram	Specific Parts	Bearing, Rear (M1)	Bearing, Impeller End (M2)
EN707F72MXL	038710	515552	K + L		510217	510218
EN707F86MXL	038711	529633	N + L			
EN757M72XL	081176	516687	K + L		510449	510217
EN757M86XL	081177	529630	N + L			
EN757F72XL	081174	515552	K + L		510217	510218
EN808BA86MXL	081230	529626	N + L		516840	516844
EN808BA72MXL	081229	515558	K + L			
Discontinued						
EN707F72XL	038181	515552	K + L		510217	510218
EN707F86XL	038439	529633	N + L			
EN808BA72XL	038182	515558	K + L		510840	516844
EN808BA86XL	038440	529626	N + L		Call Factory	Call Factory
EN808BA86MXL	038731	529626	N + L		516840	516844
EN808BA72MXL	038729	515558	K + L			

Fantech

Trust the Industry Standard!



Improved UV resistance!

HP Series Fans
for Radon Applications

Why put your reputation at stake by installing a fan you know won't perform like a Fantech? For nearly fourteen years, Fantech has manufactured quality ventilation equipment for Radon applications. Fantech is the fan Radon contractors have turned to in over 1,000,000 successful Radon installations worldwide.

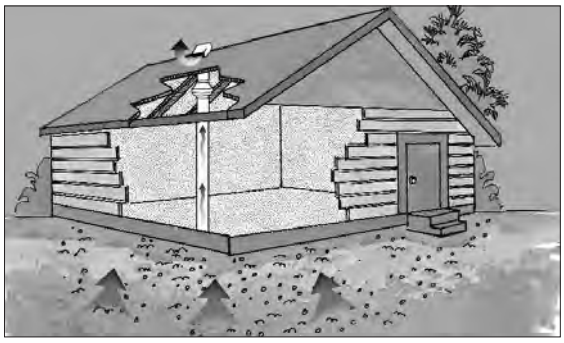
Fantech HP Series Fans Provide the Solutions to meet the challenges of Radon applications:

HOUSING
- UV resistant, UL listed durable plastic
- UL Listed for use in commercial applications
- Factory sealed to prevent leakage
- Watertight electrical terminal box
- Approved for mounting in wet locations - i.e. Outdoors

MOTOR
- Totally enclosed for protection
- High efficiency EBM motorized impeller
- Automatic reset thermal overload protection
- Average life expectancy of 7-10 years under continuous load conditions

RELIABILITY
- Five Year Full Factory Warranty
- Over 1,000,000 successful radon installations worldwide

HP Series Fans are specially designed with higher pressure capabilities for Radon Mitigation applications



Fantech has developed the HP Series fans specifically to suit the higher pressure capability requirements needed in Radon Mitigation applications. Most Radon Mitigators who previously used the Fantech FR Series fans have switched to the new HP Series.

Performance Data

Fan Model	Volts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.								Max. Ps
				0"	0.5"	0.75"	1.0"	1.25"	1.5"	1.75"	2.0"	
HP2133	115	14 - 20	0.17	134	68	19	-	-	-	-	-	0.84
HP2190	115	60 - 85	0.78	163	126	104	81	58	35	15	-	1.93
HP175	115	44 - 65	0.57	151	112	91	70	40	12	-	-	1.66
HP190	115	60 - 85	0.78	157	123	106	89	67	45	18	1	2.01
HP220	115	85 - 152	1.30	344	260	226	193	166	137	102	58	2.46

MEMBER HVI HOME VENTILATING INSTITUTE DIVISION OF amca

Performance Curves

Fantech provides you with independently tested performance specifications.

The performance curves shown in this brochure are representative of the actual test results recorded at Texas Engineering Experiment Station/Energy Systems Lab, a recognized testing authority for HVI. Testing was done in accordance with AMCA Standard 210-85 and HVI 915 Test Procedures. Performance graphs show air flow vs. static pressure.

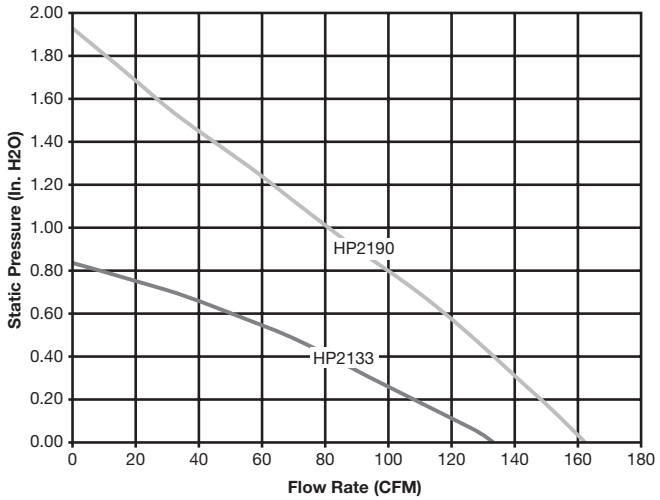
Use of HP Series fans in low resistance applications such as bathroom venting will result in elevated sound levels. We suggest FR Series or other Fantech fans for such applications.

HP FEATURES INCLUDE

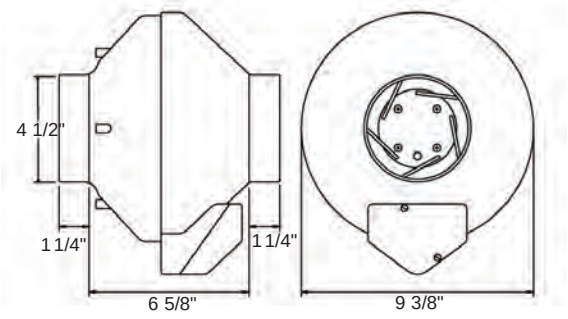
- Improved UV resistant housings approved for commercial applications.
- UL Approved for Wet Locations (Outdoors)
- Sealed housings and wiring boxes to prevent Radon leakage or water penetration
- Energy efficient permanent split capacitor motors
- External wiring box
- Full Five Year Factory Warranty

c UL us

HP2133 and 2190 Radon Mitigation Fans



Tested with 4" ID duct and standard couplings.

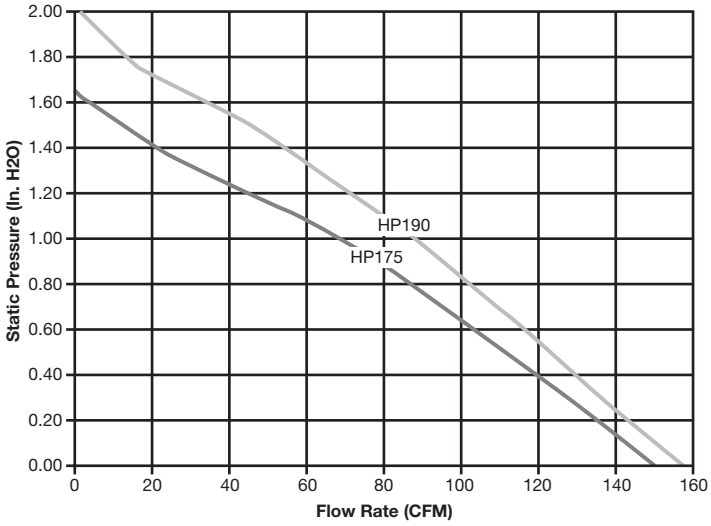


HP2133 – For applications where lower pressure and flow are needed. Record low power consumption of 14-20 watts! Often used where there is good sub slab communication and lower Radon levels.

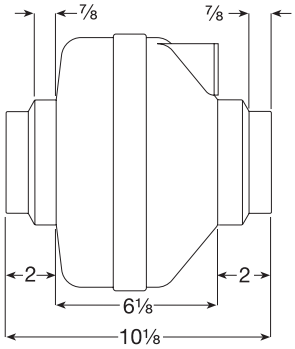
HP2190 – Performance like the HP190 but in a smaller housing. Performance suitable for the majority of installations.

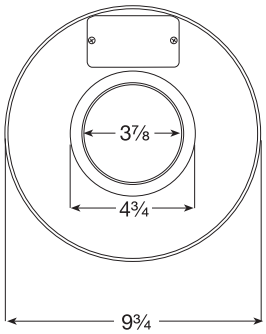
Fans are attached to PVC pipe using flexible couplings.
For 4" PVC pipe use Indiana Seals #156-44, Pipeconx PCX 56-44 or equivalent.
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP175 and HP190 Radon Mitigation Fans



Tested with 4" ID duct and standard couplings.





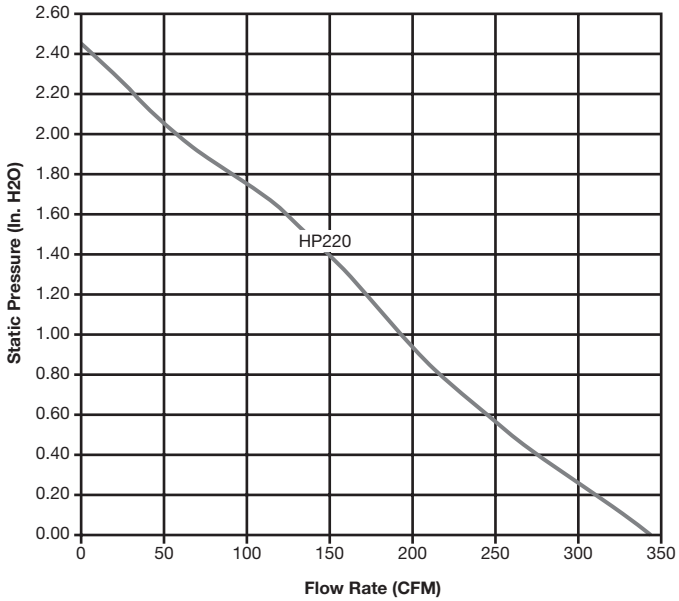
HP175 – The economical choice where slightly less air flow is needed. Often used where there is good sub slab communication and lower Radon levels.

HP190 – ***The standard for Radon Mitigation.*** Ideally tailored performance curve for a vast majority of your mitigations.

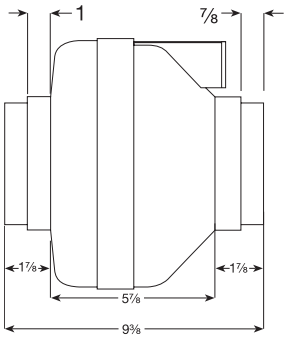
Fans are attached to PVC pipe using flexible couplings.
For 4" PVC pipe use Indiana Seals #151-44, Pipeconx PCX 51-44 or equivalent.

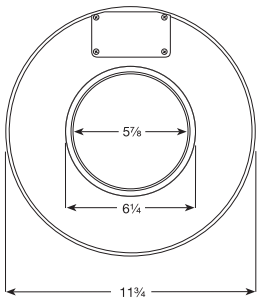
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP220 Radon Mitigation Fan



Tested with 6" ID duct and standard couplings.



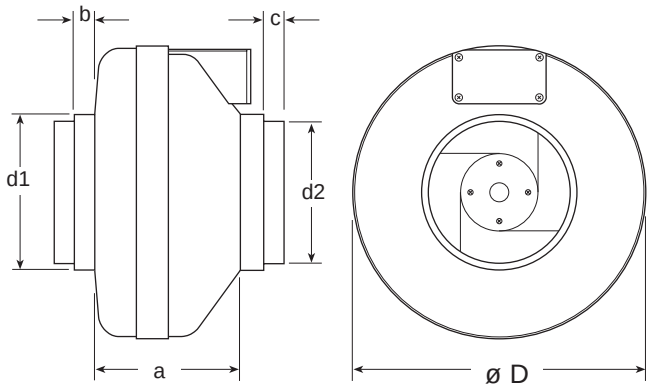


HP 220 – Excellent choice for systems with elevated radon levels, poor communication, multiple suction points and large subslab footprint. Replaces FR 175.

Fans are attached to PVC pipe using flexible couplings.
For 4" PVC pipe use Indiana Seals #156-64, Pipeconx PCX 56-64 or equivalent.

For 3" PVC pipe use Indiana Seals #156-63, Pipeconx PCX 56-63 or equivalent.

The Original Mitigator – Fantech's FR Series Fans



Dimensional Data

model	øD	d1	d2	a	b	c
FR100	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR110	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR125	9 1/2	–	4 7/8	6 1/8	7/8	–
FR140	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR150	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR160	11 3/4	5 7/8	6 1/4	6 3/8	1	7/8
FR200	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR225	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR250	13 1/4	–	9 7/8	6 1/4	–	1 1/2

All dimensions in inches

Performance Data

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.							Max. Ps	Duct Dia.
							0"	.2"	.4"	.6"	.8"	1.0"	1.5"		
FR100	✓	2900	115	19	13 – 19	0.18	122	100	78	55	15	-	-	0.87"	4"
FR110	-	2900	115	80	62 – 80	0.72	167	150	133	113	88	63	41	0.60"	4"
FR125	✓	2950	115	18	15 – 18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR140	✓	2850	115	61	47 – 62	0.53	214	190	162	132	99	46	-	0.15"	6"
FR150	✓	2750	120	71	54 – 72	0.67	263	230	198	167	136	106	17	1.58"	6"
FR160	-	2750	115	129	103 –130	1.14	289	260	233	206	179	154	89	2.32"	6"
FR200	✓	2750	115	122	106 –128	1.11	408	360	308	259	213	173	72	2.14"	8"
FR225	✓	3100	115	137	111 –152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250	-	2850	115	241	146 –248	2.40	649	600	553	506	454	403	294	2.58"	10"

FR Series performance is shown with ducted outlet. Per HVI's Certified Ratings Program,
charted air flow performance has been derated by a factor based on actual test results and the certified rate at .2 inches WG.

Five (5) Year Warranty

THIS WARRANTY SUPERSEDES ALL PRIOR WARRANTIES

FOR FACTORY RETURN YOU MUST:

1) Have a Return Materials Authorization (RMA) number. This number may be obtained by calling FANTECH, INC. at 1-800-747-1762. Please have Bill of Sale available.
2) The RMA number must be clearly displayed on the outside of the carton, or delivery will be refused.
3) All product being returned must be shipped prepaid and be accompanied with a copy of the Bill of Sale.
4) Product will be replaced/repaired and shipped back to buyer. No credits will be issued.

DURING THE FIRST THIRTY (30) DAYS:
FANTECH, INC. will replace any product which has a factory defect in workmanship or material. Product may be returned to either the point of purchase or the FANTECH factory, together with Bill of Sale, for an immediate replacement.

DURING THE FIRST THREE (3) YEARS: (excluding the above 30 day period)
FANTECH, Inc. will replace any product which has a factory defect in workmanship or material. Product must be returned to the FANTECH factory, together with Bill of Sale, and identified with an RMA number.

DURING YEARS FOUR (4) and FIVE (5):
FANTECH, INC. will repair or replace any product which has a factory defect in workmanship or material. Product must be returned to the Fantech FACTORY, together with a Bill of Sale, and identified with an RMA number.

THE FOLLOWING WARRANTIES DO NOT APPLY:
Damages from shipping, either concealed or visible. Claim must be filed with the carrier.
Damages resulting from improper wiring or installation.
Damages caused by acts of nature, or resulting from improper consumer procedures such as:

Improper Maintenance,
Misuse, abuse, abnormal use, or accident, or
Incorrect electrical voltage or current.

Removal or alterations made on the FANTECH label control number or date of manufacture.
Any other warranty, expressed, written or implied, and to any consequential or incidental damages, loss of property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION:
The end user must keep a copy of the Bill of Sale to verify purchase date.

Fantech

1712 Northgate Blvd.
Sarasota, Florida 34234
Phone: 800-747-1762
Fax: 800-487-9915
Phone: 941-309-6000
Fax: 941-309-6099
www.fantech.net
e-mail: info@fantech.net

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